

**Elements of midwifry. Containing the most modern and successful method of practice in every different kind of labour. With a short history of the art of midwifry, and an answer to a casuistical letter, on the conduct of Adam and Eve, at the birth of their first child / Translated, with additions and explanatory notes, by S. Ryley.**

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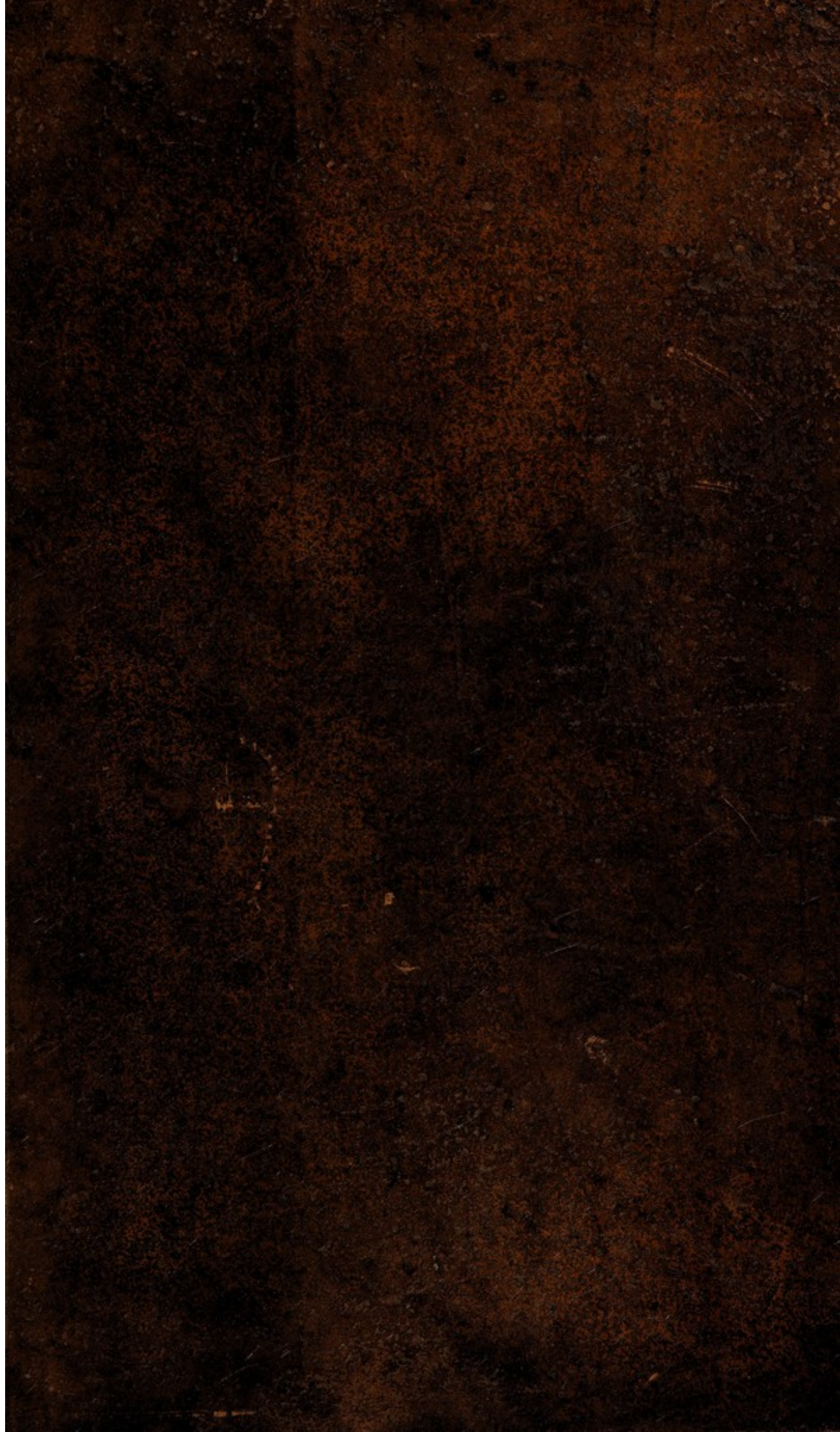
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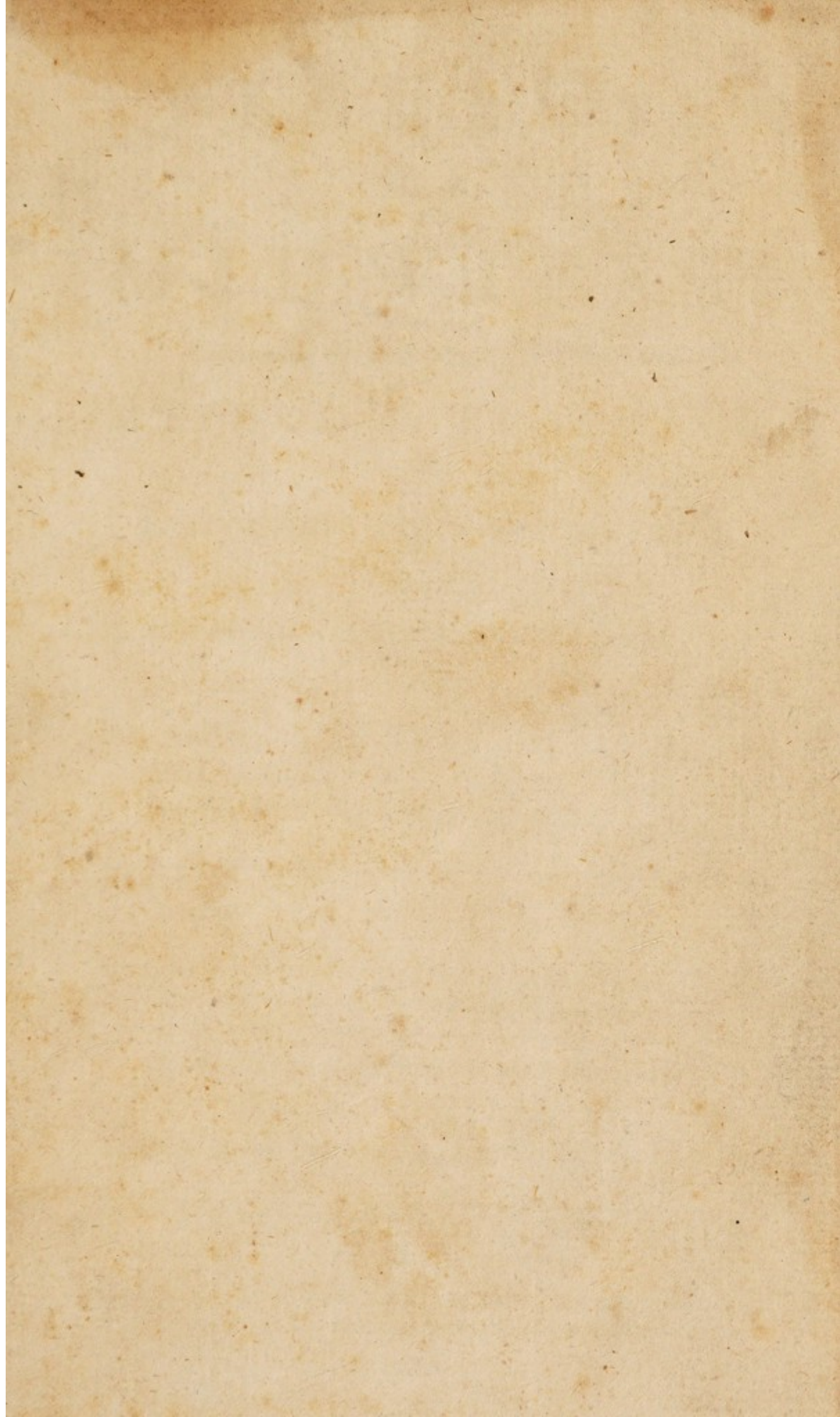
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ELEMENTS

MIDWINTER.

Containing the most Modern and Successful

METHOD OF PRACTICE

Every different Kind of Labour.

W. & S.

A most History of the Art of MIDWINTER.

W. & S.

An Answer to a CASUALTY Letter, on  
the Conduct of A. D. & E. & F. & G.  
the State of their first Case.

By J. A. & R. U. C.

London Royal of the Art of the University of Paris  
and Physician to the King of France.

Translated with Annotations and explanatory Notes.

By S. R. & L. E. Y.

Member of the Corporation of Surgeons in London.

L O N D O N

Printed by J. G. & W. B. & C. at the Printing Office, and  
J. G. & W. B. & C. at the King's Arms, in the Strand.

MICHAEL



E L E M E N T S  
O F  
M I D W I F R Y.

Containing the most Modern and Successful  
M E T H O D O F P R A C T I C E  
I N  
Every different K I N D of L A B O U R.

W I T H  
A short H I S T O R Y of the A R T of M I D W I F R Y,  
A N D  
An Answer to a C A S U I S T I C A L L E T T E R, on  
the Conduct of A D A M and E V E, at  
the Birth of their first C H I L D.

---

By J. A S T R U C,  
Professor Royal of P H Y S I C, in the University of P A R I S,  
and Physician to the King of F R A N C E.

---

Translated, with A D D I T I O N S and explanatory N O T E S,  
By S. R Y L E Y,  
Member of the Corporation of S U R G E O N S in L O N D O N.

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L O N D O N:  
Printed for S. C R O W D E R, at the Looking-glass; and  
J. C O O T E, at the King's-Arms, in Pater-noster-Row.  
M D C C L X V I.



E L E M E N T S

P R E F A C E

I WAS appointed by the royal faculty of  
physicians at Paris in 1745, to give a  
course of lectures on the art of midwifery  
which was intended to be established in the  
schools of physic, for the use of women who  
practise midwifery, and still assist. I con-  
sidered without difficulty, though I had only  
a general knowledge of this subject, that as  
every physician who likes his profession ought  
to have of every branch of medicine, even  
those which he does not practise, I put me-  
dical lectures was not a necessary consequence  
of my appointment. I printed by the society, and read  
over all the treatises on the art of Midwifery  
which have been published in thirty years  
either in Latin or French. The most useful  
I found in almost all, weighty, useful, im-  
portant, and quite worthy matter, but these  
treatises were written without order or me-  
thod, full of whole circumstances, repeti-  
tions, vague or ill-timed observations, in  
which the authors sought to avoid themselves  
of an ill-placed (and mistaken) learning, or  
first of all, in questions in physic, which  
they did not understand, and which certainly  
depre-





# P R E F A C E.

I WAS appointed by the royal faculty of physicians at Paris, in 1745, to give a course of lectures on the art of midwifry, which was intended to be established in the schools of physic, for the use of women who practis'd midwifry, and still subsists. I consented without difficulty, though I had only a general knowledge of this subject, such as every physician who likes his profession ought to have of every branch of medicine, even those which he does not practise; but as this course of lectures was not to commence within six months, I profited by this delay, and read over all the treatises on the Art of Midwifry, which have been published these thirty years, either in Latin or French.

I found in almost all, weighty, useful, important, and praise-worthy matter; but these treatises were written without order or method, full of useless circumstances, repetitions, vague or ill-turned observations, in which the authors sought to avail themselves of an ill-placed and mistaken learning, or dwelt on difficult questions in physic, which they did not understand, and which certainly



depreciated the rest of their work. In this manner the greatest part of these voluminous works are composed, in which what is useful and conformable to truth, is buried in a heap of frivolous or foreign matter: nevertheless, some are to be excepted, but a very few, which are composed with order and precision, in which nothing but what is useful is met with, and the author appears much superior to his subject.

I brooked all these disgusts, I read these works attentively, collected every thing which I thought useful from them, compared their different methods of practice, and chose that which appeared to me the best and most authorized: And after this manner made a compilation, which served, to make use of the expression, as the ground-work of my public lectures, which were well received.

I was appointed to the same employment the two following years, and thereby I improved what I had before collected. New lectures, new extracts, new reflections, which rendered my first compilation more extensive, and in my opinion much better.

I had forgot them, and did not think of putting them to any use, till it was represented



ed to me, that instructions were to be met with for midwives in Paris, and perhaps in great cities ; but there certainly were none to be had in small cities, and especially in the country ; that there was not even any work adapted to their capacity, whence they might learn at least the principles of their profession ; that they had only an old method of practice, which was transmitted from hand to hand ; and that it was a sad thing to see the young midwives obliged to purchase, by the most servile compliances, what the old ones were willing, or capable of communicating, which was frequently nothing at all, and always very little at most.

They endeavoured to persuade me, that the lectures which I had given in the school of physic to the midwives of Paris, would be a very useful work for country midwives, if I would give myself the trouble to put them in order ; but I could not resolve to do it. The publication of my treatise on *the Disorders of Women*, determined me thereto. I imagined this work would be incomplete, if I did not add a treatise on child-birth, which is one of the most common disorders incident to women. I therefore examined my old collection, and after having corrected it, and made



the necessary alterations and additions, composed therefrom the present work.

In doing this I determined to observe three things, which I think essential in every *didactic* work, that is to say, wrote to instruct.

First, to follow an exact method, a regular order of putting every thing in its proper place, to begin by the easiest, and then pass to those which are more difficult, to leave nothing behind which has not been sufficiently explained. By this means the reader passes without stopping, from a difficult chapter to one still more difficult, and comes to understand without difficulty the most obscure points of the subject which he studies. *Ordinis hæc virtus erit,*

Secondly, to conform myself to the advice of Horace, who says, *whatever you direct, be brief.* With this view I have retrenched all digressions, useless circumstances and reflections, and have confined myself to what was essential only to the practice I have given an account of. By this means the attention not being taken off, entirely busies itself with the object before it, and comprehends it the better.

Thirdly,



Thirdly, to be clear, this quality is absolutely necessary in a *didactic* work, designed for women, who are not very capable of comprehending a difficult and obscure way of reasoning. On this account I have taken care to make use of a simple stile, to employ short and uninverted periods only, and take every word in its natural signification, without any metaphor.

If I have succeeded by this plan, in giving a treatise on *the Elements of Midwifry, suited to the capacity of Midwives*, and which may serve for their instruction; I shall be better pleased with having made a useful compilation, than if I had published a work full of ingenious and new, but merely curious researches.

I have scrupulously adhered to the plan I proposed, and if I have deviated therefrom, it is only in the short *History of the Art of Midwifry, and in the chapter on the Cesarean Operation*, which may, perhaps, be thought too much loaded with quotations. But I could not dispense therewith; there was no medium. I must either omit these two subjects, which I was of opinion I neither could nor ought to do, or I must treat them as I have done. Midwives may profit by what they understand,



and neglect the rest which they do not, and which was not wrote for them.

I shall perhaps be blamed for not having treated more particularly the different kinds of difficult labour which proceed from the bad conformation of the bones of the pelvis, amongst which the child's head is, as it were, locked in; but I have an excuse ready.

This bad conformation of the parts, which occasions difficult labours, is generally the consequence of the parent's debauchery; it is seldom met with in small cities, and is unknown in the country; and it is for the use of country midwives that this treatise is wrote.

Besides, in these cases dexterity alone is not sufficient; particular instruments must be used, which midwives have not, and which the greatest part of them are unacquainted with the use of. But if any of them are desirous of being better instructed in these kind of labours, and the proper instruments, I would recommend to their perusal *the Observations on the Causes and Accidents of most difficult Labours*, printed in 1747, and the sequel of these Observations, printed in 1751, which I am sure they cannot read without great improvement, if they can but understand them.

Lastly,



Lastly, I advise midwives to give less strong caudle to women in labour, when labour is difficult and tedious. I know very well, that this custom takes its origin from our country; the works of our antient authors are full of them; that it is by tradition midwives transmit them to one another, and that they form a great part of the knowledge of most of them. But these strong caudles heat very much, frequently occasion a fever, and cannot change the bad posture of the child.

In this case, which is frequent, the midwife should know how to turn the child, and deliver it by the feet; the operation is not difficult, especially when performed early, while the womb still remains moist, lax, and preserves its lubricity; and if midwives are incapable of doing this, they should not continue to follow their profession.



I might have said, I advise midwives to give this strong  
 caution to women in labour, when labour is  
 difficult and tedious. I know very well, that  
 the caution is not in itself, but in the manner of  
 the works of our ancient authors are full of  
 them; that it is by tradition midwives trans-  
 mit them to one another, and that they form  
 a great part of the education of most of them.  
 But these strong cautions are not very much, fre-  
 quently occasion a fever, and cannot change  
 the bad posture of the child.

Of the words and in different situations.  
 In this case, the mid-  
 wife should know how to turn the child, and  
 of the situation of the  
 child, and of the situation of the  
 uterus, and of the situation of the  
 while the woman is in labour, and  
 the uterus is in labour, and it is in labour,  
 in labour, doing this, they should not con-  
 sider to follow the tradition.

Of the change which happens in the situation of the child,  
 and the state of the uterus at the approach of labour.

## CHAPTER VI.

Of the disposition requisite for delivery.

## BOOK II.

Of natural labour, and of the child present for

## CHAPTER I.

Of the first kind of natural labour, in which the child  
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## CHAPTER II.



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A  
SHORT HISTORY  
OF THE  
ART of MIDWIFRY.

THE History of the Art of Midwifry cannot be otherwise than short, being reduced to some facts scattered amongst several authors, whom we must search to find them; but, however concise it may appear, it nevertheless informs us, first, By what persons this art was exercised. 2dly, By what progress it received its improvement. 3dly, What were the particular treatises composed on this subject, which have in some manner detached the art of midwifry from Surgery. These are the points which I propose to treat of in the following articles.

ARTICLE I.

*By what persons the art of midwifry was first exercised.*

THE art of midwifry is almost as ancient as the world. When Eve, driven from terrestrial



restrial Paradise, brought forth children, she had need of assistance, and could have no other than Adam; but when their posterity multiplied, women gave each other mutual assistance in this case; until some of them, having greater relish or greater talents for this employment, applied themselves more particularly thereto, and became true midwives, such as they were at that time.

The first midwife, of whom mention is made under that name, assisted at the second labour of *Rachel*, the wife of Jacob (*a*). This midwife, to encourage her, assured her that she would have a boy; but Rachel expired in labour. Another midwife is spoken of in Genesis, on account of (*b*) the lying-in of *Thamar*, who was delivered of twins. But the most honourable mention of midwives is that in Exodus (*c*), when Pharaoh king of Egypt, who had a mind to destroy the Hebrews, commanded two midwives, named in scripture *Sipbra* and *Phuba*, to destroy all the male children of the Hebrew women, which command they disobeyed, and thereby deserved a recompence from God. They were women also who assisted the wife of Phineas, high-priest of the Jews (*d*), in an unhappy labour, occasioned

(*a*) Genesis, chap. xxxv. 16 and following verses.

(*b*) Gen. chap. xxxviii. 27 and following verses.

(*c*) Exodus, chap. i. 15 and following verses.

(*d*) 1 Kings, chap. iv. 19 and following verses.



occasioned by the news of the taking of the ark, and the death of her husband and father-in-law. In all these places midwives are called *mejalledeth*.

Among the Greeks women also assisted at labours. *Phanarete*, the mother of *Socrates*, was a midwife. Plato speaks at large of midwives, explains their functions, regulates their duty, and remarks, that they had at Athens the right of proposing or making marriages (*a*). Hippocrates (*b*) makes mention of midwives as well as Aristotle (*c*), Galen (*d*), and Aetius (*e*). This last even often quotes a woman named *Aspasia*, who was, according to appearances, a midwife.

Lastly, *Moschion*, a Greek author, indeed not very ancient in my opinion, frequently mentions them; they were called among the Greeks *Μαῖαι*, or *ἰατρομαῖαι*, that is to say, Mamma, or Grand-mamma.

We are still better acquainted with the customs of the Romans, and know that they had midwives only. The comedies of *Plautus* and *Terence* alone furnish a proof thereof. We there see that they are always women who are called to assist persons in labour. Besides,

a 2

Pliny

(*a*) In *Theæteto*. (*b*) In his *Diseases of Women*, b. I. p. 76. and 93. according to the edition of Linden.

(*c*) *Hist. Animals*, b. 7. c. 10. (*d*) In his *Comment.* 5. Aphorism, 51. and 62. on the natural faculties, b. 3. c. 3.

(*e*) *Tetrabibl.* 4. sec. 4. c. 22.



Pliny speaks often, in his Natural History, of midwives and their duties, and names two, *Sotira* (a) and *Salpe*, who apparently had the greatest reputation,

Lastly, we find in *Gruter* (b), *Reinesius*, and *Gaspar Bartboline* (c), many sepulchral inscriptions, in which mention is made of midwives, who are there named, and whose Latin name is always spelt with a *p*, *opstetrix*; which seems to prove, that this word is derived from *ops*, *opis*, *Anglicè* help, and *sto* for *præsto*, *Anglicè*, to afford, and signifies *a woman who assists*.

The same custom prevailed in the fall of the empire. *Marcellinus* asserts, that *Eusebia*, wife of the emperor *Constantius*, son of *Constantine* the Great, jealous of the fruitfulness of *Helen* her husband's sister, wife of *Julian*, named the Apostate, prevailed on the midwife, who was to deliver her in Gaul, where her husband commanded, to kill the child of which she was delivered, by cutting its navel, that is, the navel-string, too short.

We may refer to this time, though much less ancient, a physician, whose works divided into three books, have been published under different names; though I think his right name was *Theodosius Priscian*. This physician appears to have lived about the eighth century from

(a) B. 28. c. 7. b. 37. c. 10. (b) 35 Letter to Rupert.

(c) In his Exposition of the Old Customs in Childbirth, p. 37 and 38.



from Christ. He addresses the third book of his works, intitled *Gynæcea*, to *Salvina*, according to the Edition of *Basil*, or to *Victoria* according to the *Strasburgh* Edition. But this comes to the same point with respect to the subject we treat of ; for it appears by the words of *Priscian*, that the person was a midwife to whom this book was addressed. Lastly, a woman named *Trotula*, who appears to have lived in the thirteenth century, and who I think was a midwife, (as seems proved by the work itself) composed a treatise, which is to be looked upon as the first particular treatise on midwifry.

It is certain that since that time, all known and civilized nations have admitted women only to assist women in labour. We have concluded this, with respect to the Jews, Greeks, and Romans, from the female names which were given these persons, and denote their sex ; we may conclude the same, and for the same reason, of the European nations.

The persons who assist women in labour, facilitate delivery, and receive the children at their birth, are called in Spain, *comadrè* ; in Italy, *comaré* ; in France, *sages femmes* ; in England, midwives ; in Germany, *Hebammen* ; in Wales, where the ancient Celtic language still subsists, *mamdiegues*. All these names, which are feminine, prove that women only were employed for this office.



## xxii A SHORT HISTORY OF THE

Not but there were at this time, especially in great cities, surgeons who applied themselves to the art of midwifry, and made it their particular study. They were sent for in difficult cases, where the midwives found their incapacity; when the child was placed cross-ways in the womb, and could not be rectified; when it was dropfical or monstrous; when it was dead; or the body extracted, and the head left in the womb; when there was some fault in the conformation of these parts, &c. then the surgeon endeavoured by his skill to deliver the woman, by having recourse to instruments useful in these cases, such as crotchets, crows-bills, and other instruments, which are described by *Ambrose Parey*, after *Albucasis*; but as these cases happened but seldom, women remained in possession of this business.

It is certain, at least, that *Maria Theresia*, wife of *Lewis XIV.* king of France, employed women only in her labours; and the example of the queen determined the conduct of the princesses and court ladies, and one after another of the ladies in the city. I have been assured, that the epocha of surgeons' being employed, does not go farther back than the first lying-in of *Madam De la Valiere*, in 1663. As she desired it might be kept a profound secret, she sent for *Julian Clement*, a surgeon of reputation. He was conducted



with the greatest secrecy into an house where Madam *De la Valiere* was, with her face covered with a hood, and where, it is pretended, the king was concealed in the curtains of the bed. She had a good time, and was delivered at Paris, the 27th of December, 1663, of a boy, who was christened Lewis of *Bourbon*, and died the 15th of July, 1668, without having been legitimated.

Clement was employed in the subsequent lyings-inn of the same lady, which, though not so secret, were as successful; this brought men-midwives into repute, and put the princesses into the fancy of making use of surgeons on this occasion; and as it soon became the fashion, the name of *accoucheur* was invented, to signify this class of surgeons. Foreign countries were not slow in adopting this custom, and in adopting it, adopted also the name of *accoucheurs*, though they had no such word in their language. It is true, they have rather chosen in England to call them men-midwives.

I am aware, that in opposition to what I have just asserted, the authority of *Hyginus* may be alledged, of whom there is a book of Fables; in which work the author says, Fab. 274, “ that the ancients had no mid-  
 “ wives, which made the women, through  
 “ modesty, rather chuse to run the risque of  
 “ death, than make use of men on this oc-  
 “ casion.



“ cation. For the Athenians, he adds, had  
 “ forbid women and slaves to study physic,  
 “ that is to say, the art of midwifry. A  
 “ young woman, named *Agnodice*, desirous  
 “ of learning this art, cut off her hair,  
 “ dressed herself in the habit of a man, and  
 “ became a scholar to one *Hierophilus*,” whom  
 we are not to confound with the celebrated  
*Herophilus*, who lived soon after *Hippocrates*,  
 as many have done. “ She afterwards fol-  
 “ lowed this business. The women at first  
 “ refused her assistance, thinking she was a  
 “ man, but accepted thereof, when she had  
 “ convinced them that she was a woman.”

“ The physicians,” continues the author,  
 that is to say, the men-midwives, “ finding  
 “ they were no longer employed, accused  
 “ *Agnodice* of being an eunuch, as it appeared  
 “ she had no beard ; and of debauching  
 “ women. On which the *Areopagus*, being  
 “ assembled, condemned her, tho’ *Agnodice*  
 “ shewed them that she was a woman. But  
 “ the most distinguished women having ap-  
 “ peared in her defence, the judges revoked  
 “ their sentence, abrogated the law, and per-  
 “ mitted women to learn the art of mid-  
 “ wifry.”

But I desire those who think to avail them-  
 selves of the authority of this *Hyginus*, to  
 begin by reading his work. They cannot  
 certainly attribute it to C. J. *Hyginus*, freed-



man of the emperor *Augustus*, and friend of *Ovid*, a learned grammarian, who lived when the Latin tongue was in its greatest purity, and in whose praise *Suetonius* speaks (a); whilst this book of fables we are speaking of, is full of solecisms and barbarisms, and must be the work of an author who lived when the Latin tongue was corrupted; that is to say, about the seventh or eighth century, as *Bernesius* (b), *Vossius* (c), and *Muncker* (d), have been of opinion; to whom we are indebted for an edition of this work. The contradictions met with in this book, give room to suspect, that it is not the production of one hand, but of several. What credit then can be given to a like compilation, or more properly rhapsody, on ancient facts, advanced without proof, and destroyed by the formal testimonies of the authors which have been quoted; who affirm, that among the Greeks, the care of lying-in women was trusted to women only.

## ARTICLE II.

*By what steps the art of midwifry was improved.*

TO improve an art, is to find out the means of exercising it more easily, and arriving

(a) On the Illustrious Grammarians. (b) B. III. of various readings. (c) Of the Mathematics, p. 170, &c.  
(d) In the dissertation prefixed to the work.



ing at a method of performing its operations, either neater or better. It is the same with the art of midwifry; it was improved by inventing new practices, proper to render delivery easier and more certain: these methods I shall explain in their order.

The practice of tying the navel-string, and cutting it above the ligature, is essential to the art of midwifry, and, in my opinion, reaches as far back as Eve. It is looked on as absolutely necessary for the preservation of the child, which perhaps may not be wholly exempt from prejudice; as will be seen in a dissertation at the end of this work. But it is certain, that it is a practice generally received among all nations; whence it comes, that midwives, among the Greeks, were called *Ομφαλοτόμοι*, that is to say, cutters of the navel, or umbilical cord. Nevertheless, the prophet Ezekiel (*a*) is the most ancient author who mentions this circumstance. It is true, that Ezekiel lived about the year of the world 3360, about 600 years before Christ, and is consequently much more ancient than *Hippocrates*. This prophet speaks of it occasionally only, when, desirous of shewing the ingratitude of Jerusalem towards God, he compares its miserable state, when God took it under his protection, to that of a new-born child,

(*a*) Chap. xvi. verses 4, 5, and 6.



child, which was about to be exposed, and whose navel-string was not cut.

The art of midwifry was scarcely improved at the time of *Hippocrates*; and *Hippocrates* himself was not much before his age. In his works, which are come to our hands, there are three, in which he treats of delivery: namely, his treatise *on the Nature of Children*; his books *on the Diseases of Women*, and his little treatise *on the Exsection of the dead Child*. In these works, supposing they are his, which is not certain, with respect to the treatise *on the Disorders of Women*, *Hippocrates* is acquainted with no other kind of natural labour, than that in which the head presents; he condemns footling labour, as fatal to both mother and child (a): *but if its sides or feet present, which oftener happens, the mother will have a difficult labour; for many of these perish, either the children only, or together with their mothers.* He says elsewhere (b), *It is a sad thing if the feet present, and frequently either the mother or child, or both, perish.* He would have children turned and placed in a contrary position, which present with the feet (c); *but if the arm or leg, or both, of a living child, present, they must, as soon as discovered, be returned into the womb, and the child brought into the passage with its head downwards.*

(a) In his treatise on the Nature of Children.

(b) B. I. on the Diseases of Women.

(c) Ibid.



*downwards.* For this purpose, he advises to roll the woman on the bed, shake her, and make her jump (*w*): *Concussions are to be used, which may be procured by this method.* He proposes the same expedients to procure the child's delivery (*x*); *by this method it behoves to shake her, &c.* and if they do not succeed, he advises to extract it with crotchets (*y*), and whatever happens, to dismember it; whence we may easily conclude, that, if *Hippocrates* is the father of physic, he is not in the least so of the art of midwifry.

On this art we have not the least knowledge of the opinion of those physicians, who lived after *Hippocrates*, until *Celsus*, who flourished during the reign of the emperor *Tiberius*; because, if they did write on this subject, their works have been lost, and never came into our hands; but we meet in *Celsus* (*z*) (tho' according to appearance, he never practised physic) two very useful reflections for the progress of the art of midwifry.

The first is concerning the manner of opening and dilating the womb: "We must,  
 " says he, introduce the fore-finger, well  
 " moistened with hogs lard, into the mouth  
 " of the womb, when it begins to open, and  
 " *ibid.*

(*w*) B. 1. on the Diseases of Women.

(*x*) On the Extraction of a Dead child.

(*z*) On Medicine, book vii. chap. 29.

(*y*) *Ibid.*



“ in like manner, afterwards a second, and so  
 “ on, until all the fingers are introduced,  
 “ which are then to be used by separating  
 “ them, as a kind of dilater, to distend the ori-  
 “ fice, and facilitate the introduction of the  
 “ hand, which is to act in the womb.” There  
 is but little in this invention, but he is the first  
 who took notice of it, and since his time  
 every body have made use thereof.

The second reflection is much more im-  
 portant, since it teaches, contrary to the  
 common opinion, “ that children may be de-  
 “ livered by the feet easily and safely, with-  
 “ out crotchets, by taking hold of their legs.”  
 For which purpose, he advises, “ to take  
 “ care to turn children which are otherways  
 “ placed in the womb, with their head or  
 “ feet downwards.” It is true, *Celsus* speaks  
 of a dead child only, but it was easy to con-  
 clude therefrom, that the same practice might  
 be used with success to deliver a live child.

Nevertheless this was not done, and not-  
 withstanding the authority of *Celsus*, the old  
 prejudice remained a long time: *Pliny*, who  
 lived under the emperors *Vespasian* and *Titus*,  
 was not in fact a physician himself, but in  
 condemning footling labour, he attests the  
 opinion of the physicians of his time. He as-  
 serts, as a known fact (a), that footling labour

WAS

(a) Natural Hist. book vii. chap. 8.



was a preternatural kind of labour; he adds, that children which came into the world in this manner, were called *Agrippa*, that is to say, born with a great deal of difficulty. It would be endless to give an account of all the physicians who have been of this opinion. I shall therefore only quote some of the principal, as *Galen* (b), *Galeatius* of St. *Sophia* (c), *Bernard*, *Gordon* (d), *Eucharius*, *Rhodion* (e), *Mercurialis* (f), *Mercatus* (g), *James Ruef* (h), *Liebaut* (i), *Lazarus Pé* (k), *Varandus* (l), *Perdulfis* (m), and many others.

But however common this opinion was, it was never universally received; and several physicians of character rose up, who, without suffering themselves to be dazzled with the common prejudice, or seduced by the authority of *Hippocrates* and *Galen*, recommended and approved of footling delivery; such as *Aetius* (n), *Paul Ægineta* (o), *Moschion* (p),  
*Avicenna*,

- (b) On the use of the parts, book xv. chap. 7.
- (c) Coment. on *Rhasis*, fo. 82. (d) *Philon*, partic. 7. c. 16.
- (e) On the birth of man, chap. iii.
- (f) On the diseases of women, book ii. chap. 2.
- (g) On the disorders of women, book iv. chap. 3.
- (h) On women's disorders, book iii. chap. 2.
- (i) On women's diseases, book iii. chap. 46.
- (k) On women's disorders, book iii. chap. 48.
- (l) On the complaints incident to women, book ii. c. 8.
- (m) Universal medicine, book xiii. chap. 14.
- (n) Tetrabibl. c. iv. f. 4. c. 22. (o) On medicine, b. iii. c. 76.
- (p) In Spach's collection, p. 10. no. 5.



*Avicenna* (q), *Serapion* (r), *Albucasis* (s), *Valescus de Taranta* (t), *De Roche* (u), *Alexander Benoist* (w), *Ambrose Parey* (x), and *Marinello* (y), who all recommend and approve delivery by the feet, when the child presents in this posture; and some of them advise to bring the child into this position in labours in which it presents badly.

This question then was a long time undecided, which is no matter of surprize, because it is difficult to destroy an old and very extensive prejudice; moreover, even in 1651, *Riverius*, a physician of reputation, condemned footling labour (z), and *Mauriceau* (a) remarks in the first edition of his book on *the Disorders of Pregnant Women*, printed in 1664, “that many authors were still of opinion, that when the child presented with its feet, it should be turned to make it come with its head foremost;” but after having observed, it was difficult, if not impossible, to execute this, he concludes, “it is much better to extract the child by its feet when they present, than to run the hazard of doing worse, by turning it.”

At

(q) Canon fen. 21. tract 2. c. 20.

(r) Breviary, tract. 5, c. 35. (s) Surgery, 2d part, c. 75.

(t) B. 5. c. 20. (u) On women's disorders, c. 27.

(w) B. 25. c. 36. (x) B. 24. of generation, c. 15. 33.

(y) On female disorders, b. 3. c. 11, 76.

(z) Practice of physic, b. 15. c. 18. (a) Book 2. c. 14.



At length reason prevailed; every body at present are of the same opinion; it is agreed, not only that the child should not be turned when its feet present, but that, on the contrary, it should be brought into this position, whenever it is badly placed for birth. This practice is looked upon as a fundamental rule of the art of midwifry, which it has much improved, by procuring an easy method of delivery in those cases, which were before very difficult, very laborious, and frequently fatal to the child. I shall say more on this subject in the parallel between that kind of labour in which the head presents, and footling labour (*b*). If the old prejudice subsists still in some measure, it is only in some remote corner, where truth has not yet found its way.

Uterine hemorrhages frequently happen to pregnant women, but of different kinds and different natures. Some proceed from the *vagina*; or if they proceed from the womb, it is only from parts to which the *placenta* is not attached, and consequently do not at all concern pregnancy, or but very little.

These kind of hemorrhages readily give way to bleeding, rest, anodyne clysters, a cooling and spare diet, opiates properly administered, and especially to astringent medicines, used with prudence. With respect to  
this



this kind of hemorrhage, consult my treatise on the Disorders of Women, book i. chap. 9. case 2.

It is not the same with another kind of flooding, which proceeds from some part of the *placenta's* being loosened from the womb, through a fall, a false step, a contusion, compression of the belly, or from some blow, jolt of a carriage, too great exertion of the voice, vomiting, cholic, violent cough, strains, &c. In this case the venal appendages, which were connected with that part of the *placenta* which is separated, adhering thereto no longer, empty the blood which they contain into the womb, and continue to do so without ceasing, because the *placenta* cannot adhere again to the womb, nor can the venal appendages contract themselves while the womb remains distended by the child.

When this accident happens in the beginning of pregnancy, from the first month until the fifth, abortion follows near at hand, because the *placenta*, as yet adhering but slightly, is easily separated, and comes away with the child; consequently, the womb being no longer distended, contracts itself, the venal appendages close, and the flux of blood ceases.

The disorder is much more troublesome when pregnancy is farther advanced, about the sixth or seventh month, and especially at the eighth and ninth: as at this time the *pla-*



*centa* adheres strongly to the womb, it is seldom that it is entirely separated, and still more impossible for it to adhere again: thus there can be no hope of a miscarriage to terminate the disorder. The hemorrhage continues the more violent, because the womb being distended by the bulk of the child, keeps the venal appendages always dilated, and prevents their contraction; but tho' continual, it undergoes some variations; for sometimes it is more violent, when the vivacity or uneasiness of the patient, bad nights, too rich a diet, or accidental fever encrease it; and sometimes less, when a good night's rest, a spare and low diet, a perfect tranquility of body and mind, bleeding, and astringent medicines properly administered, conduce to lessen it. Nevertheless, in spite of these variations, as it is continual, it at length weakens both mother and child, in an alarming manner; in vain are bleedings repeated, in vain are medicines, the most celebrated in this case, administered; nothing succeeds, and the disorder grows worse and worse.

It seems, if a just idea of this disorder was conceived, it must be clear, that to remove it, the child, which keeps it up, should be delivered; but this was never thought of, at least I don't remember to have read any thing thereof in antient authors. It is to a lucky accident that we owe the discovery of  
a re-



a remedy for this obstinate hemorrhage, and this is not the only instance that chance has afforded useful knowledge in physic. This remedy consists, as must have been guessed, in immediately delivering the woman, tho' she has not yet gone her full time. By this means the womb, being freed from the child, contracts itself, the venal appendages shorten, and at length close; the blood flows less plentifully, and after some days entirely stops, and the disorder is cured.

It is to a midwife named *Louisa Bourgeois*, or *Bourfier*, midwife to Mary of Medicis, wife of Henry IV. king of France, we are indebted for this discovery; she composed a small treatise on *barrenness, abortion, fruitfulness, labour, and diseases of women*, printed at Paris, 12<sup>mo</sup>. in 1609; in which she relates this matter so ingeniously, that she deserves a hearing.

“(c) When a woman, says she, has an im-  
 “ moderate discharge of blood during preg-  
 “ nancy, which brings her very low. . . . we  
 “ must proceed to extract the child with the  
 “ hand. . . . I have practised this with the  
 “ consent, and in the presence of the famous  
 “ Mr. *Le Febure*, and of Mr. *Le Moine*, and  
 “ Mr. *De Lisle*, very learned physicians; also  
 “ forasmuch as I had seen these discharges



“ of blood cause suddenly the death of both  
 “ mother and child. I performed this on  
 “ the wife of a counsellor of parliament, who  
 “ was in the sixth month of her pregnancy;  
 “ the child lived two days, and she had several  
 “ children afterwards: the physicians were  
 “ of opinion, that if it had been deferred an  
 “ hour longer, both mother and child would  
 “ have been lost. Mr. *Le Febvre* gave an  
 “ account of this practice, in the public school  
 “ for physic, and recommended the persons  
 “ present to proceed in the same method,  
 “ because he had often seen women lost for  
 “ want of its having been done.

“ Of this kind of hemorrhage, which I  
 “ have just now mentioned, she says, a little  
 “ lower, the famous Madam *d'Aubray* died,  
 “ wife of Mr. *d'Aubray*, who was provost of  
 “ the merchants; as also the dutchess of  
 “ *Montbazon*, and many others. Knowing  
 “ the discharge of blood is kept up by the  
 “ distension of the womb from the child,  
 “ and having observed it cease as soon as the  
 “ woman was delivered; I have made use of  
 “ the foregoing practice, which I knew too  
 “ late to my sorrow, for the preservation of  
 “ those I have named.”

I have described the manner in which delivery should be executed on this occasion, in the body of this work. (*d*) The midwife, after  
 having

(*d*) Book 4. chap. 4. art. 2.



having well moistened the *vagina* and mouth of the womb with fresh butter or pomatum, several times, must introduce her right hand, well moistened with pomatum also, and endeavour to dilate the orifice of the womb, by introducing her five fingers one after another, and making use of them as a *speculum uteri*; she must continue this dilatation by degrees, till she can pass her hand into the womb; then the membranes are to be ruptured, the child turned, and delivered by the feet. If the *placenta* is separated, and comes away with the child, the labour is over, and nothing more remains than to put the woman to bed; but if the *placenta* still adheres to the womb, the navel-string is to be divided, after having made thereon a double ligature, and the child given to a proper person to take care of it, while the midwife endeavours to extract the *placenta*, which she will easily effect, because the side that is already separated allows an hold, which can be usefully employed.

I shall not dissemble, that a forced labour, such as has been just described, is painful, and frequently even fatal; but when practised in the last months of pregnancy, as is commonly the case, the pain and danger are not so great as in a less advanced term; on the one hand, the womb has then acquired its whole extension, and in this state the mouth of the womb dilates the more easily; and on the other hand,



xxxviii A SHORT HISTORY OF THE  
the preceding loss of blood, by emptying the  
vessels of the womb, has rendered the mem-  
branes thinner, more lax, and more exten-  
sible, which occasions the mouth of the womb  
to give way more easily. This preceding loss  
of blood procures also another advantage; it  
keeps the womb from the inflammation to  
which it would otherwise be exposed, not-  
withstanding which the patient must lose  
blood from the arm, if the supervening fever  
requires it.

Nevertheless, however painful this kind of  
delivery may be, or whatever danger may at-  
tend it, we are forced to practise it in a cir-  
cumstance, where, if it is not used, the death  
of both mother and child is inevitable; and  
it is the practice of every body at present  
in this case. Tho' this practice regards preg-  
nancy only, yet as pregnancy principally  
comes under the cognizance of men-midwives,  
it may be reckoned a third step towards the  
improvement of the art of midwifery.

The use of crotchets to extract dead child-  
ren must have been established before the  
time of *Hippocrates*, since he speaks of it as a  
general custom (*e*); but it is in *Celsus*, (*f*)  
that we find a circumstantial account of their  
use in extracting dead children, and of the  
danger there was of the crotchets slipping,  
(which

(*e*) On Women's Diseases, b. 1. p. 96. Linden's Edition.

(*f*) On Medicine, book 7. chap. 29.



(which frequently happened) and tearing the mouth of the womb, which might be of dangerous consequence to the woman.

The physicians who have wrote since *Celsus*, have recommended the same practice, tho' they were convinced of the danger which *Celsus* had warned them of; and several of them have even proposed to use two crotchets, one on each side, to extract the child more in a straight line, which must increase the danger very much. They have even not been contented with crotchets only; *Rueff* invented a crane's bill and nippers; and *Ambrose Parey* an instrument which he called the griffin's claw; but I fancy they invented them only to ornament their works with the copper-plates of these instruments, for it seems to me impossible that they can have ever used them.

The art of midwifry was in this state at the end of the last century, with respect to the extraction of a dead child, a false conception, or child's head separated from the body. But about this time several kinds of instruments of a new shape began to be invented, which were called *forceps*, to distinguish them from the common instruments, with which they had not the least likeness. Operators every where applied themselves earnestly to improve this instrument, and the English, Dutch, and French, as if in emulation of each other,



invented several kinds of them, which were all useful, but had also faults.

I have examined the construction of almost all of them, and that which Mr. *Levret* proposes in his *Observations on the causes and accidents attending most difficult labours*, seems to me the best and most certain. I have not transcribed its composition, nor the manner of using it, because I could wish Mr. *Levret's* book, which cannot be read without pleasure and advantage, was perused by every one. With the forceps and dexterity, the most difficult labours may be surmounted; whether to extract a dead child, an head separated from the body, a false conception, or, which is still more difficult, a child whose head is lodged between the superior part of the *os sacrum*, and the symphysis of the *os pubis*.

This is the last degree of perfection to which the art of midwifry is arrived, and is of the greater importance, from having banished the use of crotchets, which were always dreadful, and frequently fatal.

### ARTICLE III.

*Which were the first particular treatises composed on the art of midwifry.*

It may be seen by the passages which I have quoted from antient authors, in the two  
first



first articles, that all the old physicians who published practices of physic, have treated of the art of midwifry, as appertaining to the subject they treat of. It may have been even observed, in the extract from *Celsus*, quoted in the preceding article, page 28, that this author gives the name of physician to the person who takes upon him to extract the dead child from its mother's womb. This shews what has been proved, besides, from many other authorities, that physic and surgery were practised by the same persons, who embraced the whole extent of the healing art: And it is not to be wondered at, the knowledge they had of each of these branches was so confined, that the same persons might suffice to learn and practise them.

But by means of searching into these subjects, their observations were so multiplied, so many new disorders were observed, and in the same disorders so many different kinds distinguished, so many different causes, such different indications, which required different assistants, that the same persons could no longer suffice; they were therefore forced to limit the extent of this profession, and separate the practice of surgery from the rest of physic. This division had been several times attempted, and more than once suspended; but at length, for about three hundred years, seems to have been fully compleated.



It has been seen in the first article, that the art of midwifry, though it seems to have made a part of surgery, was always exercised by women. Ever since it has become a fashion to employ men-midwives, these persons, tho' taken from the body of surgeons, have attached themselves to this branch so particularly, that they seem to have renounced the rest of surgery. Thus the art of midwifry has for a long time been considered as a particular art, which is, perhaps, more true at present, than it has ever been; and I think it is an advantage to the public.

In proportion as the practice of midwifry was separated from the rest of the healing art, and became a particular study, it was necessary to detach every thing which concerned it from the body of surgery, and compose particular treatises thereof. It is of those treatises, which I look on as the first elements of this art, that I propose to treat in this article; but I shall mention only the first of these treatises, and that concisely.

The most antient treatise of this kind is that of *Moschion*, which has been already spoken of: He was a Greek author, whose antiquity it is difficult to determine; but I am of opinion, cannot be placed farther back than the eighteenth century. *Gesner* first published this work from a manuscript, full of faults and chasms, which he endeavoured to



to correct and supply, but badly enough. He recovered some time after, an old translation of this work into Latin by a Jew, which was of service to him in correcting some parts of his Greek manuscript; but this translation itself was very faulty, very defective, and not at all proper to render the original Greek perfect. There are in great libraries several manuscripts of this work, and it would be of service to the public to give from them a more compleat and correct edition, which would serve at least to instruct us in what was then known relative to the art of midwifry.

The second particular work on the art of midwifry is that of *Trotula*, wrote in Latin. I cannot tell why *Gesner* attributed it to one *Eros*, a freed-man of *Julia*, daughter of the emperor *Augustus*; for every thing proves, that it is the work of a midwife of *Salernum* in *Italy*, who gave herself the name of *Trotula*, and lived, as I imagine, in the thirteenth century. In this book the art of midwifry is treated of with some particularity, but it treats also of several disorders of women. It gives an account also of several kinds of paint which the women of *Salernum* made use of, as this author relates.

This work, as well as the preceding, has been inserted in the collections of *Gaspar Wolph* and *Israel Spach*. It were to be wished, there was a new edition thereof; not to learn



learn any thing new, for since their time the art of midwifry has been greatly improved, but to preserve a chronological chain of the lights they successively had in the art of midwifry.

I give the third place to the treatise which *Eucharius Rhodion*, a physician of *Frankfort* on the *Maine*, published in German. I have only seen a Latin translation of this work, printed at *Frankfort*, in 1532, in 12<sup>mo</sup>. under the title of *A Treatise on Child-birth, and its Accidents*; but it appeared by the letter which the bookseller at *Frankfort* writes to *Eucharius Rhodion*, son of the author, that this work had been several times printed before in *Germany*, and very favourably received.

This work contains twelve chapters.

1. *In what situation the child is placed in the womb, and with how many membranes it is surrounded.*

2. *What period of time the woman goes, and the difference between natural and preter-natural labours.*

3. *Of easy and difficult labours, and the manner in which the probability of an easy or difficult labour may be known.*

4. *What is chiefly to be done in delivery, and how women are to be assisted in difficult labours.*

5. *The remedies which assist and render labour easy.*



6. *How the after-birth is to be extracted, if it does not come away of itself.*

7. *In what manner, and by what remedies, the various accidents which happen during or after delivery, are to be guarded against and removed.*

8. *Of abortion, and its causes, and in what manner to be prevented.*

9. *Of dead children; in what manner, and by what signs, they are known.*

10. *Of new-born children; their nourishment, disorders, and method of cure.*

11. *Of the milk and nurse, and how long the child should suck.*

12. *Of the various disorders and accidents of new-born children, and their method of cure.*

James Rueff, a surgeon at Zurich, printed there in quarto, in 1554, a work intituled, *On the Conception and Generation of Man*, divided into six books. The first contains six chapters, and treats of *the generation of man*; the second contains six chapters also, and treats of *the womb and its parts, and the situation of the child therein*; the third, of *labour, and the cure of disorders incident to lying-in women and children*, in six chapters. He treats in the fourth, of *the various kinds of preternatural labours, and the methods of remedying them*, in fifteen chapters. The author treats in the fifth, in six chapters, of *false conceptions, and other tumours of the womb, and of abortion.*

Lastly,



Lastly, in the sixth, in eleven chapters, he treats of *the different causes of barrenness*. The four last books belong to the art of midwifry, which occasioned my mentioning this work. The author would have done well to have contented himself with publishing these last books, of which he was a competent judge; but he was desirous of displaying his knowledge, in the two first books, on a subject too difficult for him.

I entertain the same opinion of a treatise published by *Ambrose Parey*, first surgeon to three kings of France, intitled, *On the Generation of Man*; which makes the twenty-fourth book of his works, the first edition of which was published at Paris, in folio, in 1582. In this book we meet with an account of the conduct we should make use of in the different kinds of labour, which is pretty good, according to the lights of his time; but which would be better, if what he says of labours was not smothered in an heap of difficult, useless questions, foreign to the subject he treats of, which was the prevailing passion of this author; who made a parade of his skill in the Greek and Latin languages, by quotations from ancient authors, who wrote in either of these languages; and took a pleasure in treating of the most difficult points in physic, in the works which he composed, or rather procured to be composed;



posed; for when we see this parade in the writings of a surgeon, who was not a man of learning, it is very difficult not to believe the reproaches with which he was loaded, even in his life-time, of having procured several young physicians to compose his works for him.

I shall end with a book composed by *Louisa Bourgeois*, called *Boursier*, midwife to Mary of Medicis, queen of France, to whom she dedicated it. This book contains fifty chapters: it was printed at Paris, in 12mo. in 1609, under the title of, *Observations on Barrenness, Abortion, Fruitfulness, Labour, and Disorders of Women and new-born Children*. One may judge by the title, that what regards delivery, made but one part of this work, in which besides there is not the least order or method; but it is written with such candour and ingenuity, as leaves not the least doubt, but the author inserted therein every thing she knew; and it appears, she was not ignorant of any thing that was known in her time.

Since that time, there has appeared a great number of treatises on this subject; which all the nations of Europe, as if in concert, have been eager to examine and improve. It would be difficult to give an account of all the works written in Latin or French; but it would be almost impossible to do it of those  
which



which were published in England, Holland, Flanders, Germany, and Italy, the greatest part of which I have never seen; but I have read enough of them, and especially of the newest and most esteemed, to presume, that I have culled whatever is valuable from them: so that the work which I now publish, may be looked upon as an extract of these treatises.

The emulation with which this subject has been pursued for these sixty years past, has so increased its progress, that the art of midwifry wants but little of having attained its utmost perfection, and its operations arrived to an almost geometrical certainty: and this is not surprising; for, after all, the art of midwifry is reduced to the following mechanical problem: “ *An extensible cavity, of a certain capacity being given, to pass a flexible body, of a given length and thickness, through an opening dilatable to a certain degree;*” which might be resolved geometrically, if the different degrees of elasticity of the womb; and strength and weakness of the child; the greater or less disposition of the blood to inflammation; and the greater or less degree of irritability of the nerves; did not occasion that uncertainty, which physical facts constantly produce in all physico-mathematical questions.



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# ELEMENTS

OF

## MIDWIFERY.

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### CHAP. I.

*Of the bones which form the pelvis, or basin.*

**T**HE womb, which contains the child during pregnancy, is situated in the lower part of the belly, in a cavity surrounded on every side with bones, known by the name of the pelvis, or basin. This situation is very convenient for both mother and child. For the mother, because the child being supported underneath by the bones of the pelvis, she is thereby enabled to carry the burthen the more easily. For the child, because, being supported by these bones, it thereby gains the necessary liberty of stretching and moving itself upwards, where it is surrounded by the integuments of the abdomen only, which readily give way to its pressure.

The bones, which form the circumference of this cavity, are in number three: the *os sacrum* on the posterior side; and the two *ossa innominata* on the lateral and interior parts. Persons who purpose prac-

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tising



tising midwifry should be thoroughly acquainted with the position, figure, articulation, size, and \* circumference of these bones; because this is necessary to form a judgment of the space which these bones leave between them below, where the infant passes in childbirth. I shall therefore briefly describe them, confining myself only to what it is absolutely necessary to be acquainted with, to judge of what the bones of the pelvis may give reason to apprehend in labour.

The *os sacrum* forms the posterior part of the pelvis. Its superior extremity is connected with the last of the *vertebræ* of the back (the whole column of which it supports) by means of a thin cartilaginous substance. This bone is very nearly of a triangular shape; wider and more thick upwards; thinner and more narrow downwards, where it terminates in a point. Its internal surface is pretty even; but has two perpendicular rows of *foramina*, each row consisting of four or five. On its superior part this bone is convex towards the pelvis; and it is in this particular place that the child sometimes finds great difficulty to pass. It forms, on the contrary, a concavity in its smaller and inferior part, where the point bends forward to form, with the *os coccygis*, which is attached to it, the bottom of the basin, and thereby facilitates the means of sitting.

Its posterior surface is more uneven. We there observe several protuberances, which seem to be the vestigia of the apophyses of four or five vertebra, blended and united together to form this bone. We observe also on this surface two other rows of *foramina* answerable to those of the internal surface, but smaller. Besides these two rows of *foramina*, we remark in the *os sacrum* another canal, which beginning in the middle of the superior part of the bone, traverses its whole length, and terminates near its point on the posterior surface. The use of this canal is to contain the ex-

\* Doctor Smellie says, the width of the lower part of the pelvis is naturally the same in both diameters. R.



trernity of the spinal marrow, which terminates at the end of the *os sacrum*. The anterior and posterior foramina or canals, which have been taken notice of on both the surfaces of the *os sacrum*, are intended to give passage to the nerves which are given off from the spinal marrow, and are distributed to the neighbouring parts.

The *os sacrum* is articulated with four other bones, superiorly with the last vertebra of the loins, by an articulation which permits of some small motion of flexion and extension. By its inferior part or point, with the *os coccygis*, through the intervention of a cartilage, and some ligaments which allow the *os coccygis* some motion in every direction; lastly, by its two superior lateral sides with the two *ossæ inominata*, one on each side. This articulation is very strong and close, being formed through the insertion of protuberances, and sinuses, or depressions, which are reciprocally met with in the opposite surfaces of these bones, strengthened by the intervention of a thin cartilage, placed between the two surfaces. It permits no kind of motion to the *ossa inominata*, at least in their natural state.

The *os coccygis*, so called in Greek from its resemblance of the bill of a cuckow, is attached, as we have already observed, to the lower end of the *os sacrum*. It is formed by four small bones, nearly of a spherical figure, whose size gradually lessens in proportion to their distance from the *os sacrum*. These bones are placed in a line like a row of beads, and are connected together in the same manner as with the point of the *os sacrum*, by the intervention of thin cartilages, and by a kind of ligament, which allows them liberty to move backwards or bend forwards on different occasions. These bones are not placed on a streight line, but bend a little forwards like the point of the *os sacrum*, for the same reasons, *viz.* to facilitate the posture of sitting.



The *ossa innominata* are two large pieces of bone, which form the greatest part of the cavity of the pelvis. In children these bones are each formed of three distinct bones, joined together by thin cartilages, which, becoming ossified by degrees in adults, make only one entire bone on each side. These bones, thus united together in their adult state, have no name; whence they are called the *ossa innominata*. But the three separate bones of which the *ossa innominata* are composed have separate names, as if they were still distinct bones. The two first, called the *ossa ilion*, which form the posterior part of the *ossa innominata*, are articulated on each side with the *os sacrum*, as has been already observed. They are broad and flat, a little concave, and widened towards the pelvis, and superiorly inclining towards a semi-circle, form the upper edges of the hips.

The two second, which are called the *ossa ischion*, compose the middle of the *ossa innominata* on each side. They are remarkable for having each on their external surface a deep cavity, called the *cotyloide* cavity, which serves for the articulation of the thigh bone, and for a roundish eminence on their inferior part, known by the name of the tuberosity of the *os ischion* \*.

The two last are called the *ossa pubis*, from their being placed in that part which Latin authors call the pubes. They form the anterior part of the pelvis; and have each in the middle a large oval opening in common with the *ossa ischion*, which is of no use in childbirth. They are connected together forwards, where their superior parts touch each other, and are united together by a cartilage. But their inferior parts separate from each other, and leave a space be-

\* From the superior thick part of this bone a sharp process also stands out backwards on each side, which is called the spine of the ischion: the child's head pressing on this protuberance is a frequent cause of difficult labour. R.



tween them for the passage of the urethra in men, and the vagina in women.

These *ossa inominata* are widened above, and form a spacious cavity : but towards the bottom they approach nearer each other, and leave a much narrower opening, which is still further straightened by the *os coccygis* posteriorly ; and by the two tuberosities of the *ossa ischion* laterally. It is through this opening that the infant passes in child-birth, and consequently it is of great importance to properly attend to it, to form a judgment of the ease or difficulty which will attend the passage of the child through it in different subjects.

To judge rightly of the size of the basin or pelvis, formed by the bones we have just described, and of the opening these bones leave below for the passage of the child, it is necessary to remark the skeleton of a woman, and compare it with the skeleton of a man ; we shall thereby have reason to admire the wisdom of the Divine Creator, who has formed the pelvis in women larger than in men, and given a greater diameter to the opening between these bones, in order to render the passage of the child into the world more easy.

*Differences between the male and female skeleton.*

- 1st. The *os sacrum* is more convex, and projects farther back in women ; whence it happens that they have larger buttocks.
- 2dly. The *ossa ilion* are more hollow inwardly, and more convex outwardly ; whence women have larger hips.
- 3dly. The *ossa ischion* are placed more outwardly, and their inferior tuberosities are farther asunder, which affords a freer passage.
- 4thly. The bones of the pubis project more outwardly, and thereby render the cavity of the pelvis larger. They touch each other, and are connected together by a less length of surface, and by a softer



## 6 ELEMENTS OF MIDWIFRY.

and thicker cartilage ; and towards the bottom they separate farther from each other than in men, and thereby render the passage wider.

5th. and lastly. The bones of the *os coccygis* are joined together by softer and thicker cartilages ; whence they are more moveable, and more readily give way outwardly, which contributes to enlarge the passage.

This disposition of the bones of the pelvis is certainly very advantageous, when the bones have their proper natural conformation : but it sometimes happens, from their bad conformation, that the child is stopt in the passage in two different places, which may be considered as two *straits*. This requires our attention : the place where it most frequently happens, and where it is most difficult to remedy it, is between the superior internal part of the *os sacrum*, and the bones of the *pubes*. The *os sacrum* is naturally convex towards the bason in this part, as has been already observed ; and this convexity sometimes projects very much. If it happens at the same time that the bones of the *pubes*, which ought naturally to be convex outwards, should be flattened ; or, which is still worse, should bend inwards, the distance between the superior part of the *os sacrum*, and the bones of the *pubes*, will be very narrow, and will sometimes not be wider than two inches and an half, especially in the middle ; for the space is rather greater one ach side, which occasions this *strait* to resemble a figure of eight. In this case, the delivery cannot be otherways than very difficult, and sometimes absolutely impossible. The other *strait* is in the bottom of the *pelvis*, and proceeds from the tuberosities of the *ischion* being too large, too long, and especially too much bent inwards ; from the too great curvature of the point of the *os sacrum*, and from the too great length, and inflexibility of the *os coccygis*.



In these bad conformations of the *pelvis*, it sometimes happens, when the child is stopt in the passage, that from its violent efforts the bones of the pubes are separated, and the articulations of the *ossa ilion* with the *os sacrum*, give way, which considerably augments the size of the passage, and allows an exit to the infant.

This separation of the bones of the pubes, and the *ossa inominata*, long ago observed by \* *Hippocrates*, † *Ætius*, and ‡ *Avicenna*, has been strongly disputed by some modern authors; but it is at present so firmly established by indisputable observations as not to admit of the least doubt ||.

To comprehend how this separation happens, it is necessary to consider that the bones of the pubes in women are connected with each other by a much less extent of surface than in men; that they are less closely united; and that their cartilage is much thicker: and, lastly, that it is naturally much softer, and more capable of extension; so that when the infant meets with difficulty in the passage, and disturbs the circulation of the blood and *lymph* in every part of the *pelvis*, the serous fluid, which is separated in consequence thereof, softens by degrees the cartilage, which unites together the bones of the *pubes*, till it is suffi-

\* In his book, *De Natura Pueri*, towards the end.

† *Tetrabiblio*, sermone iv. cap. 22.

‡ *Lib. III. tract. i. cap. 3.*

|| *Ambrose Parey*, book xxviii. chap. 13.

*Riolan Authropograph*, book v. chap. 13.

*Caspar Bauhine Theatrum. Anatomicum*, book i. chap. 49.

*Hildanus's Chirurgical Observations*, century vi. observat. 9.

*Harvey's Generation of Animals*, book ii. exerc. 57.

*Diemerbrœck's Anatomy*, book 9. chap. 26.

*Spigelius on the Structure of the Human Body*, book ii. c. 24.

Among the number of those who deny this separation is Professor *Monro* of *Edinburgh*, who asserts, that he could never be sensible of such a separation or removal of the bones, though he frequently attempted to satisfy himself in this matter in several laborious births. *Morgagni* also thinks this happens only in a few extraordinary cases. *R.*



ciently mollified to yield to the impulse of the infant. When things are come to this pass, the articulations of the *ossa ilion* with the *os sacrum*, make but little resistance; whether from the cartilages which connect them together being softened from the same cause, or from the infant's having, by separating the bones of the pubes, the advantage of a lever over these articulations, by reason of the length of the *ossa inominata*. Thus, in proportion, as the bones of the pubes are separated, the articulations of the *ossa inominata* give way, and continue to do so more and more, according as the separation of the *ossa pubes* increases; and thereby the infant procures a passage, for which purpose a very small separation of the *ossa pubes* is sufficient.

When the child is come into the world, and a free circulation of the blood and lymph is re-established in every part of the *pelvis*, the cartilages of the three articulations grow harder, contract, and bring the bones of the pubes nearer each other again, and the *ossa inominata* close to the *os sacrum*. Thus these bones recover their natural situation, and leave no other mark of their separation than a slight sense of pain, which is felt about the *os sacrum*, and goes off by degrees.



## C H A P. II.

*Of the womb and its different situations.*

**A**N anatomical knowledge of the structure of the womb; the kind of vessels which bedew its surface; of the distribution and use of these vessels, is not at all necessary for midwives: and a particular knowledge of the other parts through which the infant passes, that is to say the *vagina*, &c. still less; therefore I shall confine myself to explain briefly here what they ought to be acquainted with to fulfil the duties of their station. The womb may be divided into three parts; its bottom, neck, and orifice: and it is necessary that midwives should have a general knowledge of each of these parts. 1st. The bottom of the womb comprehends all its superior part, and consequently makes two thirds at least of its size. It is in this part the infant is contained; and as it must of consequence be sufficiently dilated by the growth of the child, can have no occasion to receive any farther dilatation in child-birth. One would be ready to imagine that this part of the womb grew thinner during pregnancy from its dilatation; but it is entirely otherways, it becomes thicker, through the enlargement of the sanguineous vessels, which are distributed thereto.

Its sides are at this time generally more than half an inch thick, sometimes three quarters of an inch, and even an inch in thickness, which is of great use to prevent in the violent motions of the child, which in difficult labours pushes strongly outwards the bottom of the womb, from tearing, as sometimes happens on these occasions. 2dly. The lower part of the womb, called its neck, is too narrow, even towards the end of pregnancy, to give room for the infant to pass through: but it is dilated by the stay the child makes there, after it is turned for birth; and  
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it undergoes this dilatation the more easily from the bulk of the child, which, compressing its sides, hinders the circulation of the blood and *lymph*, which causes an extravasation of a serous *lymph*, which softens the part, and renders it more extensible. 3dly. The narrowest part of all, is the orifice of the womb, where the great labour of delivery is. This orifice is closely shut during pregnancy; and it is during delivery only that it is opened sufficiently, to afford a passage for the child. This dilatation is principally owing to the action of the child, which forces a passage, to which the instantaneous contraction of the radical fibres which surround this orifice, contribute, facilitated by the softening of the same fibres, which the stay of the child, in this part, has occasioned, for the reasons already given.

The difficulty of overcoming the resistance of the orifice of the womb varies in different subjects. In some persons, this orifice is very narrow, especially in the first lying-in; and the edges are at the same time very thick, compact, and almost horny. This happens generally to women past their thirtieth year, and occasions a difficult labour: there are even some, in whom these edges are hard, callous, and almost schirrous, through the whole circumference, or at least in some part, in consequence of some disorder, or a preceding difficult labour; and, in this case, the delivery cannot be otherwise than laborious. There are others, on the contrary, in whom these edges are flat, thin, weak, readily give way to the impulse of the child, and dilate without pain, which renders delivery so quick, that if the midwife is not very attentive, the child may be born without her assistance. But it is with great difficulty that these women go their full time; and they are very subject to miscarry. Lastly, there are some, in whom these edges are supple, soft, thick; of a pulpy substance; easy to dilate, without dilating too quickly, which happens the most frequently, and is the most advantageous



geous for delivery. When the infant cannot, without difficulty, force a passage, especially if it presents itself obliquely to the orifice, it sometimes ruptures the sides, and causes lacerations, which are sometimes attended with bad consequences. The midwife should take care to prevent this accident, by not hastening the delivery too much; by smearing the passage well with fresh butter, oil, or hog's-lard; by gently assisting the dilatation of the orifice, by directing the head of the child, and especially by taking care not to do mischief through her imprudence, or too great hurry.

When the head of the child has got beyond the orifice of the womb, and the shoulders are fixed there, it is a common expression to say, the child is in the passage, because it is in the *vagina*; and the delivery, reasonably enough, is looked upon to be as good as over: for the *vagina*, whose sides are easily dilated, readily gives way, and allows the child to come forward. Its orifice, where the *carunculæ myrtiformes* are situated, is a little narrower, and affords rather more resistance, but for a very little while only.

At length, the child passes into the external orifice of the *pudenda*, whence it makes its exit immediately. The folds which are in this part, known by the name of the *nymphæ*, extend themselves, and augment its capacity, and thereby give a free passage to the infant. It nevertheless sometimes happens, that the head of the child presenting obliquely, and bearing too much on the bottom of the *pudenda*, towards the *os coccygis*, lacerates the part which separates the *pudenda* from the fundament, and thereby occasions a troublesome and disagreeable inconveniency.

It is absolutely necessary to be acquainted with the situation of the womb in the *pelvis* in pregnant women, because this should serve for a rule in delivery; therefore midwives cannot be too attentive to get a proper knowledge thereof.



The most natural and most advantageous situation of the womb, is to be placed streight; in such a manner, that its bottom and its orifice may be in the same direction with the *vagina*. It is easily perceived, that in this situation it performs its proper functions most readily; that on the one hand, the feminal fluid can more easily penetrate it; and that, on the other hand, the infant can make its passage with less difficulty, without reckoning this advantage, that nothing can stagnate in its cavity, which prevents many inconveniencies.

Some women are happy enough to have the womb thus situated; but they are not many; nor is there the least reason to wonder at it. The womb bearing on its extremity, that is to say, its narrowest part on the extremity of the *vagina*, has nothing to support it on the sides; for I make no account of those pretended round ligaments, which readily give way on every occasion; and which, in pregnancy, when their action would be most necessary, are entirely useless, because they are then inserted about the neck of the womb, and cannot serve to keep the bottom of it streight, which is raised very much, by the dilatation it undergoes through the growth of the child. The least thing is sufficient to make it incline to either side: and so far from being astonished that the womb is so often oblique, there is much greater reason to wonder that it is not always so.

In girls and women who have not had children, different causes may contribute to this obliquity: if the womb is a little bigger, or a little more turgid on one side; if the canal of the *vagina* is a little shorter, or a little more lax on one side than the other; if independently of these defects of the conformation, women have had a custom of lying always on the same side; if they have accustomed themselves to hold their water, in which case the bladder being over distended, will push the womb backward; or if they are naturally costive, in consequence



quence whereof, the gut *rectum*, being over-distended ; or, which is still less, if some of the contents of the *abdomen*, or lower belly, press unequally on the womb, either of these circumstances are sufficient to displace it.

Though the obliquity of the womb is not uncommon in girls and women who have never had children, it is nevertheless more common in pregnant women, for two reasons : first, because the womb, which rests on its point, as has been already observed, is then larger, and so much weightier, that it is impossible for it to remain in *equilibrium*, without inclining to one side or other, being fixed on so narrow a basis. Secondly, the infant which it contains, must, in a great many cases, make it incline to one side or the other. We shall see, in the following chapter, that the after-birth is attached toward the bottom of the womb ; but it is not always attached exactly to the middle : if its attachment in the least deviates from the middle, this circumstance alone makes the womb incline toward that side.

When a woman has had the womb obliquely situated in her first pregnancy, it generally happens so in all the rest, and almost always toward the same side ; because the *fibres* of the womb on the side to which it inclined, during the first pregnancy, are shortened, while those of the opposite side are elongated, which remains during her subsequent pregnancy, and determines the situation of the womb. It is from hence women are apt to say, that they have carried their children on the right, or left side ; which in fact signifies, that they have had an obliquity of the womb backward, toward the right or left side, in all their pregnancies.

Midwives cannot be too strongly recommended to take notice of the obliquity of the womb, at least in the time of delivery, if they have not had the precaution to inform themselves of it before. Frequently, delivery is tedious and laborious, from a want of  
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this necessary attention only. When the womb is oblique backwards, the head of the infant strikes against the anterior rim of the orifice of the womb; and all its efforts are directed against the bones of the *pubes*. If the situation of the womb is oblique forwards, they are exerted against the *os sacrum*, and against the posterior edge of the orifice of the womb: if its obliquity is towards either side, the head of the infant presses against the edge of the orifice of the opposite side, and all its efforts are wasted against the *os ischion*.

Thus, in all these cases, the labour is tedious and laborious: the infant exhausts its strength, as well as the mother, in fruitless efforts: the delivery does not advance, and frequently ends with some accident, unless the midwife does bethink herself, and endeavour to rectify the position of the child, and place it in the right way; which might more easily and more advantageously have been done at first.



## C H A P. III.

*Of the secundines, or after-birth.—Of the situation of the after-birth in the womb; and of the infant in its membranes.*

THE infant is inclosed in the womb in a membranous bag, formed by two distinct membranes, though closely connected to each other. This bag contains, beside the infant, a pretty large quantity of a serous fluid, called the *waters*. Lastly, one part of the external surface of this bag is covered with a soft, spongy, red substance. These different parts, which form this bag, are called the after-birth; and it is of consequence to distinguish nicely the different parts thereof.

The external membrane of this bag, called the *chorion*, is dense, strong, thick, and very smooth on the side where it touches the internal membrane; but covered on its external surface with small inequalities, or little knots, of a red pulpy substance, whose use will be explained in the following articles.

The internal membrane, called the *amnios*, is very thin, fine, and smooth, on both sides; though in contact with the internal surface of the *chorion*, it does not adhere thereto, being separated by a small quantity of mucilaginous lymph.

About a third part of the first of these membranes, or the *chorion*, is covered with a soft, pulpy, spongy, round substance, generally about seventeen or eighteen inches diameter; about the thickness of an inch, or an inch and an half in its middle; growing thinner towards its edge, where it is scarcely half an inch thick. This substance resembles a cake, whence it is called in Latin, the *placenta*; by which name it is generally known. The use of this substance is principally to receive the nourishment of the infant, and convey it to it. The small knots, which are observed  
on



on the external surface of the *chorion*, are so many little *placenta*'s, designed for the same use; and their resemblance to the *placenta* seems to favour this opinion.

The infant swims in the middle of a serous fluid contained in the *amnios*, and is fixed to the after-birth by a cord about half an inch thick. This cord takes its origin from the navel of the child, and terminates about the middle of the *placenta*. It contains two arteries and a vein. The arteries come from the right and left internal *iliac* arteries, and carry the blood of the infant to the *placenta*, and other *secundines*. The vein carries back the blood, which returns from the same parts, and therewith besides, those juices which the mother furnishes for the nutrition of the child. When this vein arrives at the navel, it ascends towards the liver, enters the trunk of the *vena portarum*, and the blood contained therein passes through the greatest part of the venal canal, till it at length enters the *vena cava ascendens*. These three vessels form in the middle of the *placenta* a great number of large ramifications; which, after several subdivisions, produce those numerous capillary vessels, which are spread over the surface of the *placenta*, and its membranes, especially the *chorion*.

The situation of the after-birth in the womb, and of the infant in its membranes, is too certain to be the effect of chance, which perpetually varies. It depends upon a particular mechanism, which it is necessary to examine; because these situations influence very much, (as will be hereafter seen) the manner in which the child presents in labour.

The after-birth has a regular situation, which is fixed by the attachment of the *placenta* near the bottom of the womb. The dissection of women who have died during their pregnancy, establishes this fact: and beside, there is scarcely a midwife who does not know, from experience, that when she is obliged to  
bring



bring away the after-birth, that almost always it adheres near the bottom of the womb.

This regularity in the attachment of the *placenta* depends on a very certain physical cause. The impregnated egg descends from the *ovaria* in conception; swims for some time without any attachment, in the lymphatic fluid, which is collected in the womb. During this interval, the *placenta*, which is the lightest and most spongy part of the egg, must float on the uppermost surface, which will answer to the bottom of the womb, and constantly keep this situation till it adheres thereto, which determines its situation, and that of the secundines, during the remainder of pregnancy.

To keep strictly to this way of reasoning, the *placenta* should be always affixed to the middle of the bottom of the womb, directly opposite to its orifice: and this would be the case, if the egg was always of equal weight in all its lateral parts round the *placenta*, and the position of the womb was always perfectly straight. But one or other of these circumstances are frequently wanting: sometimes the egg is a little heavier on one side than the other, which makes the *placenta* incline more towards that side, and then it cannot adhere exactly to the bottom of the womb. At other times, the womb itself is not straight, and inclines either forwards or backwards, to the right or to the left; and then the *placenta* occupying exactly the highest part of the egg, it cannot adhere to the bottom of the womb; so that in establishing a general rule, it is easy to foresee, it will be liable to many exceptions.

The infant, surrounded with its membranes, in which it floats in the liquor of the *amnios*, is always situated with its head uppermost, and is constantly found in this position, in dissections of pregnant women. This situation of the infant in its membranes happens from the same cause which has just now been taken notice of, to explain the situation of the *placenta*.



*centa.* The uppermost part of the infant in the womb, during the earliest part of pregnancy, is the lightest of its whole body; whether on account of the cavities of the breast, nostrils, mouth, and ears, or from the largeness of the head and smallness of the brain, which encreases but very slowly during pregnancy. Either of these causes are sufficient to make the rest of the body, as the most weighty, fall downwards, and the head occupy the uppermost situation.

This rule, though very general, is liable to some exceptions: thus, if the infant has a very large head, and heavier than ordinary; or has a dropsy of the head: in this case, either the head will fall downward, if it is much heavier than the rest of the body, or will float irregularly, without any certain position, if it is nearly as heavy in proportion as the rest of the body. But we see these exceptions serve to strengthen the proposition, by confirming the natural position of the head of the infant, and the reason given for it by this rule.

The infant not only has its head uppermost during pregnancy, but has its face turned forwards; and the back resting against the back of the mother. Repeated dissections of pregnant women confirm this observation; and from thence we may infer the new posture of the infant towards the end of the ninth month, after it is turned for birth; which will be taken notice of in the next chapter. It then not only has its head downwards, opposite the orifice of the womb, but its face turned backward, towards the *os sacrum* of the mother; which proves, that its head was before, during pregnancy, placed uppermost, and its face turned forwards, as has been already observed.

It is obvious, that the infant takes this situation mechanically for its convenience, while it is small, and does not intirely fill up the cavity of the membranes; it can turn itself as it will; and all situations  
are



are alike to it in this respect : but when it is much bigger, its convenience obliges it to take the posture which has been assigned it ; by this means, the convexity of its back answers to the concavity of the *os sacrum* and loins of its mother ; and its head, knees, and elbows, are commodiously placed against the integuments of the mother's belly, which afford but a slight resistance ; which would not be the case in the contrary position, if they were turned towards the *os sacrum*, bones of the *ilion*, and vertebræ of the loins, against which they would be pressed and bruised.

Lastly, it is not for convenience only, but meer necessity, to accommodate itself to the space which it must occupy, that the infant is bent together in its membranes, towards the end of pregnancy. Its heels touch its buttocks ; its head is placed between its two knees ; its hands generally rest on its face, with its arms folded, and resting on its thighs : In short, it is wrapt up like a ball, and by this means takes up the least room it is possible for it to do ; and it is in this situation alone, that the womb and its membranes could contain it. Happily, its articulations are so lax and flexible, that it undergoes no inconvenience from this folding up of its limbs.

It does not seem that the infant, in this situation, can use any great motion : it can only stretch out a little its heels ; separate a little its knees, or buttocks ; or bend or streighten its neck a little, till at last it is forced, by a wonderful mechanisim, which will be explained in the fifth chapter, to alter its posture, which allows it to be more at its ease ; and which is, as it were, the first step towards labour.



## C H A P. IV.

*Of the examination of the parts before labour; which is called the touch.*

**M**IDWIVES are seldom sent for before labour comes on; and then there is more occasion for acting than examining. But when they have access to women whom they are to deliver, it is prudent to examine, towards the end of pregnancy, the state of the parts, to enable them to form a judgment of the difficulty or ease they are likely to meet with when the labour comes on. This examination turns on four heads: on the state of the *vagina*; the state of the bones which form the basin, or *pelvis*; the orifice of the womb; and the situation of the womb itself. Though they are not all of the same importance, they deserve, nevertheless, to be treated of separately.

The *vagina* is soon examined; and it is very seldom that any thing remarkable is met with there, especially in a pregnant woman, who has already made use of these parts. Nevertheless, we learn from observations, that sometimes steatomatous tumours are formed there, which straiten its diameter; that its sides sometimes adhere together, in consequence of neglected excoriations or ulcers, and membranes, which close up its cavity, excepting a small opening. It is surprising, that in spite of these obstacles, women have nevertheless become pregnant; which shews, that there is a peristaltic motion in the *vagina* on these occasions, which conveys into the womb the small quantity of seminal fluid which has surmounted these obstacles, in the same manner as the peristaltic motion of the *oesophagus* carries the aliments from the mouth into the stomach.

Amongst these obstacles, there are some that should be remedied as soon as they are discovered. Of this kind



kind is the membranous partition which closes the cavity of the *vagina*, and which is of the same kind with those that are met with in the neck of the *vagina*. In girls that are inperforated, sometimes they can be torn asunder with the nails; and this is the best way, when it will succeed: however, if this fails, it is proper to make a simple, or crucial incision, with a concealed bistory; which, rising from its sheath but a little, is incapable of wounding the sides of the *vagina*, and may be introduced into the opening destined for the passage of the monthly courses, when this partition is in the least perforated.

If there should be any considerable steatomatous tumour in the *vagina*, which fills up its cavity, and forms an obstacle to the passage of the child, it must be extirpated by the ligature, or amputation. But in this case, pregnant women, who are acquainted with their condition, take care to give the midwife notice of it, and endeavour to remedy it before labour. If there are only some tubercles, or inconsiderable tumours in the passage of the *vagina*, they may be neglected; because the coats of the *vagina* are sufficiently extensible to give way to the pressure of the child in its passage into the world, in spite of this trifling obstacle.

With respect to adherences of the sides of the *vagina*, if they are of small extent, soft, or formed of tendinous filaments only, it will be right to separate them with a blunt-pointed bistory, which may be conducted with dexterity, by the assistance of one or two fingers of the left hand to direct it. But if this adhesion is very extensive, and very hard, it will be proper to wait for some one of those miracles which nature effects sometimes; an example of which is to be met with in the Memoirs of the Academy of Sciences for the year 1712, p. 27. If nature effects nothing, we can, at the approach of labour, decide, whether it is more proper to perform the *Cesarean* operation, to extract the child, or make an incision



lengthways in the *vagina* (to procure a passage for the child) which we must endeavour to manage as well as possible.

In all these different cases, if there remains in the *vagina* any contraction or narrowness, we must use our utmost endeavours to soften and render it extensible, by keeping constantly, for a month before delivery, a roll of linen in the *vagina*, of the shape of a pessary, filled with the pulp of emollient herbs, or a long piece of sponge soaked in an emollient decoction.

The defects of the *vagina*, which have just been treated of, are rare, at least in such a degree as to hinder delivery; but it is nevertheless necessary to be acquainted with them.

The defects of the conformation of the bones of the *pelvis* deserve much more notice than the defects of the *vagina*, because they are more common, and without remedy. These defects, as has been observed in the first chapter, are reduced to two straits, the one in the upper part of the *pelvis*, the other in the lower part, where the child sometimes meets with great difficulty, and sometimes cannot pass at all.

The uppermost strait is formed between the superior part of the *os sacrum* and the symphysis of the bones of the *pubes*. When the last *vertebra* of the loins and the top of the *os sacrum* bend too much inward, and at the same time the bones of the *pubes*, instead of being convex outwardly, as they naturally should be, are flattened, or, which is worse, are convex inwardly, this strait is narrowest in the middle, and a little wider at the two ends, consequently is of the shape of a figure of eight. The child always here finds difficulty; but it is so narrow sometimes, that it is impossible for the child to pass through it, and then there remains no other resource to save both mother and child, than to perform the *Cesarean* operation.

The lower strait is met with between the tuberosities of the two *ossa ischion* and the point of the *os sacrum*



*sacrum* and *os coccygis*, which is connected thereto. When these tuberosities are larger, longer, and more bent inwards than common; when the point of the *os sacrum* is longer, or more bent inwards; when the bones of the *os coccygis*, too closely united, render this bone less flexible outward, and backwards; though this last strait renders sometimes delivery difficult, the accidents to which it gives rise are not to be compared to those occasioned by the superior strait.

It is easy to find out the defects of the formation of the bones of the *pelvis*, which form the superior strait, by introducing a finger or two, moistened with pomatum, into the *vagina*, and by directing them into the orifice of the womb, the projection which the upper part of the *os sacrum* makes inwardly, will be felt in the back part, and forwards the like projection, formed by the bones of the *pubes*. A judgment may even be formed of the distance between these bones, and consequently of the difficulty the child will there meet with. This bad conformation may even be known by external inspection of the person only, because these persons have a hollowness above the buttocks, which shews that the upper part of the *os sacrum* is bent inwards; and that the bones of the *pubes*, instead of being raised, are flattened, and even sunk inwards.

It is still easier to find the state of the lower strait, because one can easily form a judgment from the size, length, and curvature of the tuberosities of the *ischion*, as well as the length and curvature of the *os sacrum*, and length and inflexibility of the *os coccygis*. The obstacles which these straits may oppose to the passage of the infant are insurmountable, unless the head of the child, from its efforts, becomes lengthened, and thereby sufficiently small to make its way through this passage, which sometimes happens; or the bones of the *pubes* separate, which also sometimes happens in young women.

The child passes through the mouth of the womb, which is the reason why its greater or less facility of



dilatation and extension, renders labour more or less favourable, more or less tedious, more or less laborious; which should induce midwives carefully to examine the state thereof.

1st, If the edges of the orifice of the womb are smooth, thick, flexible, and pulpy, there is reason to expect that it will dilate easily, which promises an happy delivery, provided the child presents favourably; besides, this disposition of the orifice shews a like disposition in the womb, that it will be very fibrous and muscular, and consequently capable of contracting with force during labour.

2dly, When the edges of the mouth of the womb are flat and thin, there can be no doubt of their dilating readily, which will render delivery so much the easier: but this disposition of the orifice gives reason to apprehend the like disposition in the substance of the womb, which being thereby less fleshy, and of a thinner substance, can only contract weakly during labour. Besides, if the infant is situated cross-ways in the womb, and is vigorous, there is reason to apprehend a rupture of the womb, whose fibres are not in a state to resist its efforts.

Both these states of the mouth of the womb are natural, and depend on the first conformation. It would be proper at the same time to take notice whether the mouth of the womb is wide or narrow: but it is difficult to judge of this circumstance during pregnancy; all we know for certain is, that it is always narrower in the first than in the subsequent labours.

3dly, The mouth of the womb is liable to different and preternatural defects, the consequence of preceding or present disorders. Its edges are sometimes hard and callous, this callosity is sometimes schirrous, sometimes this schirrus is accompanied with painful shootings, and is consequently become already carcinomatous, or almost so; sometimes this cancer is ulcerated, sometimes there are only ulcerous exco-

riations,



riations, or simple ulcers, without any cancer. Lastly, these disorders sometimes extend round the whole orifice, and sometimes affect a part only thereof.

All these disorders of the orifice of the womb render delivery more difficult, tedious, and painful; and more or less so, according as these disorders are more or less troublesome, or occupy a greater or less extent of surface. Frequently the body of the womb is affected with these disorders as well as the orifice. When the midwife is come to the knowledge of these disorders, she should prepare to make use of her utmost dexterity to assist delivery, and arm herself with patience, because in such a state of the orifice, labour cannot advance but very slowly.

Though these disorders of the orifice of the womb were known early, very little could be done, except to apply relaxing and lenient applications, after the manner which has been pointed out in the first article of this chapter.

The natural situation of the womb is to be exactly in the same direction with the *vagina*, without inclining to either side. This position is advantageous for the exit of the child, which then passes of itself, without assistance, directly from the mouth of the womb into the *vagina*. One is certain of this position of the womb, when its orifice is found to correspond with the middle of the *vagina*, and to be of an equal distance from every part of its circumference.

But unfortunately this situation, though natural, is not the most common. The womb inclines frequently to the right or left, but oftener forward or backward; when this is the case, the infant, in making its exit from the womb, cannot pass through the *vagina*, but hits against some parts of its sides, where it sticks, unless the midwife has skill sufficient to rectify its position, and place it in the right road.

It is easy to find out these oblique situations of the womb, by examining where the orifice is to be met with; for the womb always inclines towards the opposite



posite side to that to which the orifice is turned. Thus if the orifice is found on examination situated on the right side of the *vagina*, the obliquity of the womb is towards the left side, and the same in every other position.

The causes of the oblique situation of the womb have been remarked in the preceding chapter, and the means of remedying it are to be met with in the first chapter of the fourth book of this work.

The greatest part of unmarried young women, though pregnant, obstinately deny their being so, even when the swelling of their belly shews it plainly, and, to evade this proof, pretend they are dropsical. The signs by which pregnancy may be distinguished from the dropsy, and even the dropsy of the womb, may be seen in the seventh chapter of the second book of my treatise *on the Disorders of Women*. The touch may serve for a diagnostic in this case, at least after the third month. Nothing more is required for this operation than to introduce two fingers, moistened with pomatum, into the *vagina*, as far as the mouth of the womb, at the same time pressing the palm of the other hand against the bottom of the womb, which about the third month of pregnancy rises above the bones of the *pubes*.

Then by pressing the womb alternately upwards and downwards, it will be easily perceived that it contains a round hard body. But however sagacious the person may be who makes this examination, he cannot determine whether it is a child, or a polypous excrescence of the womb. To form a decisive judgment, the child should be felt to stir; and this proof may be obtained after the fourteenth week of pregnancy, by pressing the womb a little, or slightly agitating it. I have met with young women, who the moment they have felt the motion of the child in this trial have coughed forcibly, to hinder, by the contraction of the muscles of the belly, my feeling the motion of the child; but besides that this trick itself condemns them,



them, desire them to abstain from coughing, and the child which has been agitated, continuing to stir, will afford a sufficient proof of what is required.

The manner of touching is very easy: the midwife should have her nails cut short, and as even as possible; she should moisten well with pomatum or butter, those fingers she intends to make use of, and should chuse that hand which is most convenient, according to which side is next the person she intends to examine. The woman should be placed in bed, on her back, her breech a little elevated, and her knees bent, and may then be covered with her petticoats, or if in bed, with the bed-cloaths; the two fore-fingers are then to be introduced gently into the *vagina*, and by introducing them, the state of the parts may be examined. The person may also be examined standing; and sometimes this posture is the most convenient, because the womb pressing downwards in this position, presents itself better to the touch. If the person is costive, a clyster is recommended to be administered before examination; but this does not appear absolutely necessary.



## C H A P. V.

*Of the change which happens in the situation of the child, and the state of the womb at the approach of labour.*

**I**T has just been observed in the preceding chapter, that the respective likeness of the parts above the navel, compared with those below, oblige the infant to keep in its membranes, the head uppermost, and the feet downwards. This position continues during the whole pregnancy, and is equally commodious both for the child, which is intirely at ease in this posture, and for the mother, who bears her burthen with less trouble when she carries it rather high.

But this situation, so useful during gestation, is not advantageous for delivery; and therefore it was necessary that the child, at the approach of this period, should change its situation, and in fact it does then change it through an admirable mechanism. The inferior and superior parts of the body of the infant, as well with respect to flesh as bone, increase in size during pregnancy in an equal and uniform manner, which does not make any difference in their respective weight; yet it causes in the superior parts other changes, which destroy the *equilibrium*. The liver, which was very small in the embryo, becomes, during pregnancy, of a considerable size and weight. The lungs, which scarcely can be perceived in the embryo, and are a kind of glairy substance, increase in magnitude, become compact, and, in short, capable of sustaining the impression of the air, which they are soon to respire. The cavities of the ears and nostrils, which are very large in the embryo, are considerably straitened by the increase of their bones, and shew less vacancy. The orbits of the eyes are filled up by the growth of the eyes, which are contained in their cavity. The teeth are grown larger in their sockets, and occasion  
a new



a new increase of weight. Lastly, the brain and the *cerebellum*, which in the embryo were a thin, glairy, spongy substance, have acquired a size and consistence sufficient to perform their destined functions, and consequently weigh much heavier.

All these causes, which are found united towards the end of pregnancy, make the superior parts of the child weigh more than the inferior; whence they must, by the invariable laws of hydrostatics, fall downwards, the inferior parts of the child rise uppermost, and entirely change its position. This is what is called the turning of the child for birth, which denotes the approach of labour, and precedes it a greater or less number of days, according as the progress of the child's growth has been more or less quick.

If we attend to the position in which the child was before placed, its body bent inwards, and the head inclining the same way, we shall readily comprehend, that in making this turn the head must fall first forwards on the neck of the womb, near its orifice; that the trunk of the body must follow, and the inferior extremities mount uppermost towards the bottom of the womb; as also that the face of the child, which was before placed forward towards its mother's belly, will, in its new position, be found turned backwards towards the *os sacrum*, that is to say, in a direct contrary situation to that which it was in before, but absolutely necessary for delivery.

This displacing of the child changes the form of the belly: the infant, which has fell down upon the neck of the womb, no longer occupies its bottom with its head or its trunk, which are now of some size, but with its feet, which, in comparison, are very small. The womb is no longer so much distended; the belly sinks, and the whole weight of the child bears on its mother's hips. In the mean while, the child, sufficiently confined in its new posture, takes the advantage of its liberty to stretch out its limbs, and, by the motion of its feet, strikes against the internal



tetnal surface of the womb, and causes slight pains, which are the harbingers of approaching delivery; which happens sooner or later, according to their different degree of strength and intervals of return.

It is by this means that delivery advances by degrees. The head of the infant pressing on the neck of the womb extends it, and compressing the blood-vessels and lymphatics, which are distributed through its surface, occasions an oozing of a ferous fluid, which moistens it, renders it oedematous, and disposes it to give way easily. This oedematous swelling, which precedes delivery, is sometimes so considerable that it extends even to the external *pudenda*.

In proportion as the neck of the womb gives way and is extended, the child descends lower and lower, pushed forward by the efforts it makes, by bearing itself on its feet, which it rests against the bottom of the womb; and by the contractions of the womb, which it excites by its kicking, it at length arrives at the internal edge of the orifice of the womb, which should be looked upon as designed by the Author of Nature to put in motion, and irritate all the parts which concur to produce labour.

These kind of motions, excited by the impression, irritation, or a pleasing sensation of a particular part, known by the name of sympathetic motions, are common: thus a little snuff conveyed into the nostrils excites sneezing; and the impression which is made in the stomach on particular parts thereof, causes vomiting or the hiccups, the action of smoke or acrimony of the *mucus* of the windpipe produces coughing; in the same manner the impression, dragging pain, and irritation, which the head of the child causes in the mouth of the womb, puts all the parts into a state of contraction, and thereby procures delivery.

At this time the radical fibres which surround the orifice of the womb contract and dilate this passage. At this time the muscular fibres of the womb, and especially the circular fibres of its bottom, contract,  
push



push the child forward towards the orifice, and allow it a free passage. At this time, in difficult labours, the *diaphragm*, and muscles of the *abdomen* or belly lend their assistance, and by contracting all at once, accelerate delivery. Lastly, at this time the union of all these causes effects a speedy and happy delivery, when there is no obstacle to prevent it.

The greatest difficulty the child meets with is at the orifice of the womb; but this passage being so much softened and relaxed, at length gives way. Nothing more is required than to hinder the too violent or too hasty efforts of the child and the womb, from causing lacerations in its edges, which might be troublesome; and the midwife must be careful to prevent this accident, by not hurrying delivery too fast, by moistening the passage well with pomatum or fresh butter, by gently assisting to dilate the orifice of the womb, and by being extremely careful not to occasion herself, by her bad management or precipitancy, what she should endeavour to prevent.

When the head of the child has passed the mouth of the womb, and the shoulders stick there, the delivery is looked upon as over, and with reason; for neither the *vagina*, nor external *pudenda* afford any great resistance: only it sometimes happens, when it has been neglected to be remedied, that the head passing obliquely, bears too much backward towards the *os coccygis*, and lacerates the *perinaeum* or partition which separates the *anus* from the *pudenda*, which occasions a troublesome inconvenience; but this case happens seldom, and generally proceeds from want of attention in the midwife.

As soon as the child has made its exit, the *pudenda*, *vagina*, and mouth of the womb, form a kind of continued wide canal, through which the midwife can easily introduce her hand (after having moistened it with pomatum) even into the womb, to separate the after-birth, if it adheres; to extract it, if it is loosened from the internal surface of the womb; and if there



are any clots of blood to bring them away ; but these parts close so speedily, through their elasticity, that it is not possible within a very little time after, to introduce the hand, without great difficulty, and occasioning excessive pain.

## C H A P. VI.

### *Of the dispositions requisite for delivery.*

**O**NE of the most important articles, and for which one ought to be prepared before-hand, is to decide in what manner women should be placed for delivery.

It was customary formerly to deliver them backwards, with their body bent, leaning upon a table, and their legs pretty wide asunder ; I do not know whether this custom still subsists in the country, but it has been long abolished in cities. A chair for delivery has been substituted in the room of it, hollowed before, and is still made use of in some provinces, especially among the common people. But this has also been a long time disused in Paris.

For some time afterwards a bed was used for delivery, made like a couch, with this difference only, that it was moveable on an axle-tree, which was under the middle of the frame of the bed, by means of which it could be made to incline either way, or be kept in an horizontal situation, according as occasion required, and was fixed in the desired situation by means of a pin. This bed was narrow, to give the midwife more room to act, and covered with a mattrafs, or hard hair quilt, that the woman in labour might not sink down too much. It had at the end a foot-board, against which she might fix her feet, and towards the head two handles, one on each side, for her to grasp during the pains. This bed was very  
con-



convenient, principally because thereby the head and shoulders of the woman in labour could at pleasure be raised or lowered, without trouble, according as circumstances might require either of these situations, as will be seen in the sequel. Nevertheless, this bed, though ever so convenient and useful, is at present out of use.

The present methods of delivering women are reduced to two only, either a common couch, or bed; these methods of delivery are more troublesome for midwives, and more inconvenient for women in labour: when they are delivered in bed, because the bed is thereby always tumbled and fouled, and occasions a great deal of trouble to make it again when the labour is over, and to put the lying-in woman into bed again. But a woman would have the vapours if she saw a bed for delivery brought into her chamber; and this reason upholds the custom.

At the approach of labour, the *pudenda*, *vagina*, and mouth of the womb, are to be well lubricated with pomatum, or fresh butter; they even should be fomented with an emollient decoction of the roots and leaves of mallows, bearsfoot, linseeds, and the like, if the least hardness is met with; or, which is still more efficacious, should be exposed to the vapour of this decoction, made very hot, and placed under a close-stool, on which the woman in labour should be seated.

At the first attack of labour-pains an emollient clyster or two, prepared with butter, or oil of sweet almonds, and even purgative clysters, with honey of mercury, or lenitive electuary, if the body is costive, should be administered, to empty the gut *rectum*; for the same reason, to empty the bladder, the woman in labour should be persuaded to endeavour to make water, and if the labour is tedious should repeat this several times, because by thus emptying the *rectum*



and bladder, the passage of the child is much facilitated.

It is unnecessary to remind the midwife to take off whatever rings she may have upon her fingers; nobody can be ignorant that this is a necessary precaution in labour. It were to be wished that she had a small hand and long fingers, but this is an advantage given by nature, and not to every one; nevertheless, those who are destined to this employment should take care to preserve the flexibility of their fingers, by avoiding all kind of work which might tend to contract, or make them stiff.

As to bleeding, if the woman has not been bled during her pregnancy, or has lost but very little blood, if she is young and has a strong pulse, it will be right to lose blood at the beginning of labour. In the contrary circumstances, it will be most proper to wait till the nature of the labour, or the supervening accidents, oblige you to have recourse to it.



## B O O K II.

*Of natural labours, where the child presents favourably.*

**T**HESE labours are of two kinds, in one the infant's head presents, in the other its feet. I shall examine in this book, these two kinds of labour in every case in which they can possibly offer.

## C H A P. I.

*Of the first kind of natural labour, in which the child's head presents.*

**T**HE first kind of natural labour comprehends three circumstances: 1st, that the infant's head presents, and its head only, by which it may the better exert its force, and make its passage. 2d, That it hath its face turned downwards. 3d, That its situation is straight, in such a manner that the top of its head answers directly to the orifice of the womb, and can easily enter therein.

These three circumstances are the necessary consequences of the change which the turning for birth, when it is not disturbed, makes in the situation of the infant towards the end of the ninth month. Also this labour, though it comprehends three circumstances, is the most frequent of all labours, and even, according to the common opinion, the only one which is natural.

In this kind of labour, as well as in all the others, which I shall treat of in the sequel of this treatise, it is necessary to distinguish four different periods, to determine the different objects on which the midwife ought to fix her attention: the prelude of labour;



its beginning; its height; and end, or exit of the child.

In the prelude, the woman who expects to be brought to bed, first feels some slight pains, caused by the motion of the child's body, feet, or heels, which the French usually call the *mouches*. These pains are more or less sharp, more or less frequent, and of shorter or longer duration, according to the vivacity of the child.

2dly, Sometimes, when the pains are rather violent, they cause some contraction of the womb; that is to say, some effort, or in other words, a pain resembling labour-pains. But these pains are neither regular, nor sufficiently supported, and consequently no way efficacious.

3dly, The child seems to pass intirely downward, and women, who are not very experienced, imagine the child will fall down.

4th, The orifice of the womb begins to open, through the impulse of the child, and there oozes, in some women, a small quantity of a milky serous fluid, which was contained between the *chorion* and the womb. Faint-hearted, young, and unexperienced women busy themselves about these slight appearances of approaching delivery much more than they ought, which those never do who have more courage, and especially if they have already had a child.

The beginning of labour is pointed out by more certain signs.

1st, The pains are more violent, more frequent, and accompanied with more proportionable efforts, which shews that the child is briskly agitated in the womb, and struggles hard to come into the world.

2dly, These efforts bear down towards the *vagina*, and force, by degrees, the orifice of the womb to open for good, and dilate itself sufficiently to allow the head of the child to be felt.

3dly,



3dly, At this time, as the head of the child does not yet entirely stop up the mouth of the womb, the waters of the *amnios* ooze round the sides, and push before them a part of the membranes which cover the head of the child, and form a tumour like a bladder full of water, which descends into the *vagina*.

4thly, The waters appear under two shapes, which it is necessary to distinguish: sometimes the tumour is narrow and long; sometimes wide and flat. It is narrow when the mouth of the womb is but little opened; because the width of the tumour answers always to the dilatation of the mouth of the womb, which is as it were its basis: it is at the same time long, because, the head of the child not closing up the passage, the waters continue to fall into the tumour, and lengthen it more and more. On the contrary, when the mouth of the womb distends easily, and the head of the child sticks there, at least the crown of it, the tumour is wide; because the opening of the orifice is large; and it is flat, because the head of the child hinders its oozing much; and the small quantity, which is already accumulated, is obliged to become flattened, in proportion, as the bag is distended.

This second period of labour is sometimes tedious, when the pains and efforts are weak and slow; or when the obstacles which the child meets with from the orifice of the womb are great. From whatever cause the difficulty proceeds, the labours, which are long in the beginning, are commonly difficult and laborious: nevertheless, this is liable to an exception in timorous and unexperienced women, who reckon too soon the beginning of their labour.

Every part is in action in the height of labour; and it is this period which is properly called labour.

1st, The infant is violently agitated; the womb contracts forcibly on the body of the child; the *diaphragm* and muscles of the belly force strongly downwards;



the pains are almost without intermission ; the efforts or strainings answerable to the pains, and bear downward without relaxation.

2dly, These different causes united hasten the dilatation of the mouth of the womb, which at length opens sufficiently to allow the child's head to pass. When it is forced into this orifice as far as the ears ; that is to say, its widest part, the child is said to be in the passage.

3dly, About this time the waters break ; that is to say, the elongation of the membranes, in the shape of a bag, which contained the waters, tears, and suffers them to run off ; this is called the first waters. As the head of the child advances in the passage, and the membranes cannot come forward likewise, the water contained in this bag from the pressure it meets with from the child's head must tear the bag. It is also necessary that it should then be ruptured, to open a passage for the infant, which ought not to come into the world inclosed in its membranes, which would render its exit more difficult and laborious.

It happens nevertheless sometimes that the infant is born inclosed in its membranes \* as in a sack, which forms a large shapeless bundle, from whence the child must be extracted, by tearing open the membranes. But this case is rare, and happens only when the labour is very favourable.

It oftener happens that the child, in coming into the world, is born with a part of its membranes on its head. This is called being born with a hood, which is looked upon as a mark of good fortune † : in fact it is so for the child at the time ; for this sup-

\* Thomas Bartholine in *Actis Hofnienfibus*, vol. ii. observation 35, page 93.

Frederick Ruysch, observation 11, page 18.

† It is customary for children to be distinguished with a natural hood, which the midwives take away, and sell to credulous advocates : for pleaders of causes are said to be assisted by this.



poses always an easy and quick labour ; but it extends no farther.

The height of labour is not always the same ; sometimes it is very short, and very favourable ; two or three good strainings suffice for delivery, and every thing is over in a quarter of an hour ; but at other times it is long and laborious : some women are a long time in strong labour, with hardly any intermission of pains, a long time before they are delivered. This difference proceeds sometimes from the infant ; but more frequently from the side of the mother.

When the child is come into the passage, labour is drawing towards its end.

1st, The first effort, and even a very weak one, forces the head forward, and pushes its shoulders into its place : when the shoulders are passed, the rest of the body, which continues lessening in size, makes its exit, to use the expression, of itself.

2dly, The after-birth, which comprehends the membranes and the *placenta*, commonly comes with the child : for the violent efforts during labour ; that is to say, the repeated contractions of the womb have loosened the *placenta* ; or at least have so strongly shook it, that it is sufficient to pull it gently by the navel-string to extract it.

3dly, When the head of the child has passed, as the neck does not entirely fill up the mouth of the womb, the fluid, which still remains in the *amnios* behind the infant, begins to make its escape ; but does not entirely pass off, till the shoulders are delivered. This is called *The second waters* ; or more properly speaking, *The true waters of delivery*, the impetuous passing off of which finishes the delivery of the child.

*Ælius Lampridius in the Life of Antoninus Diadumenus.* Lampridius adds, that the emperor Antoninus, son of Macrinus, was called *Diadumenus* in his youth ; that is to say, *crowned* ; because he was born covered with a hood of this kind, shaped like a crown, which was looked on as a presage of empire, to which dignity he arrived.



4thly, At the same time the serous fluid, which oozes from the *vermicular*, or lacteous vessels, escapes also between the womb and *chorion* entirely pure, if the after-birth still adheres to the womb; or mixed with blood, which oozes from the veins, if the *placenta* is entirely, or in part loosened. This discharge is called the *lochia*, or cleansing, which continues for several days after delivery.

In each of these different periods of labour, the midwife has different observations to make, and different assistances to give.

1st, In the prelude to labour, she ought to examine the state of the mouth of the womb, to enable her to judge whether it begins to dilate, and whether any kind of fluid yet oozes, from whence she may infer whether delivery is at hand or not.

2dly, She ought also to be a judge of the pains, whether true or false. True labour-pains begin from the loins, and extends generally to the navel; which points out that they arise from the bottom of the womb, from whence they press downward towards the neck of the womb and the *vagina*. These are always accompanied with, or followed by, a dilatation of the mouth of the womb: the want of one of these circumstances, and especially of them both, prove these pains false.

3dly, She ought also to be able to form a judgement whether these pains are efficacious, or not. True labour-pains are always efficacious, and foretel approaching delivery, when they are strong, frequent, and sudden: but false pains are always inefficacious, and give reason to apprehend a tedious and difficult labour, especially if they are weak, small, and happen but seldom.

4thly, But in every case the midwife should appear composed, and as well as hearten the woman in labour by words, encourage her by her looks.

In the beginning of labour, she should examine first whether the mouth of the womb is flat, thin,



soft, easy of dilatation, and already sufficiently opened, which assures a favourable delivery.

2dly, Whether the dilatation of this orifice encreases from time to time sufficiently quick, which circumstance also promises speedy delivery.

3dly, Whether the tumour which the waters form is large and flat; and whether it grows still bigger and flatter from time to time, which shews the progress of the dilatation of the mouth of the womb.

4thly, Whether the head of the child presents; which is known by its roundness, and is a certain sign of a natural birth.

In this period of labour, the midwife has little to do, except to endeavour to assist the dilatation of the mouth of the womb. For this purpose, she should introduce the fore-finger and middle-finger of the right-hand, well lubricated with pomatum, or fresh butter, and placed close together: these fingers are to be gently separated; and by this means the mouth of the womb will be dilated, especially if she repeats this operation in different directions, and by degrees introduces the rest of her fingers.

It is in the height of labour that the midwife should be principally attentive. First, She must continue to assist the dilatation of the mouth of the womb, by the means which has been just now pointed out.

2dly, She must direct the woman in labour to regulate and keep up her pains and strainings; that is to say, to keep her breath, press strongly downwards, and persevere in this method as long as possible.

3dly, When the child's head is engaged in the passage quite to its ears, she must draw off the waters by breaking the membranes or bag which contains them. Generally this bag ruptures of itself about this time; and it is right to wait for its breaking naturally, unless it appears clearly to be an obstacle to the delivery of the child. In general, the midwife should be  
careful



careful not to discharge the waters too soon, because the delivery, which happens when the waters are discharged too early, and the parts become dry, is always attended with difficulty.

4thly, The membranes being ruptured, it is of importance still to be assured of the situation of the child; whether its head presents properly, with the face downwards; or whether the head alone presents, from the concurrence of these circumstances, a natural labour of the first kind may be foretold. If any one of these circumstances, and especially if several of them are wanting, a preternatural labour is to be expected, or at least a natural labour of the second species.

5thly, When the head of the child is in the passage, if it meets with any obstacle, the midwife should introduce the two first fingers of each hand, well lubricated with fresh butter or pomatum, to the sides of the child's head, as far as the ears, to which she should apply them; and then, with the assistance of a strong pain, endeavour to bring it forward gently; at the same time moving it a little to the right and left, to facilitate the bringing down of the shoulders. When the shoulders are once passed, the child follows all at once, and labour is soon over.

6thly, When the child is delivered, the midwife should by no means fail examining whether there is another child behind, or a false conception. In the first case, she should endeavour to assist the delivery of the second child; and in the other, to extract the false conception, in the manner as will be explained hereafter.

The after-birth remains still to be extracted. To do this, if it does not come away of itself, the midwife should place the child on her lap, on its side, with the face turned towards her, to prevent the flooding from suffocating it, at the moment it begins to breathe; and should then gently pull the navel-string, to facilitate the coming away of the after-burden; which will easily follow, if it is already separated from the womb,



as it most commonly is : but if it still holds by some part, she must loosen it, by gently shaking it, by means of the navel-string, and pulling it lightly towards her, sometimes in one direction, and sometimes in another.

2dly, After the extraction of the *placenta*, the midwife should carefully examine whether it is whole ; which is easily known. If it is not so, she should immediately introduce into the womb, before it closes, the fore-finger of her right-hand, well moistened with pomatum, and make use of it, to extract what remains behind, as well as clots of blood, if there are any.

3dly, But if the after-birth withstands her attempts to extract it a great while, she must cut the navel-string with a pair of scissors between the two knots which she has already tied thereon ; one towards the mother, the other towards the child : and after having disembarassed the child, and delivered it to the care of an assistant, must endeavour to separate the after-birth in the manner that will be explained in the sequel.

I shall also refer to two particular chapters the management of the new born infant, as well as the lying-in woman.



## C H A P II.

*Of the second kind of natural labour, in which the child's feet present.*

**I**T will, no doubt, be wondered at, that I should place footling labour amongst the number of natural labours ; but, I flatter myself, this surprize will cease, upon an examination of the reasons which have determined me thereto ; the account of which I refer to the following chapter, as I propose in this to treat only of the causes of this situation of the child ; the means of finding it out ; and the manner of its delivery when both feet present, and when one is assured, by the position of the feet, that the face is turned downwards, which is to be looked on as one of the essential circumstances of a natural labour of this kind.

In the room of the head, the feet present ; because the infant has not made the turn for birth, or at least has not done it as it ought to be, which may happen from many causes.

1st, From the smallness of the child's head, which does not weigh heavy enough to over-balance the feet.

2dly, From the weight of the belly in a dropical child, which counter-balances the weight of the head sufficiently to hinder the child's turning for birth, or at least, occasions it to turn but imperfectly.

3dly, From the size of the child's body, which filling up the womb too much, confines the child, and deprives it of the liberty of turning for birth, or doing it as it should be.

4thly, From the smallness of the womb, which is not sufficiently distended, and does not afford play enough to turn compleatly for birth.

5thly,



5thly, From there being twins, which by pressing and confining one another, prejudice the freedom of each other's motion.

6th and lastly, From the want of a sufficient quantity of fluid in the *amnios* to suspend the child, and facilitate thereby its turning for birth. To which may be added, the too great obliquity of the womb, inclining forwards, backwards, or sideways, which occasions, (though the child does turn for birth,) its head, in the room of falling against the mouth of the womb, to press on the side of the womb, which, from its obliquity, is still lower, and by this means occasions the feet to present.

A thousand other accidents, such as a fall, a false step, a jolt of a carriage, &c. may change the position of the child, which was at first properly situated, and thereby place its feet where its head was placed before.

It is the duty of a skilful midwife to know early, and, if she can, at the beginning of labour, whether the child's feet present; for this will serve to regulate her conduct.

First it may be guessed even before the womb is dilated, or at least before it is sufficiently so to introduce the finger, from its orifice not forming a round, equal, and large tumour, as always happens when the head presents: but, on the contrary, a small unequal angular tumour, such as the feet must naturally occasion.

To this conjecture may be added, that which nature furnishes. The labour pains and strainings are always more weak, slow, and languid, when the child's feet present than when the head presents. In this last situation, the feet, which are towards the bottom of the womb, by their kicking and whincing, occasion sharp and frequent pains, and proportionable efforts; in the room of which, when the feet present, the head, which then is towards the bottom of the womb, remains there in quiet, without making any impression,



pression, or at most occasions but a slight uneasiness.

It can more certainly be known, whether the child's feet present when the womb is sufficiently dilated to allow of introducing a finger or two, though the membranes are not yet ruptured; because the feet can easily be known through the membrane, and be distinguished from every other part: besides, the tumour formed by the waters in the *vagina* is in this case very long and narrow. It is very long, because the mouth of the womb not being exactly closed up by the feet, as it is by the head, the fluid contained in the *amnios* oozes out in great quantity. It is narrow, because the orifice being but little dilated, the size of the tumour, which is always answerable to the dilatation, can be but very small.

Yet one cannot be absolutely certain of this circumstance, until the membranes are ruptured, and then naked feet can be perceived without any medium; but the midwife should not stay for this absolute certainty, but when all these circumstances concur to prove that the child's feet present, it is necessary, if the membranes do not rupture of themselves, to tear them as soon as possible, to prevent those accidents which might happen from this position of the child, if left entirely to nature. It is true, that by this means not only the first waters, but even the second, are discharged, which might prejudice delivery. But this inconvenience must be put up with, from the necessity there is to do quickly whatever is proper in this kind of labour, which cannot be done, unless the membranes are ruptured, as will be hereafter shewn. It is sufficient that the midwife is aware that when she has taken this step, she must not trust to nature, as may be done when the child's head presents, but must lend her assistance, and perform the delivery as quick as possible, to reap the benefit of the moisture which remains in the membranes and passage.



The midwife's assistance, in this first case, is confined to her aiding the dilatation of the mouth of the womb.—To do this, she must introduce her two first fingers into the orifice, having first well moistened them with pomatum; if she cannot do this, she must endeavour to dilate the orifice gently with one finger only, if she cannot introduce more without using too great violence, though she will succeed better when she can introduce two or three, or even all the fingers together, because by distending them gradually, the orifice is proportionally dilated, equally in every direction.

By this means the midwife is soon convinced of the position of the child: it is an advantage if both feet present, but before any use is made of this circumstance, she should be well assured that both feet belong to the same child; for it sometimes happens that they belong to two different children, which would be both destroyed by obstinately persisting to deliver them both at the same time.

To determine this, midwives generally examine the conformation of the toes, and the position of the two great toes; whence it is easy to judge whether they are one a right, and the other a left foot, and whether there is reason to conclude they both belong to the same child: but however strong the presumption may be, from this examination, they should not entirely confide in it, in a circumstance of this importance. They should be very certain, before they hasten labour, that both feet belong to the same body; and for this purpose, introduce the hand, well moistened with pomatum, along one of the thighs, till they thereby find them both united to the same body.

But, on the contrary, if one foot only presents, as frequently happens, the midwife should think of searching for the other, after having examined by that which presents, whether it is the right or left-foot that



is wanting, in order to direct her search in a proper manner.

It was the custom formerly to begin by securing the foot which presented, by tying it loosely with a ribband. This precaution is seldom used at present, and indeed it is unnecessary; but as it is attended with no inconvenience, midwives are not culpable who make use of it.

It is never very difficult to find the foot which is wanted; sometimes the knee is found opposite the orifice, and it is then easy to bring it down. At other times the knee and foot are a little farther removed; but by bending the finger, and searching round the orifice, they may be found and brought down. Lastly, In cases of necessity, the hand, being first moistened with pomatum, may be slid all along the leg and thigh which presents quite till its union with the other thigh, whence descending, it meets with the leg and foot which are wanting.

To bring down the foot which is wanting conveniently, it is of consequence to prevent that which presents from advancing too far in the passage, because when that is the case, the leg and foot which is wanted to be brought down must be very much bent, and by that means might be broke. In general the best way is to return the child a little back into the womb, if it can be done without violence; or however, to lower the upper part of the woman's body, and raise the buttocks with pillows in such a manner as to render the mouth of the womb higher than its bottom; and by this means making the womb descend into the belly, and the infant towards the bottom of the womb, procure the necessary room to bring down the limb without the least violence.

When the midwife has got hold of both feet at the mouth of the womb or even in the passage, she should before she proceeds farther be assured they belong to the same child, and for this purpose employ the means which have been just pointed out.

But



But if unhappily the limb of the child is advanced in the passage as far as its thigh, it must necessarily be returned back into the womb, by lowering the woman's body, and elevating her buttocks, as has been already observed, in order to search for, and bring down the leg and foot which are wanting, and place matters in a proper situation for delivery. I know very well some people maintain that children have come into the world in this position: if this was the case, the thigh which was wanting must have been bent inwards; but besides that one can never be sure of this flexibility of the child's thigh, it is very imprudent in every respect to suffer such a delivery to proceed.

When the midwife has got hold of both feet, and is assured they belong to the same child, delivery is in great forwardness; she has occasion only to make a good use of the woman's throes, for in this kind of labour there is hardly any thing else to do, as has been observed; except to draw the child gently, and by degrees, as far as the buttocks, which is commonly very easy. To do this, she must lay hold of the child's legs and thighs; but as they are very slimy, and the hands being moist, will slip, they should be wrapt up in soft but dry cloths.

2dly, When the child is extracted as far as the thighs, it must be examined whether the face and belly be turned upward or downward, which is easily known by the situation of the heels and toes.

If the face and belly are turned downwards, it is so much the better, as this is the most desirable posture; but they frequently present in a contrary position, because the child has not been properly turned for birth; and in this case the midwife must place it in its proper situation for delivery.

3dly, To do this she must introduce her right hand flattened under its back, and in proportion as the child advances, or she pulls it with her other hand, endeavour gently to turn it. She will easily succeed in li-



ving children, because in them the body has a firmness; but it is more difficult in a dead child, whose body has no elasticity, especially with respect to the neck, which does not in the least follow the direction she endeavours to give it.

4thly, When the child is turned, nothing remains but to hasten delivery, though not too precipitately: it was formerly the custom to search for the arms one after another, and place them towards the child's side: some time afterwards it was the custom to bring down one arm only, and leave the other stretched over the head, in order to prevent the head from stopping in the passage: at present, it is usual to leave them both, and it is the best way; delivery is not rendered thereby more difficult, and it is the most certain means of preventing the head's lodging in the passage.

5thly, Nevertheless, as in spite of even this precaution, there is always reason to be afraid of this accident, because the mouth of the womb begins to contract itself as soon as the shoulders are passed, the midwife should exhort the mother (when the child is extracted as far as the shoulders) to exert her greatest efforts, and continue them as long as possible, and take the advantage thereof to extract the shoulders, and make the head immediately occupy the same place, without giving the mouth of the womb time to close.

6thly, But if, in spite of this precaution, the child's head should stick in the passage, she must endeavour to disengage it by degrees, without pulling, by moving it sometimes one way and sometimes another, by directing the mother to press strongly downwards, and even to take some sternutatory powder to make her sneeze; but should be careful of putting her finger into the child's mouth to extract its head, because this ends generally in dislocating its lower jaw.

7thly, and lastly, When the child is delivered, she is to conduct herself with regard to mother and child, in the manner which will be hereafter shewn in a particular chapter.



## C H A P. III.

*A parallel between footling labour, and that in which the head presents.*

**A**Lmost all the antients have been of opinion, that the only kind of natural labour was that in which the head presented, and consequently looked on footling labour as a preternatural labour.

The decision of *Hippocrates* is clear. "If a woman says he, \* is a long while in labour, it is an almost certain sign that the child presents cross-ways, or by the feet; it would have been much better if its head had presented." He adds, some lines lower, "labour is difficult and troublesome when the child's feet present, generally fatal to the mother or child, and frequently to both."

*Aristotle* † says the same, in more than one place in his *History of Animals*, as well as *Galen* ‡. But *Pliny* § is still more decisive. "Labour," says he, "where the child's feet present is preternatural; whence it comes, he continues, that they call those who are thus born *Agrippa*, which expresses in Latin the difficulty of their birth." To which may be added, that in alluding to the manner in which dead persons are carried to their funeral, he establishes it as a received maxim \*\*, "That the order of nature is to enter into the world by the head, and the custom of it to go out by the feet."

After the like authorities, it is unnecessary to ask the opinion of succeeding physicians. They unanimously agreed in looking upon every kind of footling labour as fatal; and this opinion is so generally established,

\* Diseases of women, book, i. p. 50.

† History of animals, book, vii. chap. 10. 13.

‡ Use of parts, book, xv. chap. 7.

§ Natural history, book, vii. chap. 8.

\*\* As above.



that even at present there is hardly any one who does not pity the condition of a woman in labour when the feet present.

There are nevertheless among the antient physicians some, who far from condemning footling labour, have approved of it; and have even advised to bring all bad postures of the child, where it presented by any other part than its head, to this kind of labour. Among this number may be reckoned *Celsus*, *Aetius*, *Paul Aegineta*, *Avicenna*, and many others; whose opinions on this subject I have taken notice of in my *Short History of the Art of Midwifry*. There has even been, for some time, physicians who were of opinion that footling delivery was easy and even natural, and who had courage enough to declare it. *Doleus* \* is one of the first I know of who dared advance this truth, in which he has been followed by *Govey* †, and even by *Daniel Hoffman* ‡, and by a number of men-midwives, who have all of them put in practice this method of labour in every case in which the bad posture of the child rendered any other kind of delivery difficult or impossible.

I quote these authors with pleasure, because they spare me the pain of being the first advancer of this paradox. But I am sensible that I should have advanced it, though I had been the first; because I am firmly persuaded that, *cæteris paribus*, footling labour is less painful, shorter, easier, and more certain, than when the head presents, and consequently deserves to keep the second rank, at least, amongst natural labours. I even flatter myself that this opinion will be embraced, after examining thoroughly, and weighing the reciprocal advantages and disadvantages of these two kinds of labour.

\* Medical Encyclopedia, book v. chap. 7. p. 673.

† Treatise on the generation of the fœtus, p. 104. and the following pages.

‡ Annotations on Govey's hypothesis.



The advantages, which cannot be denied, with respect to that kind of labour in which the head presents, are very great; so that it is not the least wonder that they have been thought decisive.

1st, The top of the head is a kind of wedge, more proper to open the mouth of the womb than the feet.

2dly, When the child's head presents, it can fix its feet against the bottom of the womb, and thereby hastens the dilatation of its orifice; while this assistance is wanting in footling labour.

3dly, When the head is come into the world, the rest of the child's body follows without difficulty, because the circumference of the other parts, even of the shoulders, is lesser in children, or at least not larger than the circumference of its head. But, on the contrary, in footling labour, though the feet present, the whole circumference of the body remains still to pass.

4thly, In that kind of labour where the head presents, there is no danger of the head's sticking in the passage, and being separated from the body, whilst there is great danger of this in footling labour, especially when the child is dead.

5thly, The greatest part of the waters are retained in the womb in this kind of labour, because the top of the head exactly stopping up the mouth of the womb, prevents their issue. By this means they hinder the womb from contracting, preserve the moisture and flexibility of the membranes, and, by gradually oozing out, serve to lubricate the passage, and facilitate the delivery of the child. All these advantages are wanting in footling labour, where almost all the waters escape immediately, because neither the feet nor legs of the child can sufficiently close up the mouth of the womb.

6thly, When the child's head presents, the feet, by kicking strongly, irritate the bottom of the womb, and thereby excite the necessary throes to accomplish



delivery ; whilst in footling labour the head irritates but very little : whence it happens that in this kind of labour the throes are deficient.

7thly, and lastly, When the child's head presents, the face is almost always turned downwards and backwards, because this posture is the necessary consequence of the turning for birth. On the contrary, the face is almost turned upwards and forwards in footling labour, because the child has not been turned for birth, or very irregularly.

The advantages of footling labour over the other are fewer, but of much greater consequence.

1st. In this kind of labour the womb gradually dilates, and the child by presenting with its feet, and advancing in this situation, makes a kind of wedge, the size of which is gradually augmented, and produces a gradual and almost insensible dilatation of the womb ; whilst, in the other kind of labour, the dilatation of this part is brought almost immediately to the highest pitch it can arrive at.

2dly, In footling labour the midwife is never embarrassed with the obliquity of the child's posture, nor the obliquity of the womb which contains it ; because when she has got hold of the feet, it is easy to rectify the child, and by doing that rectify the womb itself. These helps are wanting in the other kind of labour, in which there are scarcely any means of correcting the obliquity of the womb and child, and where these bad situations frequently become fatal, as will be hereafter seen.

3dly, and lastly, In footling labour, by grasping the feet, and afterwards the legs of the child, there is a firm hold to extract, turn, or rectify it ; and by this means to assist women in labour, facilitate delivery, and remedy a great part of its inconveniencies ; which is absolutely wanting in that kind of labour in which the head presents, where the midwife remains idle, and can be of no service, except in her attempts to help the dilatation of the orifice.



So that, every thing considered, there is reason to conclude that footling labour is least painful, because the head, which then occupies the bottom of the womb, causes no irritation there, or at most but very little.

2dly, It is easier, because the mouth of the womb is dilated by degrees, and in almost an insensible manner; and because the midwife, by gently drawing the feet and legs, assists delivery effectually.

3dly, It is quicker, because it is easier to procure this gradual dilatation, than to dilate the mouth of the womb all at once to its utmost extent, without reckoning that the midwife assists on her part this dilatation, by gently pulling the child towards her.

Lastly, It is as certain, (which follows from the three preceding propositions,) and is attended with no other difficulty than that which arises from the danger of the child's head lodging in the passage. But this danger is extremely lessened, since the method has been taken to leave the child's arms up, in order to hinder the womb from contracting about the child's neck, especially if care is taken to turn the child's face downward, and not to deliver in any other situation, because then the chin cannot hang on the *os pubis*, and passes without difficulty into the hollow of the *os sacrum*: after all, the danger of the head's lodging in the passage in footling labour scarcely ever happens, except in the delivery of a dead child, and then this accident ought not to be laid to the charge of footling labour, because it is in this case not made use of from choice, but through meer necessity, being the only possible means of delivering the mother.

Hence we may conclude, that far from being alarmed, as was formerly the case, and is still in the country, when the child's feet present, we should look upon this kind of labour as advantageous, when conducted by a midwife who knows how to take the necessary precautions for the easy



passage of the head, which have been pointed out in the preceding chapter.

2dly, All children which present with the shoulders, hands, back, belly, buttocks, &c. should, without hesitation, be brought to this kind of delivery, without losing time as formerly, in endeavouring to deliver them by the head, which is always very difficult, not to say frequently impossible.

3dly, Children which present with the head obliquely, whether through fault of the child, or of the womb, should be delivered footling, when the midwife has for some time endeavoured in vain to rectify their position; in which case the midwife cannot be too careful to take this resolution early, before the mother and child are exhausted by labour, and the internal surface of the membranes grown dry by the passing off of the waters.

4thly, All these advantages are sufficient to make footling labour be looked on as a natural kind of labour, at least of the second kind.



## C H A P. IV.

*Of the method of treating lying-in women.*

THE duty of midwives, with respect to lying-in women, consists chiefly in the conduct which they should observe during the first day after delivery; during the remainder of the month; and the means they should make use of to drive back the milk, if the mother does not intend to suckle her child.

As soon as the woman is delivered, and the after-birth extracted, the midwife should introduce a warm cloth into the entrance of the *pudenda*, to hinder the cold air from injuring the womb.

Afterwards, if delivery was performed on a couch, she must direct the lying-in woman to be carried to her bed; she should then desire her to make water, which she sometimes can do without any difficulty; but frequently when the *pudenda* is swelled, and strangulates the extremity of the *urethra*, it occasions very great difficulty.

In this case, and even in every other, a poultice, made of an egg or two, beat up with oil of sweet almonds, and moderately heated in a water-bath, like an omelet, should be applied to relax the lips of the *pudenda* and entrance of the *vagina*, and should be changed every four or five hours, as may be judged necessary.

A couple of ounces of oil of sweet almonds, and an ounce of the syrup of maiden-hair mixed together, are generally given to women newly delivered, to appease the cholicky pains.

The midwife may also, if she thinks proper, give immediately a basin of strong broth, especially after a difficult labour.

Lastly, after the womb has unloaded itself for some hours, she must apply one or two square or triangular compresses over the body of the womb,  
and



and place on each side of the belly a long straight compress, which are to be kept on with a bandage moderately tight; but the *pudenda* is to be covered with a warm cloth only.

The following days she must observe the quantity and quality of the *lochia*; that is to say, the cleansings or discharge which follows delivery.

These *lochia* or cleansings are produced by two different kinds of uterine vessels: the one are the venal appendages, which, during pregnancy, open into the cells of the *placenta*, and deposit there the blood necessary for the nourishment of the child; but which after delivery they evacuate into the cavity of the womb. The others are the lacteal or vermicular vessels, which let pass, during pregnancy, into the cells of the *placenta*, a kind of milky juice, destined for the nourishment of the child; but, which after delivery, is also evacuated into the cavity of the womb: though, as has just been observed, there is a great quantity of milky juice in the *lochia*; yet it cannot be distinguished at first, because the blood is in the greatest quantity, and tinges the milk which is mixed with it of a red colour.

This discharge of the *lochia* begins to lessen soon after delivery, from two concurring causes; one, because the womb, by the elasticity of its fibres, begins to contract from the moment after delivery; and by its contracting, contracts the mouths of these venal appendages and lacteal vessels: the other, because the mouths of these veins and vessels contract themselves by the particular elasticity of their coats.

The first of these two causes acts equally on the mouths both of the veins and lacteal vessels: but the second is strongest in the mouths of the blood vessels, which possess a greater degree of elasticity than the lacteal vessels, which occasions the mouths of the blood vessels to close sooner, and more perfectly than the lacteals; whence it happens that the discharge of blood lessens quickly after delivery, and almost



almost entirely ceases towards the fourth or fifth, and sometimes even on the third day.

In proportion as the discharge of blood lessens, the *lochia* become less red, and change entirely white and milky, when the discharge of blood totally ceases. This discharge remains some time in this state; because the mouths of the lacteal vessels which furnish it have less elasticity, and, in proportion, can less easily contract and close themselves. Nevertheless, it begins to diminish from the second or third day: it lessens still more towards the fourth or fifth, when the milk has taken its proper course; but does not intirely cease before the twentieth or twenty-fifth day, and sometimes remains even as long as the fiftieth; which depends on the quantity of food allowed the lying-in woman, and more especially on the greater or lesser degree of elasticity of the womb or lacteal vessels.

Women frequently evacuate with the *lochia*, especially at that period when they are called the *green waters*, foreign substances and humours; such as ropy matter from the sides of the womb in women of a phlegmatic constitution; matter from some abscess, or hidden ulceration; pieces of the after-birth, which were left in the womb, &c. respecting which, it is requisite that midwives should consult a physician.

To judge of the quantity of the cleansings, the midwife, or at least the nurse, who is generally intrusted with this circumstance, should change often the cloths, especially during the first days; for afterwards, changing them twice a day is generally sufficient.

Every night and morning, when the cloth is changed, the parts should be fomented with hot barley-water, either alone or mixed with a little milk; or, which is more common, with a weak decoction of linseed and chervil, or a little honey of roses may be added, if there should be any chaps in the lips. Afterwards, when



when the *lochia* begin to cease, a slight astringent decoction may be used, to help the elasticity of the parts, composed of red rose-buds, plantain, wild tanfy, and even pomegranate-bark.

If the lying-in woman is costive, a clyster must be administered every day, composed of a decoction of mug-wort, feverfew, and melilot-flowers, to which may be added, some oil of sweet almonds.

In proportion as the womb contracts itself, the bandage which surrounds the belly should be tightened, to brace up the integuments of the belly, and prevent, or at least lessen, those wrinkles which are usually the consequences of child-birth.

Lastly, After forty or fifty days; that is to say, when the discharge of the *lochia* is entirely ceased, the lying-in woman must take some gentle physic; and, if agreeable, may go into the warm bath.

After all, midwives should direct their attention to the milk-fever, and the consequences of this fever. It is wrong that they frequently neglect so important a duty, and leave to meer nurses the care of that which often requires the greatest skill of a physician to determine: what is proper to be done in this case requires a long detail, and a variety of circumstances to be considered.

I have just observed, that after delivery the mouths of the lacteal vessels empty into the cavity of the womb the milk with which they are distended, which continues pretty plentifully till the end of the second day, or beginning of the third: but then this milky discharge begins to diminish considerably, either because the womb, in its own contraction, contracts the mouths of the vessels which furnish it, or from the mouths of these vessels closing of themselves, through their own elasticity, as has been already remarked. Consequently the uterine milk, which has no longer its former free issue, regurgitates into the blood, and is at last forced to mix with the milk of the breast; with which it has the greatest affinity, or to speak more properly,



properly, from which it does not at all differ, and thereby causes the milk fever, with its symptoms, which happens in lying-in women the second or third day after delivery: for at this time, the milk being carried all at once, and in great plenty, into the vesicles of the breast, swells them to such a degree, that they compress the neighbouring veins, and force the blood to stagnate there. The painful tension, swelling, and heat of the breasts, where the milk is accumulated, as well as the painful cords which extend from the breasts as far as the axillary glands, and are formed by the swelling of the lymphatic vessels, destined to convey the milk there, are owing to the union of these two causes. In this case, the outside of the chest is compressed, respiration is disturbed and interrupted, the pain is felt quite behind the shoulders, and the patients are obliged to keep their arms stretched out, not to compress the axillary glands, which are very painful.

Even this is not all; the milk, by stagnating a long time in the blood, grows sour, and thereby becomes fit to coagulate, which occasions a shivering more or less violent; but almost always marked by a hard pulse, paleness of the face and nails, convulsive dryness of the skin, chattering of the teeth, &c. This cold fit lasts sometimes for two hours with the same violence, and at other times goes off almost in an instant; but is always followed by a fever fit, more or less strong, in proportion to the preceding shivering, the same as in intermitting fevers. This fever, after having continued fifteen or twenty hours, and sometimes even a day, or a day and an half, terminates at last in the same manner as the fit of an ague, by a plentiful sweat; unless the concurrence of some particular cause changes this slight and intermitting into a continual fever.

These accidents, and the fever which accompanies them, vary through many reasons, according as the nourishment allowed to lying-in women is more or less



less strong, and furnishes a greater or lesser quantity, a thicker or a thinner chyle.

According as the vesicles of the breasts are narrower, as in the first or second lying-in; or more dilated, as happens in the subsequent lyings-in.

According as the womb contracts more or less quickly, and the lacteal vessels close more or less exactly.

Lastly, According as the milk escapes more or less plentifully through the nipples.

This last reflection, which is confirmed every day by experience, makes us comprehend easily why the milk fever, and its consequences, were formerly much less troublesome, when it was the custom, as soon as the milk began to regurgitate, to have the breasts of the lying-in women sucked by women accustomed to this employment: thereby an easy issue was furnished for the milk; the painful swelling of the breasts, axillary glands, and the hard cords which passed from the breasts to these glands, were lessened; a part of the milk which stagnated in the blood was taken away; the cause of the fever, and the fever itself, was thereby diminished; and these milky abscesses were prevented, which are so frequent and dangerous at present.

Unfortunately this custom is out of fashion at present, because it is supposed to be prejudicial to the preservation of the beauty and firmness of the neck and breast. This reason, which at the bottom is perhaps not so true as supposed, has prevailed to such a degree, that hardly any woman follows the antient practice. They all endeavour to drive back their milk; that is to say, oblige all that which does not escape through the nipples, to pass from the breasts into the axillary glands.

For this purpose, from the day after delivery the breast of the lying-in woman is covered with lint even with the breasts, and compresses are applied over them, which are to be kept tight on by a napkin  
tied



tied round the breasts. This bandage is to be continued till the milk fever is over.

In this state very little milk can pass into the breasts, because they are strongly compressed; and the little which does pass there, far from being evacuated by suction, cannot even ooze through the nipples, which are themselves compressed: it must therefore pass from the vesicles of the breast into the axillary glands; and from these glands into the left *subclavian* vein, in which it again mixes with the blood. Thus all the milk of the lying-in woman remains in the blood; whence, either from its being retained, or from its remixture, and the great difficulty there is to evacuate it by sweating, urine, stool, gives always reason to fear that this practice will end in some abscess, which too frequently is the case.

However blameable this new practice is, as the midwife is forced to make use of it, it is necessary for her to be instructed in the methods that should be made use of to prevent its bad consequences as much as possible.

1st, While the ague fit continues, the patient should be covered up warm, and even warmed with hot napkins, avoid giving her any drink, however thirsty she may be; because, we know, by experience, that this indulgence serves only to prolong and render more severe the shivering.

2dly, As soon as the heat begins to come on, the chest and arm-pits are to be embrocated with oil of roses, or oil of sweet almonds, to relax these parts, and render their swelling attended with less pain.

3dly, The breast and arm-pits are to be afterwards covered with lint, which is to be kept on by a simple compress of linen, in order to preserve in the milk which accumulates there a constant and equal heat, and thereby hinder its coagulating.

4thly, This dressing is to be kept on with a handkerchief, or fine napkin, which is tightned a little, to moderate



moderate the too great swelling of these parts, taking care not to compress the breasts too much.

5thly, In this case, the use of clysters, composed of a decoction of mugwort, feverfew, and melilot, to which may be added, oil of sweet almonds, or sweet oil, cannot be too often repeated : by this means a part of the milk with which the blood is loaded passes off by stool.

6thly, The lying-in woman must drink plentifully of warm ptisan, or, at least, the cold taken off, composed of an infusion of maiden-hair, or a decoction of the roots of the sweet-flag, to provoke the sweating and urine, or to evacuate by one or other of these ways a part of the milk.

7thly, It would be right if lying-in women could be persuaded to keep to spoon-meats only till the milk-fever was over, in order to lessen the quantity of their milk ; but, at least, they should observe a strict regimen, and take nothing except weak broths during the continuance of the fever. When that is entirely over, their broth might be stronger, and even soup allowed them : but should not be permitted the use of flesh-meats till the ninth or tenth day.

8thly, and lastly, If the milk-fever lasts longer than thirty or forty hours, or is accompanied with any bad symptoms, such as light-headedness, violent looseness, convulsions, inflammation of the breast, &c. the midwife must insist on sending for a physician, and leave the patient to his care entirely.



## C H A P. V.

*Of the management of the new-born infant.*

**T**HE management of the new-born infant, which now enters upon a new kind of life, consist in a variety of particulars.

The navel-string is to be first tied: for this purpose, take a needful of waxed thread or silk, doubled five or six times, about a quarter of a yard long, with a knot at each end, to keep the threads together.

The navel-string must be tied at about an inch or two's distance from the navel, by passing the ligature once round it, and fastening it with a double knot; then pass the ligature back again, and make a second double knot, opposite the first.

The remainder of the navel-string is to be divided at about an inch and half distance from the ligature; and this may be done boldly, for the child feels nothing from the operation.

The ligature is to be made sufficiently tight, to stop the blood; but not so tight as to endanger cutting the navel-string.

The navel-string must be wrapt up in a piece of soft linen, and laid along the belly, placing a little compress under and another above it, keeping the whole on with a small roller round the belly.

The midwife must examine for some days the state of the navel-string. In some children, it is so thick and puffed up, that the ligature is subject to become loose, in proportion as it dries away; and in this case, it should be tightened, or a fresh one applied.

The navel-string, being dried away, comes off of itself the sixth or seventh, or at the latest, the ninth or tenth day. It should be suffered to fall off of itself, without pulling or shaking it, that the navel may be well closed.



In whatever place the ligature has been made, the navel-string always falls off about the navel; because the navel-string is a part which does not belong to the infant, but has been soldered on the navel, and separates at that particular part where it was affixed.

The blood, which remains in the vessels of the navel-string, should not be pressed back into the child's body, for this cannot be otherways than prejudicial to it, especially with respect to the blood of the umbilical arteries; but the ligature should be made without squeezing out the cord.

It is an useless precaution to leave the navel-string longer in boys than in girls; and the reasons alledged to authorize this practice are so absurd as not to deserve being refuted.

The child should be washed, when held in its blankets, before the fire.

The whitish mucus, and the blood with which it is usually besmeared, are to be taken off with a rag, wetted with warm red wine and water. If it adheres strongly, a little oil of sweet almonds, a little fresh butter dissolved in warm red wine, or a little soap and warm water, may be used to get it off: but if it is very difficult, we should not obstinately persist in our attempts to get it off directly, because it will in a few days come off of itself.

The midwife must first examine the state of the bones of the head, the futures and fontanel, and gently rectify them if they have occasion.

2dly, The state of the bones of the nose, and raise them if they are depressed.

3dly, The state of the joints, to render them free and supple.

4thly, The state of the yard in boys, of the *pu-denda* in girls, and of the *anus* in both sexes, to be assured the passage of these parts is open.

5thly, The state of the limbs, to see whether they are contused or not; in which case they are to be embrocated



embrocated with oil of sweet almonds, mixed with *arquebusade* water.

The evacuation of the urine and *meconium* are to be procured. Generally the child makes water of itself, while it lies before the fire: it begins also to void the *meconium*, but very imperfectly.

To complete this evacuation, it is common to give the child frequently a tea-spoonful of oil of sweet almonds, mixed with an equal quantity of syrup of violets, or solutive syrup of damask roses.

Afterwards, the child is to be swathed; and in doing this, care must be taken to place a compress on the fontanel, fixed to the biggin or cap.

To place small pieces of linen behind the ears, under the arm-pits, and on each groin.

To place a compress on the breast, and a clout between its thighs.

To swathe it sufficiently tight to support its body; but not so tight as to incommode it.

No food should be given the child for fifteen, twenty, or twenty-four hours; but it may suck a little sugared wine, to concoct the phlegm in its stomach.

Lastly, If the child when new-born is very weak from the difficulty of the labour, it is to be excited and revived, by rubbing it with warm cloths; by applying on its stomach and breast, compresses dipt in hot red wine; by spirting wine in its face, and in its mouth; by tickling the soles of its feet with a little brush; and making it smell a raw onion.

But it is useless to apply the *placenta* on its belly, or dip it in hot red wine: though after all, as this practice can be attended with no bad consequences, it may be allowed of.



## B O O K III.

*Of preternatural Labours.*

**P**reternatural labours are of two kinds : in the one, though the child presents in a natural posture ; that is to say, with its head or its feet, yet its body or its limbs are in such a position, as to prove an obstacle to delivery. Labours of this kind are common enough, generally not very dangerous, and comprehend but a small number of cases. In the other kind, the child instead of presenting in a natural posture ; that is to say, with the head or feet, presents with some other part, which renders in this posture delivery very difficult, and almost always impossible. Labours of this kind are dangerous, furnish a great number of particular cases ; but happily these cases happen but seldom.

## C H A P. I.

*Of labours, in which the child's head presents, but in such a position, as to prove an obstacle to delivery.*

**I**T is not enough to make a natural labour for the child's head to present, but it must at the same time present in a proper position. Thus, it is necessary for the head and body to be in the same direction with the *vagina*, to be able to pass through it easily ; the head must present alone, without any other member ; and the face must be turned downwards, for the reasons which have been several times given. As the want of one of these circumstances is sufficient to make a preternatural labour, though the child's head presents ; there result three different cases, which each require a particular examination.



## CASE I.

*When the child's head and body present obliquely, with respect to the vagina.*

THE obliquity of the child's head and body, with respect to the entrance and direction of the *vagina*, occasions the child, instead of taking the right way for delivery, to strike against one of the sides of the womb, and present different parts of its head, according to the part of the orifice against which it is pressed. Suppose the child well turned for birth, and its face downwards: in this case, if the top of the head meets against the anterior side of the orifice, the child's face will present. If it lodges on the opposite side, the back part of the child's head will present. Lastly, Either the right or left side of the head will present, according as the top of the head shall lodge on the left or right side of the mouth of the womb. But the positions of the child will be directly opposite in the same cases, if we suppose that in presenting obliquely to the mouth of the womb, it was turned its face upwards, in a contrary direction to that we have just been describing.

As we here suppose the womb is straight, and placed in the same direction with the *vagina*, so that its situation does not at all contribute to the obliquity of the child, this case can be attributed to the irregularity of the child's turning for birth only, which has not been sufficient, when the head catches against the anterior side of the mouth of the womb; has been too great, when it lodges against the posterior side; and has deviated to the right or left, when the head lodges against the right or left side of the mouth of the womb.

From whatever cause this bad position of the child arises, it is plain that it hinders delivery while it lasts; so that to prevent both mother and child from being



exhausted by useless efforts, it must as soon as possible be remedied. But though there are different cases where this oblique position of the child, with respect to the *vagina*, may be met with, I shall examine here that only in which the womb being placed in the same direction with the *vagina*, consequently happens from the child only. I shall shew hereafter \* what is proper to be done when the obliquity of the child is owing to the obliquity of the womb itself.

In the present case, then, to rectify the head of the child, and thereby the rest of its body, the following method must be pursued, without loss of time.

1st, The woman is to be placed on her back, with her head and body lower than her hips, and the body turned a little towards the opposite side to that against which the child's head is lodged: the bed, which has been described before †, is very convenient to place the woman in labour in this situation without trouble; but this may be done as well in a common bed, by means of pillows.

2dly, This position, in which the woman is placed, occasions the womb to ascend from the *pelvis*, or basin, into the cavity of the belly, where it is more at liberty, and the child returns also towards the bottom of the womb, by which means the head is less strongly pressed against that part of the mouth of the womb against which it is jammed: the hand can also then be introduced, being first well moistened with pomatum, between this part and the child's head, to gently rectify it, place it in a proper direction, and keep it there.

3dly, In this circumstance, the return of a labour pain is waited for, and by the assistance of the contraction of the womb, the crown of the child's head is placed in the middle of the passage, in its proper situation, which decides that of the rest of the body. When it can be done, the woman is to be placed beforehand in

\* Book IV. chap. i.

† Book I. chap. v.



a horizontal situation, that the first effort may more easily push the child's head into the passage.

4thly, If by this means the midwife cannot gain room enough to disengage the child's head, and bring it directly into the passage, she must introduce her hand where there is the freest entrance, as far as the child's shoulders, to push it inwards, to be able more easily to rectify the head : for if she was imprudent enough to attempt to return the child back by the head, she would run the risque of crushing its skull.

5thly, These means are generally sufficient to rectify the head and body of the child : but if any obstacle should be met with, which cannot be overcome, the last resource is to return the child, and deliver by the feet, in the manner I shall hereafter explain.

## CASE II.

*One or both hands presenting with the head.*

THIS case happens when the child in turning for birth rests one or both its hands on its head, in which case they present before the head, or at least together with it.

When delivery is advanced, it may be suffered to go on in this manner in women who have already had several children, or in whom the mouth of the womb is thin, soft, and easy of dilatation : it is only necessary to straighten the arms, and apply them against the head in such a manner as to prevent the elbows from making an angle.

But if there is reason to apprehend a very difficult and tedious labour from this posture of the child, it must be remedied.

By placing the woman on her back, with her hips higher than the shoulders, to facilitate the returning the child into the womb.



By pushing the child gently back, at the same time, towards the bottom of the womb; and this may be effected, by resting the extremities of the fingers against one of its shoulders.

By placing the hand and arm on the side, by means of the room which has been acquired, and keeping the head opposite the mouth of the womb, till the return of a pain.

By taking advantage of the pain, to engage the head in the orifice, and thereby preventing the hand and arm from presenting again.

But if the midwife finds it difficult to return the arm, and place it in its proper position against the side, and is of opinion, that this posture will render labour tedious, the last step to be taken, is to turn the child, and deliver by the feet, as has been seen in the second chapter of the second book; and as will be shewn in this book, chapter the 3d, case the 1st.

### C A S E III.

*Of a child's coming with its face uppermost, turned towards the os pubis.*

THIS bad position of the child but seldom happens in labours in which the head presents; it nevertheless may happen on some occasions.

When the child is situated in the womb, contrary to its natural position, its back against the belly, and its belly against the back of the mother; in this case, in turning for birth, its face will be turned towards the *os pubis*: but this case, supposing it ever happens, happens but very seldom.

When the child does not turn properly for birth, from some accident.

When the child of itself, well placed, is obliged to turn the contrary way, to enter the *vagina*, which happens to women in whom the orifice of the womb is turned back towards the *os sacrum*.

This



This position hinders delivery but little, and is attended with no bad consequence;

Except that the child's face, and especially its nose, is bruised against the *os pubis*, which does not give way like the *os coccygis*; and the child may be perhaps suffocated, by the flooding that follows delivery, which nevertheless can hardly possibly happen.

\* In this case, when the head presents, as has been supposed, there is no method of turning the child; because the head affords no hold; labour must therefore be suffered to go on in this position. It is necessary only to pass the hand, or at least some fingers, well moistened with pomatum, against the *os coccygis*, to push it backwards, and facilitate the passage of the child's head; to be careful not to raise the child's head by this means, which, by pressing its face against the *os pubis*, would bruise it still more.

When the child's shoulders are passed, to turn it gently on its side, to keep its face from the flooding, which at this time begins to come on.

The means which have been proposed are more difficult to put in practice with success, when the womb is oblique itself. The precautions which this case requires will be seen hereafter †.

\* Doctor Exton directs in this case, "If any part of the face lodges on the *pubis*, to disengage it, by introducing a finger or two, between that and the bone, and, when the pain comes on, direct it from the *pubis*. If the labour is not like to succeed, then to lay the woman in a proper posture, and deliver her, by turning the child, and extracting it by the feet;" contrary to the opinion of our author, who says, in this case, there is no method of turning the child. R. † Book iv. chap. i.



## C H A P. II.

*Of labours in which the feet present; but in such positions, as to render delivery difficult or impossible.*

**F**OOTLING labour requires three circumstances to be natural. 1st. For the feet to present in the same direction with the *vagina*. 2d. For both feet to present together. 3d. For the feet to be placed in such a position, as to shew, that the child's face is turned downwards, that is to say, with its heels upwards, and its toes downwards; so that the want of one of these circumstances is sufficient to make a particular case, in which the labour is preternatural, and consequently deserves a separate examination.

## C A S E I.

*When the child's feet present obliquely to the mouth of the womb.*

AS the child's feet never present, but when it has not been properly turned for birth, from the causes already shewn †, there is no reason to be surprized, if it frequently happens, that the feet do not present directly opposite to the mouth of the womb, even in case the womb is in a right direction, and much less in those cases in which it is oblique: it even happens sometimes, that the child, by kicking, displaces its feet, which were properly situated, and afterwards fixes them against the sides of the orifice.

From whatever cause this arises, it is neither difficult nor dangerous. When the mouth of the womb is sufficiently dilated, to introduce the hand, and the membranes are ruptured, the feet are to be laid hold of, one after another, and the knees gently bent, to

† Book ii. chap. 2.



procure, by this means, an opportunity of bringing them directly into the passage with ease.

But if some difficulty is found, in endeavouring to bend the knees, the fingers are to be slid along the leg, as far as under the hams of each side; and then, by gently pushing them, the joint of the thigh may be bent, and thereby, by shortening the length of the limb, the necessary liberty may be gained to disengage the feet, and rectify that position.

At the worst, the woman may be laid on her back, with her hips raised, to occasion the womb to fall back into the cavity of the belly, and the child towards the bottom of the womb, which will afford all the convenience that can be desired, to bend its legs or thighs, disengage its feet, and place them in a proper position.

When the feet are once thus placed, and the midwife, assured by the methods already pointed out, book ii. chap. ii. that they belong to the same child, she must keep them there, till a pain forces them into the passage; then, when she can grasp hold of them, she must endeavour to hasten delivery; because the waters which drain off through the mouth of the womb, which the feet do not exactly close, soon leave the child dry in the womb, and encrease the difficulty of delivery.

## C A S E II.

*When one foot only, or a foot and a knee, present.*

BOTH these, which frequently happen in this kind of labour, arise from the same cause as the preceding case. As soon as this is known, our attention should be directed to prevent delivery going forward in this state; because, if one of the feet should be engaged pretty far in the passage, it would be attended with great difficulty to bend and bring down the leg which is wanting, and which might run the risque of being broke.

In



In these two cases, the first thing to be done, is to place the woman on her back, with her hips raised, for the reasons already frequently given.

2dly, If one foot presents with the knee of the other leg, nothing more is necessary than to introduce the fingers, well moistened with pomatum, under the ham of the foot which is wanting, bend the thigh of it, and by passing the hand as far as the heel, lay hold thereof, bring it towards the mouth of the womb, and place it on the side of the other.

3dly, But if one foot only presents, we should immediately examine, whether it is the right or left foot, in order to judge certainly on which side it is most proper to search for the other.

4thly, It is never difficult to find this foot; nothing more is required, than to bend the fingers, which have been introduced into the womb, and search all round the side on which the foot ought to be, and it will be easily found.

However, in every case, if there should be occasion, the hand being first well moistened with pomatum, may be introduced all along the leg and thigh, which is got hold of by the other hand, as far as its union with the trunk of the body, and from thence to the other thigh; from whence, descending, the leg and foot which are wanting will be found.

5thly, When both feet are got hold of together, at the entrance of the mouth of the womb, or even in the passage, we must be assured, before we proceed farther, that they belong to the same child; and for this purpose, employ the means already shewn\*.

6thly, But if unfortunately one of the child's legs is advanced as far in the passage as the top of the thigh, it must be absolutely returned into the womb, by placing the woman on her back, with her hips raised, (as has been already often recommended) in order to find and bring down the leg and foot which are wanting, and put matters into such a situation,

\* Book ii. chap. 2.



as delivery may be accomplished. I am aware, that it is asserted, that children have come into the world in this position. If this happens, the thigh must be bent forward so far as to lie close to the belly: but besides, that one can never be sure of this flexibility of the child's thigh, labour must in this case be very difficult, not to say impossible; and it is consequently very imprudent to suffer such a labour to proceed.

## C A S E III.

*When the child presents with its toes turned upwards, which denotes its face being turned the same way.*

IT has been observed, in the preceding chapter, that when the child presents with its face turned upwards, in natural labour, that it was obliged to be left in this situation, from the impossibility of returning it: happily this posture happens but seldom in this kind of labour; and the worst consequences for the child are, its having its nose crushed flat, and its face bruised. It is quite the contrary in footling labour: on the one hand, it is very common for children to have the face turned upwards; because in this kind of labour, the child has never been regularly turned for birth; and, on the other hand, this posture of the child is very troublesome, because it frequently happens that the chin is jammed against the *os pubis*, which hinders delivery, and sometimes even occasions the separation of the head from the body; but luckily, it is easy in this kind of labour, to prevent this accident, by turning the child in time, after the following manner:

It should be known early, whether the child has really its face turned upwards; and for this purpose, the position of its feet are to be examined: if the toes are turned upwards, and the heels downwards, it is a proof that the face is also turned upwards; and that, consequently, we must think of changing the posture of the child,

For



For this purpose, when the breech is passed, the right hand open is to be introduced against its back, and in proportion as the child advances, or is extracted by the other hand, we must endeavour to turn it. We succeed easily in living children, because the body has a firmness; but it is more difficult in dead children, whose bodies have no elasticity, especially with respect to the head, which, on account of the flabbiness of the neck, does not follow the motion endeavoured to be given it.

### C H A P. III.

*Of labours in which the child's hands, elbows, or shoulders present.*

**T**HIS kind of labour forms three different cases, yet though very much alike, require, nevertheless, particular articles.

#### C A S E I.

*When the child's hands present.*

**T**HIS case happens when in turning for birth the child's head is hindered in the middle of its fall, and its hands, which are at liberty, are stretched out, and present towards the mouth of the womb; or after its having been properly turned for birth, from its displacing itself by tossing about, or from being displaced by some distortion of the mother. In this case, the child presents sometimes one hand only, and sometimes both together. This posture is easily known when the membranes are ruptured, and as it is impossible for the child to be delivered in this position, it ought to be quickly remedied.

They endeavoured formerly to reduce this case to a natural labour by the head, and some ignorant midwives still act upon this principle; but without



out amusing ourselves with a like trial, which can hardly ever succeed, we should think of turning the child immediately, when the waters are drained off, and deliver it by the feet.

To do this, first the woman must be placed in a horizontal, or, which is more advantageous, even in a more reclining situation, with her hips raised.

2dly, Afterwards the womb is to be gently pushed back from the *pelvis* into the belly, and at the same time the child returned back into the bottom of the womb, to give more room.

3dly, The child's thighs are to be sought for, by passing the fingers gently over its body, and when found, they are to be bent a little forwards, to shorten the length of the child's body, and help to turn it the more easily.

4thly, The feet are to be laid hold of, and made use of to rectify the child's body, by bringing them towards the mouth of the womb, which makes the head rise proportionably towards the bottom of the womb.

5thly, If at first one leg only is found, the other must be searched for, which cannot be far off, and must both be brought together, and by their assistance the child rectified.

6thly, and lastly, The child is to be delivered by the feet, with the usual precautions. See book II. chap. II. and book III. chap. II.—case I.

## CASE II.

*When the child's elbows present.*

IN this case the child may present many different ways, either with one elbow only, with both elbows together, or with an elbow and an hand. These different postures arise from the same causes which have been shewn in the preceding article, and require the same assistance.

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The woman in labour must be placed in a proper situation, the womb returned into the cavity of the belly, and the child into the bottom of the womb. The midwife must introduce her hand along the elbow, quite up to the arm-pit, and by the assistance of this resting-place, push the upper part of the child's body towards the bottom of the womb, which will bring both its feet towards the mouth of the womb, and afford the means of delivering by the feet, after the manner which has been explained in the foregoing chapters, and with the precautions therein recommended.

### CASE III.

*When the child's shoulders present.*

THIS case always happens either through the child's turning too far for birth, which occasions the head to pass behind the orifice of the womb, and the shoulders to take its place, or for want of a sufficient turn, which has discomposed the order and oeconomy of its fall.

Sometimes the child presents with one shoulder only, and sometimes with both, or rather the space between the shoulders. Sometimes also the child presents with the shoulder and arm. But, on the whole, these cases differ but little, and require the same assistance.

In all these cases, the child must be returned, and delivered by the feet, according to the method which has been several times explained; and for this purpose the woman is to be placed in such a situation as to have her hips elevated, to disengage the womb from the *pelvis*, and the child from the neck of the womb. The child is to be returned into the bottom of the womb, by placing the hand against the arm-pit, and thereby raising up the shoulders and head, and by this means bringing the feet down towards  
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the mouth of the womb, and when they are got there, proceed as in footling labour.

Some authors advise to find first one foot, and bring it to the mouth of the womb; they assert the other will follow, and that in proportion as they are brought towards the mouth of the womb, the head and shoulders will remove farther off, and rise upwards towards the bottom of the womb; but they do not tell, (which is nevertheless very true) that by this means they run the risque of breaking or dislocating the legs or thighs of the child.

It is of great importance to remark, first, that in these three cases, as well as in all the others, which I shall explain in the remainder of this book, that the midwife should quickly determine what to do, as soon as the waters, begin to pass off, because the parts are not yet very strongly rivetted in the passage; the womb has not yet had time to contract; and because the inside of the membranes is yet moist and glairy, and lets the child slip easily when she attempts to return it.

2dly, Because delivery becomes much more difficult by waiting, and this for three different reasons, of which it is easy to make an application.

3dly, Because it sometimes happens, that by leaving an arm, a hand, or some other part hanging out of the womb, the part soon swells, which sometimes makes it impossible to reduce it, or, at least, renders the reduction thereof very difficult.



## C H A P. IV.

*Of those labours in which the child's knees or buttocks present.*

## C A S E I.

*When the child's knees present.*

**T**HE child may present with the knees in many different ways; but they depend nearly on the same causes, and require the same methods of relief.

Sometimes the child presents with both knees in the passage; this case happens generally when the child, in the room of presenting with its head, presents with its feet, from some one of the causes before taken notice of\*, and the feet resting against the inside of the rim of the orifice, which, bending the joints of the knees, occasions their presenting.

The most certain method of remedying this, is to place the woman on her back, and raise the hips a little, to disengage the womb from the *pelvis*, and return the child into the womb, and by the assistance of the room gained thereby, lay hold of the legs, one after the other, push the knees upwards to bend the thighs, and take the advantage thereof to stretch out the two legs opposite the passage, and deliver the child by the feet, with the usual precautions.

Nevertheless, if the knees are too far advanced, they may be left in this situation, especially in women who have already had children, and in whom the mouth of the womb dilates easily. It is required only in this case to endeavour to facilitate delivery, by dilating the orifice, forcing backward the *os coccygis*, and lubricating the passage with fresh butter, or pomatum.

\* Book II. chap. II.



Sometimes when one of the child's feet is stopped too far within the womb, the leg, and consequently the knee, cannot reach so far as the mouth of the womb; whence it happens that the child cannot present the other knee, and therefore presents one only.

To remedy this, after having placed the woman on her back, disengaged the womb from the *pelvis*, and returned the child into the womb, the leg belonging to the knee which presents is to be searched for, and having found it, the thigh is to be bent forward, until the knee is removed from the mouth of the womb, and the foot presents; the leg is then to be straightened, and thereby comes into the passage.

The same is to be done with respect to the other knee, which is easily found; it is bent forwards, until the foot approaches the orifice; the leg is then straightened, and the child delivered by the feet.

Nevertheless, after having brought down the wanting foot, the labour might be suffered to proceed without unfolding the knee, which is in the passage, supposing it was strongly compressed, or already tumified; but unless the woman has had several children before, or it was certain that the lips of the mouth of the womb are thin, supple, and easy to dilate, delivery, in this manner, is always difficult and laborious.

Lastly, The child presents sometimes with a leg and a knee, when one foot passes easily into the passage, and the other foot is hindered, or kept back by the edge of the orifice, which makes the limb bend, and consequently the knee present.

In this case, as well as the two preceding ones, the infant may be delivered in this posture, when the leg and knee are very far advanced, or are already swelled, especially when the woman in labour has already had several children, or the lips of the mouth of the womb are supple and thin: nothing more is required than to assist delivery, by dilating the orifice with the fingers, moistening the passage well with pomatum, and forcing back the *oc coccygis*.



But the most certain method is always to replace the parts. To do this, after having placed the woman on her back, in the position already described, disengaged the womb from the *pelvis*, and returned the child sufficiently into the womb, to allow of moving the knee, it is to be brought forwards, until the foot presents towards the passage, into which it is brought by straightening the leg; after which the child is to be delivered by the feet.

In this kind of labour, as well as in all others of the same kind, the midwife must be careful, as has been already observed \*, to assure herself that both feet belong to one child, and by turning the body of the child, to place the face downwards, if it was not so before.

## CASE II.

*When the child's buttocks present.*

TWO causes may occasion this situation of the child; the one when it turns for birth too quickly, so that the head passes beyond the mouth of the womb, and the breech places itself there; the other, when it is not turned for birth at all, and falling on its feet, a little beyond the mouth of the womb, it seems as it were to sit upon the passage: frequently also this bad posture of the child is to be attributed to its violent motions only.

When the buttocks present in this manner, it is difficult to distinguish this part from the head, while the membranes are whole; we can, however, very nearly perceive the difference between them, by this part being more soft, and divided into two buttocks, and also from its being less round.

As soon as it is certain that the breech presents, the shortest and most certain way is, to rupture the membranes, discharge the waters, return the child back, and deliver it by the feet.

\* Book II. chap. II.



For this purpose, the woman is to be placed as before directed, and after the womb is disengaged from the *pelvis*, and the child pushed back towards the bottom of the womb, the legs are then to be searched for, one after the other, and brought towards the orifice, and in proportion as they are brought there, the body and head of the child are put in the right way; so that nothing remains but to deliver by the feet, with the precautions already so repeatedly recommended.

Some people assert, that if the breech of the child is so strongly riveted in the mouth of the womb and *pelvis*, that its reduction would be very difficult, a labour may be permitted to go on in this manner, and the child be delivered bent double, which appears to me always a very imprudent conduct. If this resolution is taken, the midwife must, at least however, endeavour to facilitate, as much as she can, the delivery of the child, by assisting the dilatation of the mouth of the womb, by plentifully moistening the passage with pomatum, by forcing back the *os coccygis*, and by passing the fingers, in the form of a hook, into the groin of the child, to help to extract it, taking a great deal of care not to hurt the *scrotum*, if it is a boy.

I think it necessary to inform the midwife, that she ought not, in this case, to be alarmed at finding her hands smeared with a black foetid matter, which flows from the womb, because it is nothing else but the *meconium*, or excrement of the child, which the compression of its belly occasions it to void in this position.



## C H A P. V.

*Of labours in which the child presents with its back.*

**T**HIS bad posture happens, when in turning for birth the child's head passes beyond the mouth of the womb, and by that means the back places itself there; or when the child has not turned at all, but falls down on its back. Lastly, this preternatural posture may happen from some chance accident.

It is of great importance to know early that the child is thus situated, in order to remedy it quickly. It may be known from finding nothing at the mouth of the womb, but a bag full of water, in which, sometimes, the navel-string is felt, and from feeling the spine of the back, by advancing the finger forwards.

In this situation, it sometimes happens that the navel-string comes down, which encreases the danger, for the reasons which will be hereafter given\*. This coming down of the navel-string is occasioned by the posture of the child, which lying cross-ways in the womb, permits the navel-string to slip down with the waters, by the side of its belly, and fall down as far as the orifice.

This bad posture of the child must be remedied as quickly as possible, as well because that otherways the womb in contracting embraces the child so closely, that it cannot be turned, as from the fear lest the child should be lost through the compression of its head and breast in this position; so that as soon as it is certain that the child presents in this posture, the membranes are to be ruptured, the waters discharged, the child turned, and delivered by the feet.

\* Book IV. chap. III. case IV.



For this purpose, the hand, well moistened with pomatum, is to be introduced into the womb, after knowing, as well as possible, on which side the feet are, to make use of the hand which answers to that side.

The thighs and legs of the child are to be bent gently by the joints of the hips and knees, to shorten the length of the body and disengage it from its transverse position.

After it is disengaged, the lower part of its body is to be brought towards the mouth of the womb, in order to bring back its feet there.

The child is always to be returned in such a manner, that the back, which was downwards, may be uppermost, in order to extract the child, and, that by shortening its length, a little more play may be procured to bring its feet into the passage, and thereby procure delivery.

In which it cannot be too often recommended to be attentive to three essential points, which have already been often inculcated.

1st, To be assured, before we hasten delivery, that both feet belong to the same child.

2dly, To turn the child with its face downwards, in case it was otherways situated.

And lastly, To perform these operations within the membranes of the child, which serve for a lining to defend the womb, as well as facilitate the motion of the child from their smoothness and lubricity.



## C H A P. VI.

*Of labours in which the child's belly presents.*

**T**HE child takes this posture when the head is stopt in turning for birth, and the body of the child is very long, and the womb very narrow.

This is the most dangerous posture of all; first, because the belly is strongly compressed, and drawn into the passage, from which there is danger of an inflammation, or mortification, if it remains too long in this situation; secondly, because the navel-string, which comes down into the passage, swells and mortifies very soon; thirdly, because the breast and head are extremely compressed; and in each of these cases the child very soon perishes.

This posture may be known even before the waters are discharged; first, from the mouth of the womb's dilating very slowly; secondly, from the waters which form, being proportionably narrow and small; thirdly, from finding nothing present at the mouth of the womb.

But it may be known more certainly as soon as the membranes are ruptured; first, by touching the navel-string, which comes down into the mouth of the womb; secondly, by the softness of the belly, when the fingers can be introduced far enough to reach it; for the inflexibility of the back bone does not permit the belly to apply itself against the orifice, at least in the beginning.

This posture renders delivery absolutely impossible; there is no other means of procuring it, than by putting back the child, bringing its feet towards the mouth, and raising its head towards the bottom of the womb, and then delivering by the feet.

To do this, the means must be made use of which have been already frequently recommended.



1st, The woman must be placed on her back, in an horizontal posture, with her hips a little higher than the rest of her body. By the means of this position, to disengage the womb from the *pelvis*, return it into the belly, and thereby gain a little play to disengage the child, which is fastened across the passage.

2dly, Afterwards the hand is to be passed behind one of the thighs, in order to bend it towards the belly, and thereby bring the knee opposite the orifice.

3dly, The same must be done with the other thigh and the other knee, pushing afterwards gently both knees beyond the edges of the orifice, until both feet are placed directly at the orifice.

4thly and lastly, The child is then to be delivered by the feet, as it is certain that in proportion as the feet come forward into the passage, the child's body will get up again into the bottom of the womb, and every thing will be ready for delivery, which is to be executed with the usual precautions.

I shall finish this account of preternatural labours, by adding two important reflections.

1st, That it is the midwife's duty to know, as soon as possible, the situation and posture in which the child presents.

She can have but very weak conjectures concerning this matter, while the mouth of the womb remains closed; she has more certain tokens when the mouth of the womb is open, though the membranes are yet whole.

She has certain signs, when the membranes being ruptured, allow her to touch the parts; for the head or feet, hands, elbows, shoulders, knees, breech, back, or belly, are easily known.

2dly, She should distinguish two periods in every labour, that which precedes the rupture of the membranes, and the discharge of the waters; and that which follows. In the first, there is no occasion to  
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be in a hurry, the midwife may wait patiently, unless the woman suffers very much, and the child struggles a great deal, which she is apprehensive will weaken it too far, and especially if she does not feel some part present, which would be an obstacle to delivery, if suffered to remain.

It is quite the contrary in the second period, she should be expeditious when the waters are discharged, because the womb, by contracting, compresses the child tightly more and more; because the membranes growing dry, render the motion of the child difficult; lastly, because the passage and *vagina* becoming tumified, prove an obstacle to the delivery of the child.

So that, without exaggeration, we may be assured that every hour's delay, after the discharge of the waters, increases the danger a third, even in labour where the head presents, but especially in a footling labour.



## BOOK IV.

*Of laborious, difficult, and tedious labours.*

**I**N the most natural labours, with respect to the posture of the child, there frequently happen difficulties or obstacles, which render delivery laborious, difficult, and dangerous. But these difficulties are still more frequent and troublesome in preternatural labours: consequently, difficult, laborious, and tedious labours, are a particular kind, which remain to be explained.

These difficulties, or obstacles, which render labour difficult, may arise from four heads: from the mother; from the child; from the after-birth; or from some chance accidents. I shall treat, in this book, of difficult labours which arise from these four causes, in four chapters; and, in each chapter, shall comprehend the different cases which belong to each article.

## CHAPTER I.

*Of difficult labours owing to the mother.*

## CASE I.

*Of difficult labours, owing to the obliquities of the womb.*

**I**N the labours which have been hitherto explained, the womb has always been supposed to have been situated in such a manner, that its bottom and its orifice were in the same direction with the *vagina*; which is certainly the most natural and most advantageous position of the womb, for the delivery of the child, because then its passage is entirely straight forwards.

But this is not always the case. The womb is often met with oblique, with respect to the *vagina*. Sometimes it inclines backwards, towards the loins, and then its mouth is turned towards the *os pubis*. Sometimes



times it inclines forward, and then its mouth is turned towards the hollow of the *os sacrum*. Sometimes it inclines towards the right or left side, and then its mouth is accordingly turned towards the bones of the *ilium* of the right or left side.

Though all these positions are possible, it is nevertheless certain, that the womb inclines more commonly forward or backward than sideways; whether owing to the round ligaments which are fixed on each side, or rather because towards its neck it is a little flattened before and behind, which hardly ever allows it to incline in any other direction.

The oblique position of the womb, to whatever side it is turned, proves an hindrance to delivery; because the child, instead of being able to advance directly into the *vagina*, is stopped in its passage by the rim of the orifice against which it strikes, which renders its own, as well as its mother's efforts, useless. But of these different positions, the most troublesome is that in which the womb inclining forward, its mouth is turned towards the *os sacrum*; in the hollow of which the head is fixed, and from whence it is difficult to be extracted.

I shall not repeat here the causes of these oblique positions of the womb, having already spoken of them\*; nor shall I repeat again the signs, which serve to denote the obliquity of the womb, and the side to which it is inclined, having described them in the fifth chapter, book the first. I shall content myself, with briefly remarking, that when the womb is oblique, it is situated so high, that it is with great difficulty it can be reached, because the mouth of the womb does not descend at all into the *vagina*, as it does when the womb is straight; and one part only of the circumference of the neck of the womb, the anterior, posterior, or lateral parts, according to the species of the womb's obliquity, can be then felt.

\* Book ii. chap. ii.



In all these cases, the womb is to be rectified, and brought as near as possible to a natural situation.

For this purpose, the woman must be laid on her back, with her hips raised higher than the rest of her body, to allow of putting back the womb from the *pelvis* more easily; which may be done, by introducing the hand, well moistened with pomatum, and gently pushing it upwards.

When a little play is procured by this means, the mouth of the womb is to be directed towards the *vagina*, with the same hand.

At the same time, pressing gently on the outside of the belly with the other hand, to rectify the position of the womb.

And then, waiting till the head of the child fixes itself in the passage, or at least presents there; after which, delivery is to be performed in the usual manner.

But if this method does not succeed, and the womb returns to its former obliquity, so far as to render delivery very difficult, the child must in this case be turned without hesitation, in the manner that has been so often directed, and delivered by the feet, which remedies every thing; because, when the feet are once got hold of, we are sure by rectifying the child's body, to rectify the womb itself; and thus, the obliquity of the womb, which hinders delivery by the head, does not at all hinder delivery by the feet.

It must be observed, that the obliquity of the child in the womb, which is mentioned by some authors, may be complicated with an obliquity of the womb itself, in two different ways. In one, the obliquity of the child is in a contrary direction to the obliquity of the womb; and, in this case, the obliquity of the child corrects that of the womb: but this case is rare, supposing it even possible. In the other, the obliquity of the child is in the same direction with the obliquity of the womb, and then the delivery of the child is so much the more difficult; and, consequently,  
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the necessity of turning the child, and delivering by the feet, more pressing.

### C A S E II.

*Of the difficulty which proceeds from the weakness and want of elasticity of the womb.*

THE muscular contraction of the womb is the principal cause which pushes the infant forward, and procures delivery. If this contraction is performed but weakly, a long and difficult labour is to be expected; and this happens in two cases:

1st, When the womb is furnished with but few muscular fibres, and those fibres thin, weak, small, and incapable of exciting a strong contraction; and this is a defect in the conformation of the part.

2dly, When these fibres, though naturally sufficiently numerous and strong, are relaxed by the serosity, which has stagnated during pregnancy, between the *chorion* and womb, and caused a dropy of the womb. This fluid discharges itself from the beginning of labour, as soon as the mouth of the womb begins to dilate: but the womb, nevertheless, remains in a soft, inelastic state, which greatly weakens its contraction.

Happily, in both these cases, the mouth of the womb partakes of the defects of the womb itself; through which, being more soft and lax than natural, it more easily gives way to the passage of the child; and thereby that which was lost by the relaxation of the womb, is in some measure regained.

The midwife easily knows this state of the womb, by the slackness and weakness of the pains; and should endeavour to remedy it, by encouraging the woman in labour, and promising her a speedy and easy delivery; by giving her a little orange-flower-water, or a little burnt wine; by making her take snuff, in order to occasion sneezing; or administering a stimulat-  
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ing clyster; and lastly, if necessary, by giving from two, to six grains, of emetic tartar.

With respect to the method of delivery, if the child presents with its head, she is to deliver it in that manner, and facilitate its exit, by dilating the orifice by degrees, which will scarcely afford any resistance to dilatation. If the child does not present at all, for want of being pressed forward by the womb; or, if it presents in any other posture, she must determine to deliver by the feet, making use of all those precautions which I have already so repeatedly recommended: for this inactivity of the womb generally encreases, and renders delivery more difficult each succeeding minute, when time is lost by hesitating in what manner to act.

### CASE III.

*Of difficult labour which proceeds from the mouth of the womb.*

THE mouth of the womb is the narrowest part through which the child passes; and is also the place which occasions the greatest sufferings of a woman in labour. As delivery is easy when this orifice is open, or easy to be dilated, so, on the contrary, it is difficult and laborious in the three following cases. When the circumference of the mouth of the womb is hard, compact, and thick, without these faults exceeding the bounds of nature; such is generally the state of this orifice in women, who marry far advanced in years, who have always longer and more difficult labours than young women.

When there is in some part of this circumference a bridle or *cicatrix*, in consequence of some chop, laceration, or excoriation, occasioned by a preceding labour, which hinders the uniform extension thereof.



When there is a callosity or schirrus in some part of this circumference, proceeding from a former difficult labour, or produced by a pocky leaven, in which case the mouth of the womb cannot easily dilate any more than in the preceding case.

A skilful midwife ought to have known these disorders by touching the woman \* before labour; and consequently should have endeavoured to remedy, or, at least, to lessen them by the use of emollient fomentations of the belly, and by injections of the same kind, after having placed the woman with child in a posture proper to keep them in the *vagina* for some time; by pessaries composed of the pulp of emollient plants, by the steams of a warm decoction of emollient plants, by unctions of fresh butter, or goose-grease, frequently repeated, which means she should make use of for several days before delivery.

When the woman is in labour, the midwife should endeavour to know as soon as possible the situation in which the child presents. If with the head, she must suffer delivery to go forward, taking care to promote it, by dilating the orifice gently as much as she can, and moistening it well with fresh butter or pomatum.

If, on the contrary, the child's feet present, she will take the advantage of this posture for delivery; and, if the child should present in another position, must endeavour to bring it to this, using all those precautions which have been already so frequently inculcated, both in respect to turning the child, and extracting it gently, and by degrees.

The same means are to be made use of, and the same precautions, in delivering a woman who has a stone in the bladder; or the piles, very much swelled; or a tumour in the gut *rectum*, which require the *vagina* to be thoroughly relaxed, and the delivery of the child not to be pressed too forward.

\* See book i. chap. iv.



## CASE IV.

*Of the difficulty which proceeds from the vagina.*

THE disorders of the *vagina* may hinder delivery in two cases, both of which are rare.

1st, When the membrane, known by the name of the *hymen*, which closes the orifice of the *vagina* crossways, leaving a canal in the middle for the passage of the monthly-courses, is found thick and dense enough, and has been sufficiently preserved, to prove an obstacle to the delivery of the child. This case is rare; but a more rare case is, that, notwithstanding the intireness of the *hymen*, conception has been effected by the opening only which was in the middle of this membrane. Nevertheless, both the one and the other are real facts, and observations furnish some examples of them.

This disorder is easily known \*; and, when known, is easily remedied, by making an incision lengthways through this membrane; or, for greater certainty, two crucial incisions, and placing therein a pessary of linen, rolled up, spread with yellow basilicon, to hinder the fragments from uniting, and oblige them to turn towards the sides of the *vagina*, where they form the *carunculae myrtiformes*.

The second is much more troublesome, if through the length of the *vagina* the opposite sides are so closely united together that there are no hopes of separating them, and leave only a small passage through which the monthly courses pass, and conception is effected. This accident is always the consequence of a bad conformation, or of some wound, ulceration, or excoriation of this part, which has been very neglectfully treated.

An example of this kind is to be met with in the History of the Academy of Sciences of the year 1712, p. 37, and 38, which presents at the same

\* See book I. chap. iv.



time the assistance of nature as the only resource. “ A woman, who was married at about sixteen years of age, had the *vagina* so narrow, that a goose-quill could hardly be introduced, and was not closed by any extraordinary membrane as sometimes happens. Besides, she was tormented by a young and vigorous husband, who was in hopes always of making a passage, but did not succeed. She was very desirous of finding a remedy for her case, but could not meet with any. At length, about the end of the eleventh year, she became pregnant, without the husband’s having made any farther progress than the first day. The surgeon, from whom we are favoured with this observation, was thoroughly persuaded she could never be delivered. Notwithstanding, towards the fifth month, the *vagina* began to dilate, and continued to do so, until at length it became of the natural common size, and the woman was happily delivered !” The surgeon was of opinion, and with great probability, “ That in proportion as the womb extended by the growth of the infant, the *vagina*, which is a continuation of it, extended also; and that the same cause, namely, a greater afflux of blood, produced both effects at the same time.”

A like observation is related in the history of the same academy for the year 1748, “ Of a woman at Brest, in whom the *vagina* was so narrow as scarcely to admit a quill, who nevertheless became pregnant, and was happily delivered, after three hours labour, of a strong healthy child.” Another observation of this kind is to be met with in *Riolan’s Anthropographia*, book II. chap. xxxv. and examples of this sort are common enough amongst authors.

#### CASE V.

*Of the difficulty which proceeds from the PELVIS, or basin.*

THE *ossa innominata* and the *os sacrum*, by their union, form a cavity called the *pelvis*, or basin, which  
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has been described in the first chapter of the first book. In this cavity the womb is contained in women who are not pregnant; but in pregnancy the body of the womb rises upwards; and after the third or fourth month, only its neck and orifice remain there. It is through this cavity that the child must pass in labour, which requires our examining the state thereof attentively, and our being well acquainted with the difficulties which are to be met with in its passage.

Anatomy points out two; one at the beginning of the *pelvis*, between the superior part of the *os sacrum*, which projects forwards and inwards, and the bones of the *pubes*; which may be called the superior *strait*. The other at the bottom of the *pelvis*, between the *os coccygis*, the point of the *os sacrum*, and the tuberosities of the *os ischion*, which may be called the inferior *strait*. In a natural state, these *straits*, though real, are no obstacle to the passage of the child; but they become so in the following cases:

When the bones of the *pelvis*, though well formed, are too small, and thereby occasion a very narrow passage.

When from the bad conformation of these bones, though otherways sufficiently large, the passage thro' them is irregularly straitened.

The first case seldom happens, even in very young, and very little women; and it is still more seldom that it occasions any considerable difficulty in delivery, when the child, and especially its head, is of a natural size: however, if this should happen, the same method must be made use of in this case, as when the cavity of the *pelvis*, being of a natural size, the child's head is too large, which will be treated of in the next chapter.

The second case requires a longer account, and deserves more attention, according as the vicious conformation of the bones of the *pelvis* contracts the superior or inferior strait.



The superior strait is preternaturally contracted, through the bad conformation of the bones, when the superior convexity of the *os sacrum* projects too far into the *pelvis*; and at the same time the bones of the *pubes*, instead of being convex outwardly, are flattened, and even bent inwards. In this case, the passage between the *os sacrum*, and the bones of the *pubes* is so narrow, that the child cannot pass without great difficulty, and even sometimes cannot pass at all.

The narrowness of the inferior strait happens in the like circumstances, when the point of the *os sacrum* is too long, and too much bent inwards; when the *os coccygis* is too long, too much bent, and too rigid; and when the tuberosities of the *ossa ischion* are too long, too thick, and too much bent inwards, which leaves between these different bones but a very narrow passage.

This bad conformation of the bones of the *pelvis*, is the consequence of rickety disorders which these women have laboured under in their infancy, and are met with only in bad shaped, lame, crooked, deformed women, who ought to remain in a single state, if they had common sense; but have a greater desire to be married, and have children, than those of a better shape.

In the narrowness of the superior strait, it would be right to be acquainted with it before hand, by touching, as has been described in the first chapter, book I. But, at least, it should be known at the beginning of labour, to be able to form a judgment, with some degree of certainty, of the state of the parts, and the danger of the labour; and to be justified beforehand, with regard to the bad success which there is reason to apprehend; but, above all, to judge whether the passage is large enough to attempt delivery, or absolutely impossible for the child to pass: in which case, there remains no other resource than the *Cæsarean* operation, which will be described in the sixth chapter of the fifth book.



It is not even sufficient, in this unhappy case, to have room enough for the child to pass; but it ought to present with its head, for it cannot be assisted. Besides, a great deal of dexterity is required to accomplish this delivery; for before the head is lodged in the passage, the face, which presents downwards, should be turned sideways, which facilitates its passage; because the head is narrower from ear to ear, than from the back of the head to the face: for the same reason, when the head is passed, the shoulders are to be placed sideways, with the back towards the *os pubis*, to accommodate them to the passage; but if the head or shoulders are lodged in the strait, and cannot be disengaged, the crooked forceps of Mr. Levret must be had recourse to, which have sometimes succeeded in this case; and if this expedient fails, the cruel resolution must be taken of dismembering the child, to extract it piece-meal, which suggestion alone, I believe, will determine women not to undertake this kind of labour.

The difficulty arising from the child's being lodged in the inferior strait is less troublesome; to succeed in this case; the *os coccygis* must be thrust back, outwardly, the passage well moistened with pomatum, and whatever stops the child, must be dexterously removed. A finger moistened with pomatum must be introduced under the arm-pit, to serve as a crotchet. The woman must be made to cough, sneeze, and vomit; and if these trials are useless, the crooked forceps of Mr. Levret must be used, which, in this case, may be made use of with more ease, and greater success, than in the preceding.

I must not omit mentioning, that there are two resources in this kind of labour, though very uncertain, and often insufficient. The one, that the bones of the *pubes*, and even the *ossa innominata* separate a little from each other, which renders the cavity of the *pelvis* a little larger: but this happens only in young persons, in whom the articulations of the bones are yet



lax, and the cartilages soft; though this does not often happen. The other, that the head of the child, which is the biggest part of the body, and, consequently, that which has most difficulty to pass, moulds, and accommodates itself to the passage. As in children, the sutures of the head are membranous, the bones of the head flexible, and their articulations loose, the efforts of the child occasion the head to take that form which best suits the shape of the passage; if it is round, but narrow, the head is lengthened in the shape of a cone; if narrow and flattened, the head is flattened also.

As in this case, the child's head must be strongly compressed to mould itself into the passage, and it cannot be so, unless the child presents with the head, and can bear itself with its legs strongly against the bottom of the womb, it is plain we cannot expect any success, except the child presents in this posture; but if unfortunately the feet present, it is almost certain it can never be delivered; or if it is delivered, the head will be left behind.

If fortunately the child is delivered alive in a labour of this kind, the first care must be to baptise it immediately: after which, the head is to be moulded into its proper shape; and if there appear any bruises on the body, they must be bathed with oil of sweet almonds, beat up with a little warm red wine.

#### CASE VI.

*Of the difficulty which proceeds from the os coccygis in particular.*

THE *os coccygis*, which, as has been seen in the first chapter of the first book, terminates the point of the *os sacrum*, to which it is connected, is naturally curved towards its basis, and straitens the circumference of the passage of the *pelvis*, without hindering delivery in its natural state: whether from its



not being long enough to diminish the circumference of the passage much, or whether that from its flexibility, it easily gives way to the impulse of the child, which, in passing, forces it backwards. But as has just been observed, it becomes a remarkable obstacle in two cases, the first, when it is longer than common; that is to say, composed of five bones together, in the room of four, which happens in some persons. The other, when it is hard and inflexible, which is the case in old women, from the ossification of the cartilages which unite together these bones, and the induration of the ligament which surrounds them.

As soon as the midwife finds out this obstacle, which is easily known, she must take care to force the *os coccygis* outwardly, by introducing a finger into the *anus*, and enlarging the passage. Sometimes, as the *os coccygis* is not flexible, one of the bones is displaced, or dislocated; but this signifies nothing; after delivery it is easily put in its place again; and this momentary dislocation is attended with no bad consequence.



## C H A P. II.

*Of tedious and difficult labour, owing to the child.*

**T**HE child may itself be an hindrance to its delivery, and render labour difficult, and it effectually prevents it in the following cases.

## C A S E I.

*Of the difficulty which proceeds from the child's head being too large.*

CHILDREN are not all of the same size; and it is plain, that the delivery of those which are the largest must be the most difficult: but the difference in the size of children, with respect to the rest of their body, is never very considerable, nor increases much the difficulty of delivery. This matter depends then only on size of the head and shoulders, which being naturally the largest parts of the child's body, are sometimes of an extraordinary size, and in this case render delivery very difficult.

This extraordinary size of the child's head and shoulders may be sometimes owing to a bad conformation of the parts; but, in general, is the consequence of the resemblance of the child to its father, who has also a large head and broad shoulders.

On mature consideration, this case is in fact the same as that in which the *pelvis* is too small, which has been described in the fifth case of the last chapter; for as it is necessary for the delivery of the child, that the head of the child, and the cavity of the *pelvis* have some proportion to each other, the difficulty is the same, whether the cavity of the *pelvis* is too small, and the child's head and shoulders of a natural size; or whether they are too large, and the cavity of the *pelvis* of a natural size.

Hence it results, that when the child is too large, it is advantageous for two reasons, that it presents with the head rather than the feet, as well as when the  
cavity



cavity of the *pelvis* is too small: 1st, because, when the head presents, the greatest part of the waters remain in the membranes, which prevents the child's growing dry, and being too strongly compressed by the womb: while in footling labour both these inconveniencies happen from the total discharge of the waters. 2dly, When the head presents, the child, pressed forward by the contraction of the womb, acts strongly against the mouth of the womb, to make itself a passage, by dilating it; or, at least, by moulding its head conformably to the passage; in which it often succeeds, while both these assistances are wanting in footling labour, as has been remarked in the preceding chapter.

Thus, if the child presents with its head, as is generally the case in this situation, the midwife must begin, by exhorting the woman to have courage and patience, promising her an happy issue.

She must also assist delivery by gently dilating the mouth of the womb, moistening it with fresh butter or pomatum, forcing back the *os coccygis*, and giving her some weak broth or mild cordial, and taking care to make her void her urine frequently, if the labour is tedious.

She must, when she judges it necessary, increase the efforts of the womb and child, by making the woman in labour sneeze strongly or vomit, by giving her sternutatories or emetics, or endeavouring to procure strong throes by stimulating clysters. Lastly, If she sees the head ready to free itself, she should be careful to take the advantage of a strong pain, to bring the shoulders in its place, without delay; and, if she succeeds, may look upon delivery as accomplished.

But if the child presents with its feet, or its bad posture in the womb obliges it to be brought to this position, delivery must be hastened; because, from the discharge of the waters, the child becomes dry, and delays are prejudicial. This kind of labour advances without any trouble as far as the breech; but then,



then, supposing the child's face turned forwards, as it generally is in this position, it must be turned, to prevent the chin's sticking against the bones of the *pubes*. This done, continue to extract the child gently, until its shoulders come into the passage; and, supposing that they pass, act so, that the head may immediately supply their place, and reap the advantage of the dilatation which they have caused. It is by this means only, that this kind of delivery can succeed; but it is seldom that the size of the head, which keeps its rotundity, does not prove an obstacle frequently unfurmountable.

## C A S E II.

*Of the difficulty which proceeds from a dropsical child.*

THERE is only the dropfy of the head, or *hydrocephalus*, and the dropfy of the belly, or *ascites*, which can hinder delivery: the one, by enlarging the head; the other, the belly. With respect to the dropfy of the breast, supposing that it does happen to children in their mother's womb, as it does not swell the breast, it is not to be reckoned among the causes of difficult labours.

These dropfies happen to children in their mother's womb, as well as to children which are come into the world; and examples of them are not unfrequent. They arise from the same causes, which I shall not attempt to examine; because I do not propose to treat here of the means of remedying this disorder, but of the difficulty which it produces in labour.

The principal attention of the midwife ought to consist in being assured of the reality of these dropfies; for she should forbear employing the methods they require, except she is forced thereto, by the certainty of their existence, and the known inefficacy of every other resource.

When



When the membranes are ruptured, and the child presents, the dropfy of the head may be known, by the head's being flat, and of much greater extent than usual; by the sutures, especially the *sagittal* suture, being much farther asunder than in common, and the fontanel being extremely wide; and from the space between the sutures, and especially the fontanel, being very soft and very lax.

In the like circumstances, a dropfy of the belly may be known, from the child's (the head and shoulders being passed) remaining stopped in the passage by its belly, and by introducing the hand, moistened with pomatum, into the womb, along the breast of the child, as far as the pit of its stomach, and thereby feeling the size of its belly.

In both these cases, our first attention should be to procure delivery in the common way, which often succeeds, when these dropfies are not considerable, or the mouth of the womb dilates sufficiently. In this case, all those resources are to be patiently made use of, which have just been proposed, for the delivery of children who have too large heads.

But if these resources are useless, and the woman is ready to sink under the violence and length of the labour, the water of these dropfies must be evacuated by violent means, attended with certain danger to the child; but the obligation we are under to save the mother, justifies the cruel necessity we are under, especially as we cannot entertain any hopes of the life of a child, attacked in its mother's womb, with a disorder always almost mortal.

Thus, in the *hydrocephalus*, the left hand is to be introduced into the womb, as far as the fontanel, being first well moistened with pomatum.

Then introduce along the left hand, a *trocar*, of a proper length, the point of which should be armed with a button of wax, to prevent its wounding any part in its introduction.

Then



Then conduct, with the left hand, the point of the *trocar* to the fontanel, into which it is to be plunged; then extract the *trocar*, and leave the *canula* in the wound, to evacuate the water.

By this means the head flattens, and passes easily, and the rest of the body follows, without difficulty; for in this case, the child is emaciated.

In like manner in the dropfy *ascites*, the fingers of the left hand, moistened with pomatum, are to be introduced along the breast of the child, as far as the pit of its stomach.

With the other hand, a long *trocar*, the point of which should be armed with a wax button, is passed between the child's body and the fingers, as far as its belly.

The fingers, which are introduced into the womb, are made use of to direct the point of the *trocar*, which is afterwards plunged into the belly; and by extracting the *trocar*, and leaving the *canula* behind, the water is evacuated; after which, delivery is effected, without any farther assistance.

### CASE III.

#### *Of the difficulty which arises from monsters.*

THE generation of monsters is a mystery of nature, which the curiosity of philosophers has never yet been able to discover; and, in my opinion, never will. They dispute, whether monsters happen from the union of two germs, or whether they were originally thus formed.

The first of these suppositions staggers under the weight of the objections raised against it; and, in the other, they presume to ask, what reasons the Author of Nature could have to form them? And as they do not comprehend them, almost carry their rashness so far, as to find fault with them.

I do



I do not chuse to engage in such obscure questions, because I cannot flatter myself with being able to resolve them; and I am of opinion, that vain speculations are not of the least use in the art of midwifry, which is the subject to be here treated of. It is sufficient to observe, that there are in general two kinds of monsters: the one, in which there is a defect of some parts that are wanting *from defect*; and the other, in which there is a superfluity of some members. This species may be said to arise *from excess*. The first kind of monsters prove no hindrance to delivery; but it is not so with the other, as must be easily conceived.

Nevertheless, among these kind of monsters, some prove greater obstacles to delivery than others. A child, for example, with two heads, would occasion greater difficulty than a child with three arms; and a child with three arms would occasion greater difficulties than one with three ears, or six fingers.

It is often difficult to know whether the child is a monster: nevertheless, by an attentive consideration and strict examination, one may be enabled to form a judgment, after having ruptured the membranes, whether the child, which is now handled naked, has any considerable defect. Thus it may be observed, whether it has two heads, if the head presents; or if it has four legs, when the feet present.

When we are assured of the position of the child, all possible means are to be made use of to procure its delivery, however monstrous it may be: and for this purpose, those methods which have been recommended in difficult labours, viz. to lubricate and dilate the mouth of the womb; force backward and forward the *os coccygis*; to use fomentations, clysters, sternutatories, and emetics. But when all these means fail, and the mother is exhausted; in this cruel necessity, to save her, the child must be dismembered in the womb. But I do not think midwives courageous or skilful enough to perform an operation of this kind;



kind; and therefore advise them to send for a man-midwife.

#### CASE IV.

*Of the difficulty which proceeds from twins.*

TWINS have each their separate after-birth, each a distinct *placenta*, and are contained in separate membranes; therefore can have no communication with each other, until their membranes are ruptured, which very seldom happens in the womb at the beginning of labour, and never happens in the part by which they touch each other, because they are strongest in this part, from their junction. In a word, twins are like two pregnancies, entirely distinct.

A woman may be suspected to have twins during the last months, when her belly is very large and cumbersome, and appears as if separated into two, by an intermediate line, and she feels two different motions in her belly, and in different places; but there is no certainty of the existence of twins, till in labour, the mouth of the womb is sufficiently opened, to admit of introducing a finger, with which the two children may be distinguished.

Twins hinder delivery for two reasons. 1st, Because they naturally hinder each other from turning regularly for birth, which occasions one of them to be almost always in a bad situation, and even sometimes both; 2dly, because they sometimes present both together, or at least present some of their members, as a leg or an arm, which hinders the delivery of the other that presents properly.

As soon as it is known that there are twins, the midwife should begin, by delivering the child which is next the passage. If its head presents with the face turned downwards, (as happens when it has been properly turned for birth) it must be delivered in this manner, making use of the necessary precautions,  
and



and giving all the assistance possible to the woman in labour. If the *placenta* comes away with the child, the navel-string is to be divided, after having made a ligature upon it, at about the distance of an inch from the navel, and the child given to the nurse, while the midwife attempts the delivery of the other; but if the *placenta* adheres to the womb, as it generally does, instead of endeavouring to detach it, which would occasion a considerable loss of blood, a double ligature is to be made on the navel-string; one near the child's navel, and the other at about four fingers breadth distance; after which, it is to be cut through between the two ligatures, the child delivered to the nurse; and the extraction of the *placenta* deferred, till the other child is delivered, which the midwife must set about without loss of time.

If the first child presents with its feet, or in some bad posture, which obliges it to be brought into this position, then delivery is to be performed in this manner, taking a great deal of care that both feet belong to the same child; and remembering, when the child is delivered as far as its breech, to turn it, in order to place its face downwards. Generally both after-births come away with the last child, and labour is then at an end. However, at all events, after having made a double ligature on the navel-string, divided it between them, and delivered the child to the nurse, the midwife must endeavour to separate the double *placenta*, which adheres to the womb, by the methods which will be shewn in the following chapter, case the second.



## C H A P. III.

*Of tedious and difficult labours, proceeding from the after-birth.*

THE after-birth comprehends the *placenta*, navel-string, and membranes: as each of these parts may hinder delivery, there proceeds from hence a variety of different cases.

## C A S E I.

*Of the difficulty which proceeds from the placenta presenting before the child.*

THE *placenta* adheres to the womb during labour, which is an advantage; because, by this means, delivery is accomplished without much loss of blood: but towards the end, the kickings of the child, contractions of the womb, and dragging of the navel-string, which the child pulls after it in delivery, separate it, and it generally comes away with the child; but this order is inverted on two occasions: sometimes the *placenta* is separated as soon as the child, and even falls before it into the mouth of the womb, which is the present case. At other times, the *placenta* adheres to the womb after the child is delivered, which is the next case I shall speak of.

The *placenta* happens to be separated too soon, in two cases: 1st, when the navel-string is too short, or, which is the same thing, when it is twisted round the child, or some of its limbs: in this case, the child, in turning for birth, draws the navel-string strongly, and the navel string separates the *placenta*. 2dly, When the woman, towards the end of her time, meets with some accident, such as a fall, or a violent blow. In both these cases, this accident generally happens to women in whom the womb is thin, relaxed,



laxed, weak, and glairy, which occasions the *placenta* not to adhere so strongly as it ought to do.

When the *placenta* separates too soon, two troublesome consequences happen; the one is a plentiful hemorrhage during delivery, which puts the woman in danger of her life. This hemorrhage proceeds from the venal appendages, which, being separated from the *placenta*, pour their blood in a full stream into the womb. The other is, that the *placenta*, falling directly on the mouth of the womb, abates, by its softness, the efforts of the child's head, and renders delivery the more tedious.

The woman must therefore be delivered as quickly as possible, since she is in danger in this situation; for which reason, if the mouth of the womb is sufficiently dilated; or, if it is not, after having sufficiently dilated it, the body which presents is to be examined, and will be known to be the *placenta*, from its feeling soft and spongy. The midwife must endeavour to place it to the right or left side, to get at the membranes, which she must tear with her nails, to discharge the waters; but if this is attended with too much difficulty, she must tear the *placenta* itself, and afterwards rupture the membranes which are under it, to give a free issue to the waters.

When the waters are discharged, the hemorrhage will lessen almost one half, because the womb will then contract; and, by contracting itself, will, in proportion, close the orifices of the venal appendages, which occasion the loss of blood: nevertheless, she must continue to make haste; and having discovered the situation of the child, by the rupture of the membranes, deliver it by the head without delay, if the head presents; or by the feet, if the feet present, or its bad position in the womb makes it necessary to bring it to this situation; observing, in both cases, all the precautions which have been so often recommended, and are proper for every kind of this labour.

The infant once delivered, the womb contracts,



the hemorrhage lessens, and at length ceases; and nothing farther is required, than to keep the lying-in woman quiet, and confine her to spoon-meats, to prevent a fever.

I shall add but one reflection more, which is, if the *placenta* has already freed the passage, and is fell into the *vagina*, the membranes should immediately be ruptured, to discharge the waters, and the *placenta* returned into the womb, by placing the woman in a supine posture, and afterwards the child delivered separately from its membranes; though it has sometimes happened, even in this case, that the child has been delivered with its membranes whole.

#### CASE II.

*Of the difficulty which proceeds from the adhesion of the placenta to the womb, instead of coming away with the child.*

THE *placenta* adheres to the womb after the birth of the child from two causes; the first from the thickness and sponginess of the womb, which occasion its insinuating itself intimately into the sinuosities of the *placenta*, and embracing strictly its eminencies, which penetrate into its substance; the other from the *placenta's* being larger than ordinary, and of a more spongy substance; whence it adheres more strongly to the womb, and by a greater surface.

When difficulty is met with, in endeavouring to extract the *placenta*, after the delivery of the child, two ligatures are to be made on the navel-string, one at the distance of two or three inches from the navel, the other three or four inches higher, and, after dividing it between the two ligatures, the child is to be delivered to an assistant.

The midwife is then to take hold of the navel-string with her left hand, after having wrapt it in a dry soft cloth, to hinder its slipping. In this position, she must take care not to pull the cord directly towards her, which would be the means of procuring an inversion of  
of



of the womb, but must introduce along the navel-string the fore-finger of her right hand, well moistened with pomatum or fresh butter, as far as the mouth of the womb, or farther, if possible, and resting this finger against the navel-string, move it gently, sometimes to the right, sometimes to the left, sometimes upwards, sometimes downwards, and, in short, in every direction, to shake the *placenta*, and separate it; which often succeeds.

If this first trial is useless, it will be proper to suffer the womb to contract a little, because it is certain that by contracting, it will rid itself of the *placenta*, which cannot contract also. But there is reason to fear lest the mouth of the womb, contracting in proportion, should deny entrance into the womb; but this inconvenience may be prevented, by keeping the hand in the mouth of the womb for a quarter of an hour, to keep it distended; after which a fresh trial may be made, and, in all probability, with more success.

But if the *placenta* still resists, the right hand must be introduced along the navel-string, as far as the *placenta*, to remove it. The midwife must be careful not to meddle with its circumference, because she might be deceived by the womb, which would be fatal; but must attempt it near the affixment of the navel-string, by plunging the fore-finger under the ramifications of the large branches of the vein and umbilical arteries, making use of this finger to separate the *placenta*.

The misfortune is, that it sometimes happens in the first attempts which are made, that the navel-string is broke, by pulling it too forcibly, and nothing is left to guide us to the *placenta*, in order to separate it with the fingers, as has just been observed. The danger is easily conceived to which the woman would be exposed, by mistaking the womb for the *placenta*. In a case of this kind, therefore, a very skilful person should be employed to search for the *placenta*, who can distinguish it from the surface of the womb,



by the large ramifications of the vessels in its center; and who, after having examined every thing, must endeavour to separate it, by forcing the finger into its surface, in the manner that has been just described.

But if some part of the edge is already loosened from the womb, which is often the case, its extraction will be much easier, because it may be continued to be separated by this place, by pulling the part which is loose, with one finger, and pressing back the womb with another.

The hand which is introduced into the womb, is to be used for extracting the clots of blood, and perhaps even some pieces of the *placenta*, which may be met with there; though this should not hinder the use of injections into the womb for some days, of a warm decoction of mallows, marsh-mallows, and linseeds, to prevent any extraneous substances from lodging there.

It may perhaps be thought surprising, that I do not propose any of those remedies, which most authors recommend so strongly, to procure the discharge of the *placenta* left in the womb: but I have never found the least virtue in these remedies; and I do not like to perpetuate chimerical prejudices, by quoting remedies which I do not approve.

### C A S E III.

*Of the difficulty which proceeds from the coming down of the navel-string before the child.*

THE navel-string commonly follows the child in delivery; but it sometimes precedes it, and comes first into the passage, which is the present case. This accident generally happens in one of the three following cases: 1st, When the navel string is very long. 2dly, When the child is a long time in fixing its head into the mouth of the womb, which allows time for the navel-string to slip there. 3dly, When  
the



the waters are in great plenty, and in discharging drag the navel-string along with them.

In general, the navel-string may entangle itself in the passage on two different occasions, either when the membranes are still whole, or when they are ruptured. In the last case, it is easily known, that the navel-string is come down into the passage; because it is felt without any intervening medium. It may be known also in the other case, through the membranes, though not with so great certainty or ease; which makes it necessary sometimes to rupture the membranes to be certain thereof; and it is even the best way always, because delivery will be thereby accomplished more easily.

Having done this, if the child presents with its head, the navel-string is to be put aside; and kept there by the top of one of the fingers, until the first succeeding pain forces the child's head into the passage; after which, there will be no farther reason to apprehend the coming down of the navel-string again. Afterwards, delivery is to be accomplished in the common manner, and with the usual precautions.

But if the child's feet present, or its bad posture in the womb makes it necessary to place it in this position, it must be brought there as quickly as possible, after having put the navel-string aside, and within the womb, which must be done with proper attention, and afterwards the remainder of delivery will be easy.

I must not omit a case that frequently happens, in which the navel-string hinders and retards delivery; that is, when it makes one or two turns round the child's neck: if these turns are loose, we need not trouble ourselves much about them; but if they are tight, and the child is suffered to advance in this condition, it will either be strangled, or will separate the *placenta* with violence; and even sometimes cause an inversion of the womb.



It should therefore be quickly remedied before the child is too far engaged in the passage ; for this purpose, the woman is to be placed on her back, with her hips raised, to return the womb into the belly, and the child into the bottom of the womb. By means of this situation we gain a sufficient liberty of acting to pass once or twice, if necessary, the navel-string over the child's head, and disentangle the neck ; after which there will be nothing more required than to conduct delivery after the common method \*.

## C A S E IV.

*Of the difficulty which proceeds from the membranes.*

IT has been already observed, that the waters should be kept in a natural birth, to facilitate the motion of the child in its membranes ; to preserve the suppleness and lubricity of these membranes and the child ; and to hinder the inflammation and swelling of the internal surface of the womb.

Conformably to this principle, the waters are suffered to fall down ; that is to say, to gather themselves in the *vagina*, into a bag formed by the extension of the membranes, until the child's head is lodged in the passage. Then the impulse of the child on the waters contained in this bag ruptures the membranes which form it, the waters are discharged, the child follows soon after, and delivery is happily accomplished.

But it sometimes happens that these membranes are so strong, or so thick, that the efforts of the child are not sufficient to rupture them, which stops the course of labour, and hinders the child's advancing.

\* Dr. Exton in this case advises, when the navel string is found much twisted about the child's neck, whilst the navel-string is held, to let an assistant pass a pair of scissors, and divide it : by this method the danger of strangling the child will be entirely prevented ; there will be no hazard of breaking the navel-string, or forcibly tearing off the *placenta*, to all which accidents in this case we are liable without great care. R.



To remove this obstacle, the membranes must be ruptured, which the midwife must not fail doing; after which delivery will be attended with no farther difficulty.

I shall only inform midwives of but little experience, that they should not rupture the membranes till they are very certain the child's head is half engaged in the passage, in order that the second waters, which are placed behind the child, and whose presence is still necessary, may not be discharged. 2dly, That she ought to tear them with her nails, which are sufficient for this operation, or, however, with a very short knife, which may be introduced between the fingers.

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#### CHAP. IV.

*Of difficult labours from causes merely accidental.*

##### CASE I.

*Of the difficulty which proceeds from abortion.*

**I** Do not design to treat abortion in this treatise in the extensive manner which the importance of the subject seems to demand; because I have amply taken notice of it in the twelfth chapter of the third book of my treatise on *The Disorders of Women*: besides, I do not think it necessary for midwives to burthen themselves with the theory of abortion: all that is requisite for them to know, is reduced to the three following articles. 1st, How they ought to manage when sent for to a pregnant woman, threatened with a miscarriage. 2dly, What midwives ought to do when the woman has absolutely miscarried. 3dly, How they should behave if ever sent for to a woman who has made herself miscarry; but, terrified at the danger, desires assistance.



## Article I.

*How a midwife should manage if sent for to a woman threatened with a miscarriage.*

I PROPOSE to speak here only of injuries which are merely accidental, and proceed from some external cause; such as a fall, a false step, a blow on the belly, an obstinate cough, reachings to vomit, strains from riding on horse-back, dancing, running, crying, or having lifted some heavy weight.

If in consequence of some of these accidents, a pregnant woman feels violent pains in her back, loins, and belly; if the child is no longer felt to stir, or stirs but very faintly, and, which is a still stronger symptom, if a discharge of bloody serosity, and even of blood should ensue, there is great reason to fear miscarriage: though none of these signs are decisive, not even the bloody discharge itself; for this discharge may proceed from the *vagina*, or from the mouth of the womb being partially dilated.

In these circumstances, if the midwife is sent for first, as is generally customary, she must order the woman to be put to bed, and nine or ten ounces of blood to be taken from the arm. Administer a clyster, composed of the decoctions of mug-wort and feverfew, with a couple of ounces of oil of sweet almonds; embrocate her belly with Venice treacle, dissolved in red wine, or with fomentations composed of the decoctions of red roses, plantain, balaustins, Solomon's seal, &c. apply a strengthening plaister to the back, and direct the following bolus to be taken every four hours (leaving out the Mathew's pill after the first dose,) with four spoonfuls of the following julap. Take Mathew's pill, red coral prepared, and dragon's blood, each fifteen grains, Japan earth six grains, and make into a bolus with syrup of balsam. Take tincture of roses, prepared according to the London Dispensatory, half a pint; tincture of Japan  
earth,



earth, and simple tincture of the bark, each one ounce, and mix them together into a julap.

But she will act more prudently if, when the affair seems to her of consequence, she sends for a physician under whose cognizance this disorder more immediately comes. With respect to her, she should content herself to examine if the child is in its proper place, or fell down; if its motion is natural, or languid and weak; if the mouth of the womb is open or closed; if the discharge encreases or not, in order to judge whether the danger of miscarriage increases or lessens.

These kind of alarms terminate differently; sometimes these accidents give way to rest, and the remedies which are made use of; the woman feels no more pain nor cholic; her health is entirely re-established, and she goes to the end of her time: but in this case, she must be persuaded to be extremely careful of herself. Sometimes the symptoms increase, the belly falls, and frequent and violent pains come on, which pass from the back towards the belly; the discharge encreases, the womb dilates more and more, and a miscarriage ensues. Sometimes matters remain in their first situation; the discharge continues, but is not great; the pains continue also, but are not very violent; and the woman flatters herself that her case is attended with no danger. I shall examine both these cases in the following article.

## Article II.

*How the midwife ought to act when the woman has miscarried, or the symptoms continue, though less violent, with a continued discharge of blood.*

BOTH these cases come to the same point; the only difference between them consists in this; that in the first, the miscarriage has already happened; whilst in the other case, it is not quite so near at hand, though unavoidable: that the midwife may be ready to do  
her



her duty in either of these cases, it is necessary for her to know,

That miscarriage is a premature exclusion of a child already conceived, though ever so lately :

Consequently that miscarriage may happen during every period of pregnancy until the end of the ninth month, or beginning of the tenth, when the child has acquired its full growth, and its exclusion is a natural birth.

That it has been customary, though no reason can be given for it, to call miscarriages which happen during the first and second months of pregnancy, and even sometimes during the third, *false conceptions*, though they are real conceptions, however small the foetus or infant may be which is contained in them.

That the name of abortions is to be given to all the exclusions which happen during the remainder of pregnancy, even to children of seven or eight months, with this difference only, that in abortions of four, five, or six months, the child is not alive, because it is not yet perfectly formed : whilst children are frequently alive in the seventh or eighth month ; because then their conformation is more advanced, and approaches nearer the perfect conformation of the ninth month completed.

That abortions of the two first months happen with very little or no discharge of blood, and with very little or no difficulty, *without pain* ; because the after-birth, which contains the embryo, adheres but very slightly, or not at all to the womb, whence it is easily separated, *without a discharge of blood* ; because the venal appendages are not at all dilated in the first month, and very little in the second. Lastly, *Without difficulty*, or very little ; because this conception, which is not bigger than a pidgeon's or pullet's egg, passes easily through the mouth of the womb, along with the discharge of blood.

That other miscarriages are difficult and painful, even more so than natural labour, when the child



is very large, for many reasons. 1st. Because in miscarriages, which proceed from a violent cause, the separation of the *placenta* is effected by force, and consequently with pain. 2dly, Because this violent and sudden separation of the *placenta* almost always ruptures several of the venal appendages of the womb, which have not time to contract themselves; which occasions their bleeding more plentifully, and much longer. 3dly, Because these miscarriages happen without the mouth of the womb's having been mollified by the residence of the child, as in natural labour. 4thly, Because the abortion does not help its exclusion by its kickings, or helps but very little; while the child of nine months compleat, which is stronger, assists it efficaciously. 5thly, Because the after-birth, which in abortions is larger than in natural labour, is stopt in the passage, through which the child, being much smaller, has passed without difficulty, and thus renders delivery more tedious and difficult.

On these facts, which are certain, a prudent midwife should found her prognostics, and regulate her conduct: remembering that all miscarriages are attended with a great loss of blood, she must hasten the delivery of the child, since this is the only method by which she can succeed in stopping the hemorrhage.

If miscarriage is already begun, and the mouth of the womb sufficiently dilated, to admit of introducing the fingers, they must be made use of to rupture the membranes, in order to discharge the waters. If the head of the child then presents in a proper manner, or can be placed so, delivery is to be performed in this manner, with the usual precautions.

If the child's feet present, or the midwife is obliged to bring it into this position, which must be done with the utmost dexterity, she must deliver it by the feet, making use of all the precautions which this kind of labour requires.



In a miscarriage, attended with a great loss of blood, the *placenta* is already separated, and presents at the orifice immediately after the child. But, if its size prevents its passing, for the *placenta* is larger in abortions than in natural labours, as has been already remarked, it must in this case be taken hold of by its centre, under the large branches of the umbilical vessels, which will assist to extract it: however, if this fails, it must be torn to pieces, and extracted piecemeal. The patient, after having been put to bed, may take a little broth, or small cordial; and if the pulse rises after four or five hours, which denotes the approach of a fever, she must lose some blood from the arm, unless the loss of blood has been very great already.

But if the midwife is prudent, she will not charge herself with the management of the woman in a case always difficult, and frequently dangerous, but will call in the assistance of a physician.

In the second case, abortion is not so near at hand; but it is nevertheless unavoidable: midwives have a long time flattered themselves, and still do sometimes, that they could prevent it: but experience proves how ill grounded these hopes are. The pains of the belly, cholics, &c. continue, though subject to variations; the discharge of blood continues, sometimes in greater, sometimes in less quantity, but continually encreases; the woman is brought low, exhausted, and becomes weaker every day: these symptoms shew the separation of the *placenta*; but that it is a partial separation only, which keeps up the discharge of blood, without causing a miscarriage.

As it is certain that the *placenta*, which is partly separated from the womb, can never adhere thereto again, we must not flatter ourselves that the woman can go her full time; for being exhausted by degrees, she at length perishes with her offspring, if she is not succoured; and the only efficacious assistance that can be given, is to deliver her.



remedies which are made use of, or found in authors, are absolutely inefficacious : but this delivery must be accomplished by force ; for there is no disposition for a natural labour ; and this is the method which all men-midwives practise. I have been sent for several times in cases of this kind, and being thoroughly persuaded that both mother and child would be lost, whatever other steps were taken ; I thought it my duty to determine on a forced delivery, agreeable to the wise remark of *Celsus* : “ In an evident danger of death, it is better to apply a doubtful remedy than none.” But I acknowledge, that in advising this measure, I felt a great concern ; because I knew the danger of what was about to be undertaken.

If there is an opportunity, the parts may be softened for some days with pessaries, composed of the emollient herbs, or simply dipt in an emollient decoction, provided they are frequently renewed ; by the use of emollient fomentations on the belly ; and by administering emollient clysters.

When this operation is determined on, the midwife having first taken care to evacuate the contents of the bladder and intestines, and well moistened the mouth of the womb and *vagina* with pomatum, must at first introduce one finger into the orifice, and move it in different directions, to dilate it. A second finger is to be introduced as soon as she can ; and by separating these fingers as wide as she can, room will be made for the introducing of a third and fourth successively, and even of the whole five, narrowed into the shape of a cone : then, by separating these fingers, they become a kind of dilator, and by degrees the mouth of the womb is opened sufficiently to introduce the whole hand ; the membranes are then to be ruptured, the waters discharged, the child immediately turned, and delivered by the feet. The midwife is then to endeavour to extract the after-birth in the manner which has already been shewn, book IV. chap. II.

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case II. After which the patient is to be put to bed, should take some kind of cordial, and be suffered to rest an hour or two before she takes any thing more. But if after the expiration of three or four hours, her pulse rises, she must be bled in the arm, to the amount of nine or ten ounces, which is to be repeated, if necessary, and a fever comes on; to endeavour to prevent, or lessen the inflammation of the womb.

I do not advise midwives to undertake so difficult and dangerous a delivery. I do not think even that any man-midwife should be so imprudent as to perform this operation, without first calling in a physician to determine whether it is necessary; to be a witness of his conduct; and superintend the treatment which its consequences may require.

### Article III.

*How a midwife should act when sent for to a woman who has been using means to procure a miscarriage.*

I DO not believe midwives are ever capable of being accomplices in this crime with young women or widows, who, to save their honour, take the resolution of procuring a miscarriage. But it often happens, that these unhappy creatures, frightened at the consequences of their enterprize, and afraid of dying, desire assistance, not without reason; for the nature of the remedies and practices they have made use of, the efforts of the womb, the violent separation of the *placenta*, and ruptures of the venal appendages, and even sometimes of the coat of the womb, cause violent pains, and convulsions of the womb, a prodigious discharge of blood, and a considerable inflammation, attended with a gangrene, or at least an ulcer, and almost always in the sequel gives rise to schirrous or cancerous tumours in the womb: if those who are guilty of this crime knew to what dangers they exposed themselves, I believe the fear of death would deter these unhappy wretches, who are not restrained by the fear of God.



In these deplorable circumstances, they frequently beg the assistance of midwives. I have myself been sent for four or five times in cases of the like kind, and whatever abhorrence I had for these people, I did not fail to assist them charitably, and I succeeded so far as to save some of them. Midwives may be sent for in two different cases; one in which miscarriage is consummated, but the child remains still in the womb with the after-birth; or the child already delivered, and nothing more required than to stop the excessive loss of blood, which the remedies that have been made use of, and the violent separation of the after-birth, have occasioned.

In the first case, to stop the hemorrhage, the midwife must make haste to deliver the child; and for this purpose make use of all the means which have been pointed out in the preceding article. If the midwife perceives some motion in the child, or it cries, though ever so faintly; after having made two ligatures on the navel-string, one near the child's navel, the other a few inches higher, and having cut the navel-string between them, she must deliver the child to an assistant, who should endeavour to revive it, by making it suck some drops of wine on a lump of sugar: as to herself, she must proceed to the extraction of the after-birth; and by this means the first case is reduced to the second, and nothing more is required than to endeavour to lessen the discharge of blood.

For this purpose, after having placed the woman on a cushion of oat-straw, through which the blood may drain, she must be suffered to take a little rest, and a little broth may be given her: but soon after she must be bled in the arm, and lose such a quantity of blood as the state of her pulse will permit. The bleeding is to be repeated, if her strength allows; but in a very small quantity at a time.

Her common drink should consist of clear whey, or, which is better, chicken-water, and small quantities of  
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veal-broth, in which great comfrey roots have been boiled: she may also take every hour two or three spoonfuls of a mixture composed of the decoction of plantain and great comfrey roots, five ounces each; of tormentil roots, bistort, and drop-wort, each half a drachm; of dragon's-blood and French chalk in fine powder a drachm each; and two drachms of the confection of *alkermes*, if the state of the pulse requires it, or a few drops of laudanum, if necessary, to quiet the pain and convulsions of the womb.

After all, the best method is to give directly the decoction of the comfrey root, into a pint of which about fifty-five or fifty-six drops of Rabel's styptic are added, and an ounce and an half of syrup of capilaire; if the complaint is pressing, as it is always in the beginning, the whole pint may be drank during the day, in small doses, and warm; afterwards the dose may be lessened, in proportion as the discharge diminishes. If the case is very pressing, this mixture should be injected warm into the womb. I have remarked in my *Treatise of the Disorders of Women*, vol. v. p. 350, That a midwife in a like case, being in the country, destitute of every other remedy, injected warm vinegar into the womb, not only without danger, but even with the greatest success.

The midwife has besides two essential duties to discharge, first, to send for a clergyman to the patient, declaring that the case is urgent, and will admit of no delay; the other, to call in a physician, who may assist her with his advice, insisting that she neither can nor ought to undertake alone an affair of such difficulty and importance.

## CASE II.

*Of the difficulty that arises from a dead child.*

THIS case comprehends two, which must be treated separately; *the first* regards the extraction of a child dead in the womb; *the second*, the extraction of the head,



head, which is separated from the child's body, and remains in the womb.

### Article I.

#### *Of the extraction of the child.*

THE child may die in its mother's womb at two different times; in the course of pregnancy, which happens from a fall of the mother, from a blow received on the belly, or from some violent disorder, as a fever, pleurisy, bloody flux, small pox, &c. or from some disorder of the child; in the time of labour, when it is very tedious, and the child being exposed to violent compressions during labour, remains a long time in the passage, or is treated too roughly.

The death of the child in the course of pregnancy, is presumed from the nature and violence of the preceding causes, which were capable of killing it; such as the fall, the blow received on the belly, the disorder which the mother laboured under, &c. and because the mother no longer perceives the child to move, her belly falls, her breasts become lank, she finds herself ill frequently, without any manifest cause, and has a discharge from the womb of black and fetid *serum*. These causes are conjectures only, but that is sufficient; for in this case, we must wait till nature decides. It is sufficient to advise the pregnant woman to take care of herself, and keep herself quiet; to observe a proper regimen, and take between whiles a little sack or mountain wine, or some mild cordial, when she is low spirited and faint.

The same signs appear also when the child dies during labour; but they are not sufficiently decisive to determine the conduct of the midwife, who must manage the child with the greatest care, if it is still alive. To prevent a mistake, she should be very certain that the child is dead; and this she cannot be, unless she observes some one of the following signs, or, which renders it still more certain, perceives several of them.



1st, If upon introducing the hand well moistened with pomatum as far as the navel of the child, she does not feel the umbilical arteries beat; but the hand must be passed quite to the navel, for the midwife may be mistaken if she contents herself with feeling the umbilical arteries along the cord, because their pulsation is in this place very weak.

2dly, If the child does not suck the end of the finger when put in its mouth, if she can reach so far.

3dly, If the *placenta* and navel-string have been come down a long time, which never happens without occasioning the child's death.

4thly, If the futures of the skull are lax and flabby; and the bones which join together ride over each other; which proves that the brain is sunk.

5thly, If the scarf skin, and especially that of the hairy part of the head, comes off and sticks to the fingers.

6thly, If there issues from the womb a sharp blackish stinking discharge, which never happens till the child has been long dead, and begins to putrify, the midwife must be careful not to confound this discharge with the *meconium* or kind of pitch, which sometimes issues in difficult labours. This is only the excrements which the child voids when the belly is strongly compressed, through its bad position, especially when it presents with the breech, and does not at all shew that it is dead.

When the midwife is well assured of the child's death, she should hasten to extract it, and arm herself with courage and patience; for this kind of delivery is in general long and difficult, for many reasons.

Because the womb not being irritated by the motions of the child, the mother has only weak and unfrequent pains.

Because the child does not assist delivery at all, by pressing its head against the mouth of the womb, to dilate it.



Because the softness of the child's body occasions its having not the least consistence; and in the room of keeping at its full length, it gathers itself up like a ball,

Lastly, because in the delivery of a dead child, for the little time it stays, the womb is in a state of *phlegosis*, which hinders its contracting.

With respect to the manner of acting in this case, it is certain; if the mouth of the womb is not sufficiently dilated, she must dilate it by degrees, by making a kind of dilating instrument with her five fingers, until she can introduce her hand; then the membranes are to be ruptured, and the waters discharged, if they are not already drained off, and the child is to be turned and delivered by the feet; proceeding therein with dexterity and patience, for fear of hurting the womb. This is the only means of delivering the child, because in this situation it is easier to extract it by laying hold of its feet and legs, which cannot be done when the head presents; it is true there is danger lest the head should lodge in the passage, and be separated from the body; but this never happens when the midwife is prudent enough to turn the child's face downwards. And in case the flabbiness of the child's body renders this operation impossible, she may, provided she uses proper attention, and does not hasten delivery too much, deliver the dead child with its face upwards, without the head's lodging on the *os pubis*, unless the putrefaction is so great that the head no longer adheres to the body.

Hence it follows, that when even the child presents with the head, as in natural labours of the first kind, it must be turned and delivered by the feet; and for this purpose the woman is to be placed in a supine position, to return the womb into the cavity of the belly, and the child into the womb, and by this means gain sufficient room to search for the feet, turn the child, and deliver in this manner.

This rule has one exception only, when the head is so far engaged in the passage that there can be no hopes



of being able to push it back: in this case we must be forced to extract it in this posture; but as no hold can be taken of the head, crotchets were generally made use of, from which nothing can be apprehended with respect to the child, which is dead; but may prove fatal to the mother, if they should happen to slip.

To make use of the crotchets, the left hand, being first well moistened with pomatum, was introduced between the edge of the mouth of the womb and the child's head, the crotchet was slid along the palm of this hand, until it reached the orbit of the eye, or, which was better, the shell of the ear; then the crotchet was fixed, by forcing its point into one of these cavities; after which, by pulling the handle of the crotchet with the right hand, and directing the child's head with the left, a passage was endeavoured to be made for the child: but sometimes, to succeed in this, a second crotchet was obliged to be placed on the opposite side, which gave just reason to fear lest one of these crotchets, often but badly fixed, should lose its hold, and occasion a dangerous wound in the mouth of the womb, which sometimes happened.

When the head was once passed, the rest of the body generally followed easily; but if the shoulders stuck in the passage, which sometimes happened, one of the fingers of the right hand was endeavoured to be passed under the child's arm-pit, and was made use of as a crotchet to accomplish its extraction; and if the finger could not reach so far, they made use of a crotchet very finely polished, without any point, which was introduced under the arm-pit, and made use of to extract the trunk.

When the child was once extracted all was over; for the after-birth either was already come away of itself, or came away presently after. It remained only to give a mess of broth to the lying-in woman, and leave her afterwards to her repose for some time to recover herself; but a few hours after, an injection or two, composed of a warm decoction of marsh-mallow roots,



roots, with a little honey, was thrown into the womb, to wash its internal surface, and remove the *sanies* which the dead child might have left there.

At present, the practice is entirely changed, and men-midwives, to extract a dead child which is lodged in the passage, use only Levret's crooked forceps, the success of which is certain, and free from danger. See the foregoing short *History of the Art of Midwifry*, article 2d, number 4.

## Article II.

*The method of extracting the head of an infant, when left in the womb.*

THE child's head is sometimes left in the womb in footling delivery, as has been just observed. This accident frequently happens, when the child cannot be turned, on account of its flabbiness, and is obliged to be delivered with its face upwards; because in this posture the chin frequently sticks to the bones of the *pubis*, and the head lodges there: but this accident more frequently happens when the child is half putrified, and thereby its head very weakly joined to the body.

This accident is very troublesome: for to deliver the woman, it is necessary to extract this head, which is very difficult, not because the head cannot pass through the mouth of the womb, but because it should be pushed forward from within, or pulled from without, to make it pass, both of which are impossible, or at least very difficult. *On the one hand*, nothing pushes it forward from within, for the womb does not contract at all, or but very weakly, and coughing, sneezing, vomiting, and the straining which may be excited, afford but little assistance, when the womb does not act. *On the other hand*, nothing can pull it outwardly, because the head being round allows of no hold.



In these circumstances, the assistance which nature does not furnish has been endeavoured to be supplied by art, and different expedients have been invented, which I shall describe, though they are almost all subject to inconveniencies.

The right hand is proposed to be introduced into the womb, and the fore finger and middle finger placed in the child's mouth, resting the thumb under the chin, and this hold is to be made use of to extract the head.

This expedient is plausible and practicable; for the head, which is lodged in the womb in footling labour, presents its basis to the mouth of the womb, and consequently it is not difficult in this position to find the child's mouth, introduce the finger into it, and extract the head, and I think this method has been found useful; but when the child has been dead for some time, the lower jaw separates, and is brought away, without extracting the head.

When this accident happens, it is proposed to remedy it by grasping the head with the right hand, and introducing the fore finger along the child's palate, as far as the great *foramen*, through which the *medulla oblongata* passes, into which it is to be passed, spreading the other three fingers along the face, and resting the thumb firmly against the back part of the head.

Authors flattered themselves that by laying hold of the head in this manner they should be able to extract it, and it were to be wished that the success answered their expectation. I question whether this method was ever tried; for it is evident that the head, covered with glair and blood, would slip out of the hand, and this expedient could amount to no more than extracting the head piece-meal.

I should approve extremely of the following invention, if it was practicable: a fillet of strong linen which has been used, of about half an ell long, and about  
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four or five fingers breadth, is to be held with both ends in the left hand, and brought round the child's head, after which, by gently drawing both the ends, the head is to be extracted.

I think this might succeed, if it was easy to pass this fillet behind the head; but this appears impossible, or very difficult, and I suspect that this method has never been put in practice.

I might say as much of the net proposed by Mr. Amand, man-midwife, for the same purpose; it was a very ingenious contrivance, but I question whether it has been ever made use of\*.

Mr. Gregoire, man-midwife, made use of an instrument of steel of the shape of a capital L, the surface of which was perfectly smooth, and without angles; this instrument opened into two blades, which were joined together by an hinge. This instrument was to be introduced into the womb with both blades shut close to each other, and was to be directed by the left hand into the *foramen*, or large hole in the *occipital* bone; then opening the instrument, it becomes double; and as then its ends cannot pass out of the *foramen*, this instrument serves to extract the head directly.

I see no inconvenience in this practice, which may easily be made use of, because the head, which is left in the passage, presents the hole or *foramen* of the occipital bone, opposite the orifice of the womb, provided that all the vertebræ, or bones of the neck, are separated from the head; but it cannot be of any use, if any of the vertibræ adhere to the head.

\* This net is made of silk, almost like a purse, with strings to draw it close, and large enough to contain the head of the child; the net, being hung on the fingers of the right hand, is passed into the womb, and the head being taken into the palm of the hand and held tight, the operator endeavours to engage it in the net, which, when he hath done, with the other hand he pulls the strings, which are long enough to hang out when the net is close, then draw, and the head will be brought away, without any danger of hurting the woman. R



A pointed crotchet made, as has been explained in the preceding article, is recommended to be made use of, by introducing the left hand, well moistened with pomatum, into the womb, as far as until the ends of the fingers reach one of the orbits of the eyes, or holes of the ears, and conducting the crotchet along the palm of the hand, as far as the orbit, or hole of the ear which the fingers touch, and plunging in the point of the crotchet, turning it round, to give it the firmest and strongest hold that is possible, and by the help of this crotchet, which is pulled with the right hand, the head is extracted, clearing the way for it as much as possible with the fingers of the left hand.

The reluctance which should be had for the use of the crotchet, in extracting dead children, has been already shewn in the preceding article. The danger is still greater in this case, because it is still more difficult to reach to the orbits, or holes of the ears; besides, it is to be feared, in the extracting of a dead child, that in pulling, the crotchet might lose its hold, and wound the womb. There is still greater reason to apprehend this accident, when it is made use of to extract the head, because the head, when separated, being moveable, we cannot be so certain of the hold of the crotchet as in an head fixed to a dead child.

The most certain method is to make an incision on the top of the head along the *sagittal* future, take away the brain, flatten the bones of the skull, and lay hold of one of the *parietal* bones, and thereby extract the head. For this purpose, the left hand, moistened with pomatum, is to be introduced into the womb as far as till the fingers rest upon the *sagittal* future. Afterwards a concealed *bistory* must be slid along the left hand as far as that part of the head to which the fingers of the left hand are applied; the bistory is then to be raised up, and an incision made on the *fontanel*, and along the *sagittal* future lengthways; then it is to be withdrawn along the left hand, with  
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the same precaution and dexterity with which it was introduced; the brain is to be extracted through the incision with the left hand; the bones of the skull are to be pressed together, to flatten them, leaving one of the *parietal* bones, to serve for the extraction of the head.

While this operation is performed, somebody should press on the woman's belly, to force the head against the mouth of the womb, and keep it in a fixed state; but with all these precautions, this operation is often found impracticable, because the head, instead of presenting with its crown, presents always the contrary side, which excludes this operation. It is true, the head is proposed to be turned; but those who propose it, do not at all consider that it is very difficult, not to say impossible, to turn a head the surface of which is slippery, clammy, and affords no hold.

The reflections which have been made on all the methods which are proposed for extracting the head left in the womb, will, no doubt, discourage midwives from undertaking an operation of this kind, and I commend them for their prudence: I thought it my duty, nevertheless, to shew them, at least concisely, the different methods, that they might not be ignorant of a circumstance which concerns the art they profess; consequently I ought not to suffer them to be ignorant that all these difficulties are at present removed by the invention of Mr. Levret's crooked forceps, by means of which, the head left in the womb is extracted easily, and without danger\*. What has been said on this subject may be seen in *The Short History of the Art of Midwifry*, article 2d. number 4.

\* The *placenta* is not to be extracted till after the head is brought away, because that may occasion a flooding; unless the *placenta* should be separated, in which case it may be first extracted. R.



## CASE III.

*Of the method of extracting a mole, or false conception.*

I HAVE explained in the seventeenth chapter of the third book of my *Treatise of the Disorders of Women*, the nature of generation, and of false conceptions; and I do not think it necessary to repeat it here. This theory is scarcely necessary for midwives, and if any one is curious enough to desire to know it, they may consult that book. I shall content myself with remarking, that three species of moles are to be distinguished.

The first kind is an after-birth a little disfigured, in which the *placenta* has acquired a larger size, and the embryo has perished very early. When the *placenta* continues adhering to the womb, after the death of the child, and receives nourishment therefrom, it acquires a considerable size, and is the *mole*, properly called so, which will be the principal subject of this article; for it sometimes happens, that towards the second or third month of pregnancy, when the embryo perishes, the *placenta* is separated, and remains in the womb without increasing at all, and forms there a small *mole* of the first kind, of the same nature with the preceding, but less known, or, to speak more properly, less taken notice of.

The *mole* of the second kind is formed by a cluster of hydatids, or transparent vesicles, adhering each by a stalk to a spongy body, of a spherical or oval shape, full of a clear or yellowish *lymph*, which vary in their size from the bigness of a pea to that of a pidgeon's egg; this kind of *mole* was a long while unknown, but is at present ascertained by certain observations. It is called the *hydatid mole*.

The *moles* of the third kind do not deserve this name; they are nothing more than pieces of the *placenta* left in the womb in some preceding labour,  
which



which have remained there without putrefying, or encreasing in size, and by the compression of the womb are become round and compact, but in which the cavity is not found that is met with in *moles* of the first kind, and which is essential to them.

Though it is useless to midwives to be acquainted with the causes of the formation of *moles*, it is very useful for them to know the signs which denote their existence in the womb, and may serve to distinguish them from other disorders to which they bear some resemblance.

The large *mole* of the first kind, which is that whose diagnostic it is of consequence to be acquainted with, has four proper signs, being accompanied in its formation with all the symptoms which happen in the beginning of pregnancy, such as inclination to vomit, longing for strange things, &c. without perceiving any motion at any time in the womb; it increases fast, and arrives in nine months to a much greater size than a child, and forms a spherical tumour, but not hard: whence this mole may be distinguished from other swellings of the womb, with which it has some resemblance; as,

1st, From *pregnancy*, because the motion of the child in pregnancy is felt after the fourth month: while in the *mole* no motion is felt, and the swelling of the belly continues round, instead of swelling lengthways, as it does in pregnancy.

2dly, From *the dropsy of the belly*, because in the beginning of the dropsy, the symptoms of pregnancy are not perceived, as in the formation of the *mole*, and from not feeling in the *mole* on striking the belly on each side, the counter-blow which is felt in the dropsy.

3dly, From a *schirrus*, because the inconveniencies of pregnancy, which are experienced in the formation of the *mole*, are not felt in the formation of a *schirrus*; and in a *schirrus* the tumor is hard and unequal, instead of being soft and even, as it is in the *mole*.

4thly,



4thly, From a *steatoma*, or *polypus* of the womb; because this disorder is not preceded like the *mole*, by the symptoms of pregnancy, and is formed much flower than the *mole*.

The *mole* of the second kind, or *hydatid mole*, is very scarce; its formation is attended with the same inconveniencies which women labour under at the beginning of pregnancy. Instead of forming a spherical tumour, it forms a flat and soft tumour, which distinguishes it from the *mole* properly so called. It adheres to the womb by a small basis; separates easily by its weight alone, towards the eighth or ninth month; and falling down upon the orifice of the womb, solicits its discharge by the same mechanism as the infant, and procures it easy enough, because the cluster of vessels, of which it is formed, easily adapts itself to the opening which the mouth of the womb presents.

With respect to the little *mole* of the first kind, and the false *mole* of the third, they are so small that women do not perceive them, and consequently do not require troubling ourselves about them; they are discharged of themselves in the next labour, or if any considerable flux of blood happens, or a plentiful discharge of the *whites*.

There is only therefore the large *mole* of the first kind, or rather the *mole*, properly so called, which merits our attention. The other *moles*, which have been mentioned, either never adhered to the womb, or if they did adhere, separated of themselves soon; while this large *mole* very seldom separates, and remains connected to the womb, not only during nine months, like the child, but a great while longer, according to undoubted observations.

As this *mole* continually increases, while it adheres to the womb, and would become of a monstrous size, its extraction should be attempted when its existence is certain, which cannot be perfectly known, till towards the fourth or fifth month of pregnancy. To  
effect;



effect this there are two operations to be performed, both very difficult, and very dangerous, for which reason the midwife should not conceal from the parents the prognostic which she draws therefrom.

The *first* is to procure the separation of the *mole* from the womb, which is difficult; because in the *mole*, as the *placenta* has encreased very much in size, and is much larger than the *placenta* of a child, even at its full time; it adheres more strongly than the *placenta* does in a common birth.

The *second* is to effect the delivery of the *mole*, to which the womb is not at all disposed, and to which it is not at all excited by the *mole*, which has no motion\*.

To facilitate the first operation, it is proposed, first, to relax and soften the womb by the use of warm baths, mineral waters, which are gently purgative, emollient injections, emollient fumigations, and by receiving through a close-stool, the vapour of the decoction of mallows, marsh-mallows, bear's foot, mullein, &c. Secondly, to use afterwards emenagogues, which, by provoking the courses, may separate the *mole* from the womb, for which purpose preparations of steel, and mercurials which are not purgative, are directed in strong doses. Thirdly, the action of these remedies are assisted by making the patient sneeze, vomiting and purging her strongly, directing her to ride in a jolting coach over the stones, and to jump down stairs often, by two stairs at a time.

These means succeed sometimes, but seldom; for which reason, instead of persisting in the use of them, as soon as their utility is known, a forced labour should be attempted, such as has been proposed, to remedy an habitual loss of blood, which happens during pregnancy; relative to which consult the fourth chapter of this book, case the first, article the second.

\* What has been said on this subject, may be seen in the preceding article.



After having placed the woman in a proper posture, and charged some person to hold her hands, the hand well moistened with pomatum is to be passed into the *vagina*, and one of the fingers, generally the middle finger, is to be attempted to be introduced into the mouth of the womb, and moved there in different directions to enlarge the orifice. Then the fore finger is to be introduced, and by stretching these two fingers in different directions, the orifice will be dilated sufficiently to admit the introduction of the end of all the fingers closed together.

These five fingers, thus introduced, form a kind of wedge, and by stretching them become a kind of dilator. By this means the mouth of the womb is by degrees sufficiently dilated to allow of the introduction of the hand. The part by which the *mole* adheres is then to be searched for, which is towards the bottom of the womb; when it is found, one finger is to be rested upon the *mole*, the other on the womb, and by separating them from each other, the operator attempts to displace the *mole*; as soon as he begins to succeed, he advances the two fingers, and by continuing to act in the same manner, by degrees he increases the separation of the *mole*, and at length entirely accomplishes it.

Towards the end, dispatch must be made use of; because, in proportion as the *placenta* is separated, a hemorrhage comes on.

The *mole*, when separated, falls down towards the mouth of the womb; and to keep it there, the woman's body must not only be raised up a little, but some sensible person should be charged to compress the belly gently, to prevent the *mole* from rising into the bottom of the womb, and its extraction should be attempted without delay. This must not be expected to be effected by the common methods. To undertake it would be a very difficult, painful, and almost impossible task; and we must try the whether  
or



crotchet, or any of the kind of forceps which have been contrived, can be made use of: but I have already mentioned the danger of the crotchet, the use of which may be pernicious; that of the forceps is most certain, but they afford but very little assistance, when the *mole* is of a certain size; so that in this case, we must determine to tear it in pieces, and extract it piece-meal.

In consequence hereof, the fingers are to be plunged into the substance of the *mole* as far as possible, to tear off large pieces from it; and thus complete, by degrees, the entire extraction thereof. But if the *mole* should be too compact to allow of forcing the fingers into its substance; in this case, a bistory, concealed in a sheath, the blade of which is elevated by depressing the spring, must be had recourse to. To use this, the left hand is to be passed into the womb till it touches the mole, then the instrument is to be slid along this hand with the right hand, and several deep incisions are to be made in the mole, directing the instrument with the left hand. When these incisions have been made, and the instrument closed and withdrawn, the fingers are to be plunged into these incisions, and thereby the mole is easily torn asunder, and extracted piece-meal. When this is done, the hand is gently passed into the womb, to extract the clots of blood and small pieces of the mole which might remain behind.

During the operation, some cordial is to be administered which is not too inflaming, which may be repeated if necessary, after the operation is finished. The patient is then put to bed, and an hour or two after takes a mess of weak broth; and if the pulse rises three or four hours after, some blood is to be taken from the arm, which is to be repeated according to the degree of the fever, and danger of the inflammation.

I hope



I hope, after what has been said on this subject, midwives will have no desire to undertake so difficult and dangerous an operation. It is true, it is rendered at present easier by the use of Mr. Levret's crooked forceps, with which *moles* are extracted without making incisions into them, unless they are very large.



## B O O K V.

*Of accidents which sometimes happen in labour.*

## C H A P. I.

*Of the falling down or descent of the womb.*

**I** DO not propose to give here a particular account of the causes, symptoms, and cure of the falling down or descent of the womb, having treated on it largely in my treatise on *the Diseases of Women*, which may be consulted. I shall content myself with giving a short idea of the nature and causes of this disorder, which sometimes happens in childbirth, to make what I shall say of the means of knowing and remedying it, the better understood.

The mouth of the womb projects into the vagina half an inch at least, and the vagina connected to the womb surrounds it pretty nearly in its natural state, and is tight and firm enough not to permit the womb to project farther.

While matters remain in this state, the womb is kept in its place, but it advances into the vagina, or, if the expression is better liked, it descends into it, when that part of the *vagina* which is connected thereto, is very much dilated, or easy of dilatation, and the womb is pushed forward with sufficient strength to overcome the resistance of the *vagina*.

The *vagina* may be too much dilated from a natural conformation, or by some preceding labour of a very large or monstrous child.

The *vagina* may be too easy of dilatation, either from its being naturally soft and furnished with few muscular fibres, or from its being relaxed and molli-



fied from an habitual discharge of the *whites*, especially if the discharge is of a serous kind.

The womb may be too strongly forced into the *vagina*, by some violent efforts, vomiting, a *tenesmus*, sneezing, or violent fits of coughing.

From the concurrence of these causes it sometimes happens that the whole body of the womb, with the child it contains, descends into the *vagina*, with its mouth foremost: sometimes it descends no farther than the middle of the *vagina*, and then the descent is incomplete; but sometimes it frees the orifice of the *vagina*, and falls into the *Pudenda*, and then it is called a complete bearing down.

Every midwife must know this case, because they must know the neck of the womb, and especially its mouth, which is very remarkable for its shape and its transverse opening; hence the smallest attention must be sufficient to make them comprehend, that the body which comes forward into the *vagina* is the womb itself, and not the child.

The descent of the womb in labour is always dangerous, both for mother and child; and the more dangerous, according as it is greater or less: it is *dangerous for the mother*, because she suffers from the dragging of the womb, which is displaced, and cannot be delivered on account of the pressure to which the womb is exposed, which hinders its contracting, because in this state the womb is exposed to be inflamed, and even mortified: it is *dangerous for the child*, because, compressed as it is, delivery cannot be accomplished; and there is room to be afraid of its perishing in the posture in which it is, as often happens.

The midwife therefore should make haste to remedy this accident as soon as possible, which becomes so much the more troublesome, as the womb descends lower.

For



For this purpose the woman is to be placed on her back, with her hips raised higher than the rest of her body, and after the right hand has been well moistened with pomatum, it is to be passed into the *vagina*, and made use of to push the womb back into its place; but this must be done without violence.

If the efforts are sufficient to give room to hope that the womb will dilate of itself, the midwife should wait the success of it, assisting, nevertheless, its dilatation. But if the pains are weak and but few, she must dilate the orifice, by introducing the fingers, one after another, in the manner which has been already directed several times.

When the mouth of the womb is sufficiently dilated, the hand is to be introduced into the womb, the membranes are to be ruptured, and the waters discharged; the posture of the child will then be known, and if its head presents in a proper position, delivery may be left to go on in this situation.

In every other situation, and even in that which has just been described, if labour droops thro' the weakness of the mother and child, the child must be turned in the manner which has been already frequently described, and delivered by the feet, which is easily done, and does not require so much assistance from either mother or child. But whatever means are made use of, the left hand must be kept in the *vagina* during delivery, to stop the edge of the mouth of the womb, and hinder its following the child in delivery, and dragging the womb with it, until the child is come into the passage, when it may be withdrawn, for fear of its hindering delivery.

After the child is delivered, the after-birth is to be extracted in the usual manner; afterwards the patient is to be put to bed, with her hips a little raised, and her thighs placed close together, without attempting any thing more, till she is quite got up



again; when this disorder must be endeavoured to be cured, or at least its consequences prevented, by the remedies which are to be met with in my Treatise on the Disorders of Women, especially by the use of a pessary, which is very smooth\*.

## C H A P. II.

### *Of the inversion of the womb.*

**W**E must not confound the inversion of the womb with its bearing down or descent, which has been mentioned in the preceding chapter. In the descent, it is the body of the womb itself which descends into the *vagina*, keeping besides its natural shape; while in the inversion of the womb, the bottom thereof is turned inside out, and projecting through the orifice of the womb, presents outwardly its internal surface, and forms a large tumor in the *vagina*, at first about the size of an egg or an apple, but if neglected, sometimes equals the size of a child's head.

This inversion only happens in labour, because it can never happen except when the mouth of the womb is open, which it never is, except in labour. It proceeds sometimes from the imprudence of the midwife, who by pulling too rudely the *placenta*, that adheres to the bottom of the womb, pulls inside out the bottom of the womb at the same time. Sometimes from convulsions of the womb after a difficult labour, which force the bottom inside out, through the mouth of the womb, which is not yet closed, nearly as the contractions of the intestines in violent cholics force one part of the gut into another, sometimes the superior part into the inferior, and

\* Diseases of Women, book ii. c. 10.



and sometimes *vice versa*, which is the cause of the *iliac* passion.

From whatever cause the inversion of the womb proceeds, it is always a very dangerous accident in labour. For as the vessels of the womb are then very large, and the blood is brought to this part in great plenty, the part of the womb which is inverted swells in a moment, in proportion as the mouth of the womb which compresses its basis, hinders the return of the blood which it contains to great a quantity of.

This inversion of the womb not only swells quickly, but becomes indurated from the cold's coagulating the blood, and what is still worse soon mortifies, unless remedied.

When this accident happens, midwives are most generally embarrassed very much. The greatest part of them have not the least idea of an inversion of this kind; and when it happens cannot tell what to think of it. Some of them think it is the *placenta*; and when the *placenta* is already extracted, imagine that it is a *mole*, and consequently use their utmost endeavours to extract it, which increases the disorder and the danger; but it is easy to give them instructions. Whenever a spherical body of an unequal surface, and full of little holes, through which the blood issues, of a soft spongy substance, without any opening to shew it to be the body of the womb itself, issues out of the mouth of the womb, we may be sure that this body is the bottom of the womb itself turned inside out, especially if it happens in a labour attended with convulsions of the womb, or if the midwife has cause to reproach herself with having extracted the *placenta*, which adhered to the bottom of the womb, too roughly.

But when the case is doubtful, the most certain method, and that which ought to be taken, is to force back into the womb this body as soon as it ap-



pears, in which there is no risque. If it is the womb which is returned into its proper place, the patient's life is thereby saved; if it is the *placenta*, we shall have an opportunity to extract it, when we are assured of its being so: And if by chance it was a *mole*, we should have time to take the proper methods for its extraction.

For this purpose the woman must be placed in a supine posture, with her hips raised higher than the rest of her body; after which the right hand, being first well moistened with pomatum, must be introduced into the *vagina* as far as the swelling, which is to be gently pushed back into the womb, beginning with the sides, as is the method in reducing ruptures. This body is to be conducted by the fingers quite to the bottom of the womb, which is its place, and by withdrawing the hand it will be known whether it contains some part of the *placenta*, or some monstrous *fetus*, as was imagined; and if this should be the case, it might be taken care of by the means which have been already shewn; but this case is so rare that it does not deserve our attention.

Every thing being thus re-instated, if the womb continues affected with convulsive motions, which might cause a new inversion thereof, the hand must be kept at the entrance of the mouth of the womb to prevent this danger, until the orifice is closed, or the convulsions cease. By this means the disorder is perfectly cured, and the woman feels no more of it when her month is up, different from the bearing down, or descent of the womb, with which the patient remains afflicted, and instead of a perfect cure, is frequently obliged to be contented with a palliative cure only.



## C H A P. III.

*Of convulsions of the womb during labour.*

**C**ONVULSIONS of the womb which happen in labour, are always a very troublesome, and frequently a fatal symptom.

These convulsive motions are of different kinds; sometimes there is a fluttering or trembling of the womb, the motion of which is so violent and quick, that the midwife's hand, which is exposed to it, is entirely numb'd, as if she had touched a cramp fish; and this happens through the same mechanism.

At other times these motions affect the whole body of the womb at large, sometimes contracting it from the right to the left, sometimes upwards and downwards, backwards and forwards, and sometimes in all these directions together; but these motions are not continual, and generally admit of some intervals of relaxation.

Sometimes these convulsions of the womb communicate with the *diaphragm* and other parts, whence the whole body is affected; and the disorder resembles a fit of the *epilepsy*, forasmuch as the patients lose their sense and feeling, and have the mouth full of froth, and sometimes even bloody foam.

Lastly, these convulsive motions, when they are universal, are joined with a profound drowsiness, such as is known by the name of a *curus* or *catapnoxa*; and this happens when these convulsions assume the likeness of an epileptic fit: But sometimes this drowsiness is without convulsive motions, and the patient seems attacked with an *apoplexy*.

The convulsive motions of the womb described in the two first articles, proceed from the concurrence



of two united causes, viz. The violent impressions the child makes in the womb, when it is confined, compressed, or sick; and the too great sensibility of the inside of the womb, on which these impressions produce stronger effects than they would if the womb was not possessed of so great a share of sensibility; whence it proceeds that these convulsive motions happen most commonly to young and very delicate persons, to hysterical, epileptic, or timorous women, especially when labour is tedious and difficult, and the child being strong and vigorous, agitates the womb violently.

As in the case proposed in the third article, two disorders are complicated; it is easy to conceive, that it must proceed from two causes; the impressions which the child makes on the womb, which possesses too great a degree of sensibility, and produces the convulsive motions, as has just been explained; and from the fulness of the blood vessels of the brain, which by compressing it, produce the drowsiness.

This congestion of blood in the vessels of the brain, is caused by the convulsive contractions of the womb, and the other *viscera* of the belly, and by compressing the trunk of the *aorta inferior* force the blood in too great plenty into the superior branches of the *aorta*, and thus cause a congestion of blood in the vessels of the brain.

With respect to the apoplectic drowsiness, which has been mentioned in the fourth article, it proceeds, as may be readily imagined, from a congestion of blood in the vessels of the brain, but from a greater congestion than that which produces the first kind of drowsiness: Thus this accident happens only to women of a plethoric constitution, who have neglected to lose blood during pregnancy, and have a tedious and painful labour, that brings into a  
state



state of contraction all the parts of the lower belly, which by compressing the inferior *aorta*, force almost all the blood towards the head: when this drowsiness is confirmed, the convulsive motions cease, because the small quantity of animal spirits which are then separated in the brain, are not sufficient to continue them.

The four cases which have just been observed, are of great importance, and, as has been already said, are often fatal.

In the first case, the child being numbed by the agitation of the womb (like the midwife's hand when she passes it therein) is not in a state to use the necessary motions to assist delivery; and the womb itself in this case is not capable of contracting as it ought; so that delivery does not advance, and in the mean time the child being exposed to continual blows, soon perishes.

It is very nearly the same in the second case; the child being strongly compressed by the contraction of the womb, cannot assist delivery; and the womb still less, because the contractions with which it is agitated hinder the necessary contractions for delivery: Thus every thing is put a stop to, and the child soon perishes, from being violently bruised by the contractions of the womb.

In the two last cases, as the head is affected, and the light-headedness encreases, the mother's life is in very great danger, and consequently the child's; supposing it has resisted till this time the blows to which it has been exposed.

As this symptom is very pressing and very dangerous, the midwife should not undertake the management thereof alone, but would do right to send for a physician: In the mean time she should not hesitate, as soon as the convulsions come on, to order the woman to be bled in the arm if the head is not affected,



affected, or in the foot if she has reason to apprehend a delirium: This is the most efficacious step that can be taken, and the physician will not fail to repeat these bleedings, almost immediately one after the other, three or four times, if the state of the pulse permits.

Emollient fomentations are at the same time to be applied to the belly, and clysters which are gently purgative, and even merely anodyne, are to be administered. The patient may also be put into the warm bath, to take off the tension, and effectually relax the fibres and membranes of the womb. Some physicians recommend an emetic in this case, but this practice has not been received, because there is reason to apprehend, that the violent contractions of the *diaphragm*, and muscles of the belly, which vomiting excites, would, by contracting the womb, and compressing the child, occasion its death.

The only efficacious step that can be taken in this dreadful situation, is to accelerate delivery, because it is certain, that as soon as the child is delivered, the convulsions of the womb cease or diminish, so far as to give no room to apprehend the mother's life to be in danger, especially if she cleanses well: But this delivery must not be attempted, except in the intervals of the convulsions, in the two first cases; for this reason the midwife should be careful to make the utmost advantage of these intervals.

If the womb is already sufficiently dilated to allow of introducing the hand, it is a great step gained; but if it is not, it must be dilated by the successive introduction of the fingers, as has been already several times explained; by this means the hand will at length be introduced into the womb; the membranes of the child are then to be ruptured, if they were not before; and what-  
ever



ever posture the child is in, it must be turned and delivered by the feet, with the usual precautions, because this is the shortest method of delivery, and that in which we can give the greatest assistance.

If the after-birth comes away with the child, the midwife must give the whole to the nurse, who is to hold it before the fire until the midwife has placed the woman in bed, and given her a spoonful or two of mountain wine, after which she is to cut and tye the navel-string of the child, clean it and roll it up.

But if the after-birth does not come away with the child, the midwife must make a double ligature on the navel-string, and divide the navel-string between these ligatures; and after having delivered the child to the nurse, must set about extracting the *placenta*, by the methods directed in book iv. chap. 3. case 2.



## C H A P. IV.

*Of the rupture of the womb.*

**T**HE rupture of the womb is one of the most fatal accidents which can happen in labour, since it occasions the death of both mother and child at the same time, tho' examples are not wanting of women who have survived it; as for instance, a woman at *Tholouse* in France, who carried a child in the cavity of her belly, for twenty-five years, into which it had opened itself a passage in a bad labour, by rupturing the womb, as appeared on opening this woman after her death.

This misfortune happens when the child is situated obliquely in the womb, or, which is worse, across from one side to the other, and being strong tosses itself about violently, till after many vain efforts it at last ruptures the womb, with its head or feet, according to the resistance which the sides of the womb afford. Sometimes the rupture is small, and only a part of the child's body can pass through it; but it soon enlarges it, sufficiently to pass through it quite, and falls towards the right or left side of the belly.

This event may be known by many signs, if we will but attend to them, viz. The bad situation of the child, which is easily known, its violent motions in the womb, which it enlarges to the right and left, and shortens from the top to the bottom, and occasions the mouth of the womb, instead of advancing into the *vagina* and dilating, to mount upward and contract itself. Lastly, the violent pains which the woman suffers, and in which she remarks, that the efforts of the child are intolerable. From the concurrence of these symptoms, or at least a part of them, it is time to prevent the danger which

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we foresee, and the only means of succeeding, is to procure delivery without delay.

For this purpose, introduce the right-hand, moistened with pomatum, into the *vagina*, as far as the mouth of the womb, and dilate it by degrees, by introducing the fingers successively until the hand can be introduced. When this can be done, make use of it to tear the membranes, if they are not already ruptured; and to bend the legs, thighs, or body of the child, in order to shorten its length, and put an end to its efforts against the sides of the womb, and take the advantage of the play which this affords, to endeavour to turn the child, and deliver it by the feet. But if the after-birth does not come away with the child, the midwife must not quit her place until she has extracted it; and to do this, must get rid of the child, after having made a ligature on the navel-string.

If this operation succeeds, we save at one stroke both mother and child; but it is attended with many difficulties. *On the one hand*, the mouth of the womb dilates with great difficulty, and it is very difficult to introduce the hand, which does not give us much room to hope to deliver the child. *On the other hand*, when the hand is at last introduced, the child is found so locked up, and tightly compressed, that we are very much perplexed to bend the legs, thighs, or body of the child, to diminish its length, and procure a little room to turn the child, without which it is impossible to deliver it. If these difficulties discourage us, and we are obliged to abandon the enterprize, the womb presently ruptures, and is soon followed by the death of both mother and child, which hardly ever survive it.

A German physician, who has wrote a very good dissertation on this subject, proposes the *Cesarean* operation as a remedy for this unfortunate accident, when it happens; and he has reason on his side:

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it is certain we might thereby save the child, and have just reason to hope to save the mother; for after all, the rupture of the womb is not incurable, or at least not always so. But to render this operation useful, it should be performed almost immediately after the rupture happens, for the mother and child perish soon after; and how can this operation be performed on a woman who has just undergone a very violent shock, who is then generally in an alarming swoon, and in so weak a state, that her pulse can scarcely be felt? In such dreadful circumstances, the patient must be allowed some little respite; and we must endeavour to recover her strength, by a few spoonfuls of mountain wine, or some light cordial, and make use of the first favourable moment to perform, not the *Cesarean* operation, for there is no incision to be made into the womb, but a simple incision of the belly only, which is much less dangerous, yet sufficient to save both mother and child.



## C H A P. V.

*Of the laceration of the perinaeum, or partition which separates the PUDENDA and ANUS.*

**T**HIS partition is formed only of the tunics of the *pudenda* and *anus*, applied against each other, or at least containing between them nothing but the *cellular* membrane; whence it is not surprising that this partition is sometimes lacerated in childbirth, and that both openings make but one, which is a sad accident.

This misfortune happens, first, when the child is too large. 2dly. When the womb is inclined forwards, which occasions the head of the child to bear backwards, and consequently on this partition. 3dly. When the midwife, in passing her hand into the *vagina*, bears too hard on this part: or, that the man-midwife, in using the crotchet in cases in which its assistance is necessary, presses too much on this place: straight forceps are attended frequently with the same inconvenience; but this has been happily remedied, by making them curved.

Young women are particularly exposed to this accident, when the lips of the *pudenda* are thick, firm, compact, and unfit to lengthen and extend, which makes the whole violence of the extension fall on the *perinaeum*, unless the midwife is very attentive to prevent it. This attention consists in endeavouring to rectify the oblique position of the child's head; in well anointing the circumference of the *pudenda* with pomatum, to mollify and render it extensible; in introducing a finger into the *anus*, to force back the *os coccygis*, and supporting the pressure of the child on the *perinaeum*, to thereby prevent its laceration.

The



The inconvenience of an accident of this kind, which exposes the *pudenda* to be almost always daubed with the excrement, especially when the laceration is great, which cannot render these women at all agreeable to their husbands, must be easily conceived : there is but one method of remedying it ; namely, to unite its lips together as soon as possible, which is easily done, when the laceration is not large ; and a single stitch is sufficient, which can be made with a needle moderately crooked ; but it is much more difficult when in a longer rent, a second, or a third stitch, must be made, which cannot be done without difficulty, and making use of a needle almost circular.

Before the suture is applied, the wound, if recent, must be washed with warm wine ; and if an old wound, its edges must be pared off with scissars, in the manner that is done in the operation for the hare-lip. When the futures have been made, introduce into the fundament a large tent of linnen, dipt in some proper digestive ointment, such as yellow basilicon, or *Arceus's* liniment ; and dress the wound in the *vagina* with pledgets spread with the same ointments, covering the whole with a cerecloth, or linen plaister, to hinder the urine from fretting the wound.

The patient should keep her bed till the cure is compleated, which will be pretty far advanced towards the twelfth day ; during this period, she must keep entirely to spoon meats, to prevent too much excrement, and especially hard excrement, from being formed. Even that which is formed, should be softened by emollient clysters ; and care should be taken to wash the part every time the patient goes to stool, as is usual in the operation for the *fistula in ano*.



The patient must also be advised, when the cure is compleated, to avoid being with child any more ; or, if she should be so, to put herself under the care of a skilful and prudent midwife, who will be careful to moisten the part well with pomatum, during labour, and will guard as much as possible against too violent a distension, for fear of a fresh laceration.

## C H A P. VI.

*Of the Cæsarean operation.*

**I**N this operation, we make an incision at first through the integuments of the belly, in a pregnant woman ; and, afterwards, another incision thro' the membranes of the womb itself, to extract the child, which is inclosed therein : it is practised in three different cases. 1st. In a woman who dies near the end of her pregnancy, from a fall, a blow, an apoplexy, poison, stab of a sword, in short, of a death sudden enough to give reason to think that the child is not dead, and may be saved by opening the mother. 2dly. In a living woman, when it is evident that the child is dead, and cannot be extracted by any other method, which renders this operation, cruel as it is, absolutely necessary to save the mother. 3dly. In a woman who has gone her full time, but cannot be delivered by the common methods ; in which case, this operation must absolutely be resolved on, to save the mother, or child ; and even both of them, when it is performed early.

I do not suppose that midwives would ever be rash enough to undertake operations of this kind ; nevertheless, I think it proper to instruct them how they are to be performed, and what opinion is entertained of them, and what they themselves ought to think relative thereto. For this purpose, I shall divide this chapter into two articles : in the one, I



shall shew a manual of this operation ; and in the other, shall remark the opinion that should be entertained thereof.

## ARTICLE I.

### *A description of the Cesarean operation.*

THE cesarean operation, which is performed on the woman when dead, as in the first case, has nothing alarming nor difficult in it. The same precepts are to be observed here, which I shall give for this operation in the living woman, at least when an incision is to be made into the womb, to extract a living child : for, with respect to the incision of the belly, we are under no restraint. For this reason, if I speak of this operation on the dead woman in the first place, it is because that it is the most antient, and serves to give an idea of the manner of performing this operation on living subjects. But this operation is not to be performed, except we are morally certain of the death of the mother, as will be observed in the following article.

As to the operation on the living woman, as in the two last cases, it is one of the greatest and most dangerous operations in surgery, and should never be resolved on, except when it is clear that there is no other method of saving both mother and child, or at least one of them.

Before this operation is undertaken, a clyster is to be administred, to empty the intestines. The bladder of urine must also be emptied ; after which, the woman is to be placed in a convenient position for the operation, with the belly a little raised, and must be secured by several assistants, who are to hold her hands, thighs, and even the body, to spare her the horror of being tied down.

Authors



Authors differ in their opinion, with respect to the part of the belly on which the incision is to be made; some propose to imagine a straight line drawn from the middle of the *os pubis* to the highest part of the spine of the *os ilion*, and make the incision in the middle of, and in the direction of, this line. Others \* advise to imagine a line drawn from the anterior extremity of the spine of the *os ilion*, to the junction of the last of the true ribs, with its cartilage, and to chuse for the incision the middle space between this line and the *linea alba*. These decisions differ but little; and I think either of them may be followed without inconvenience.

In the beginning of the operation a razor may be used, with a piece of fine linnen wrapt round it, to keep it firm and steady in its scale: afterwards, a good bistory, or incision-knife, is substituted in its room. Mr. Levret proposes to † use a crooked bistory, which cuts only with its convex side; and I should imagine this instrument preferable, because it makes a more uniform, and continued incision, which is of great consequence.

The incision may be made at option, either in the right or left side, but the preference is generally given to the side towards which the womb inclines most. At first, the skin, fat, and integuments, are boldly cut through, as far as the *peritonæum*; but when we come to this part, we must use more circumspection, and make a small opening through it.

To enlarge this opening, a grooved probe must be used, to direct a common bistory; but it is more convenient to make use of one of the fingers of the left-hand, the *fore-finger*, or *middle-finger*; and by its assistance, conduct a blunt pointed bistory.

\* Mr. Levret, sequel of his observations, p. 251.

† The same.



This incision of the belly should be six or seven inches long, to be able to introduce the hand without lacerating any part.

When the incision is made in the belly, the intestines escape, which renders it necessary to desire somebody to keep them in. The state of the womb, which presents side-ways, is to be then examined. It is very seldom that the *placenta* adheres to this part; but if it should, we should endeavour to avoid it, because it would prove a very great impediment. The rest of the operation is easier, when we know, by feeling, that there is nothing in this place but the membranes of the child.

Before this operation is performed, we should examine whether the *waters* are discharged or not; if they are still contained in the membranes of the after-birth, we shall be less incommoded in making an incision through the womb, because the *waters* form a medium between the womb and child; but, on the contrary, we must proceed with more precaution in making this incision, if the *waters* are already discharged, and the child's body in contact with the womb.

We act in the same manner in making this incision, as in making an incision in the belly, and use the same crooked bistory. The incision should be five or six inches long. The hand is then introduced into the womb, the membranes ruptured, if they were not so before, and the *placenta* separated carefully, if it still adhered to the womb; the hand is then passed under the child, and it is taken out with the after-birth, and delivered to a proper person, while the operator continues busied about the mother.

The blood which proceeds from the divided vessels, which is not in such great quantity as one might reasonably apprehend, is to be sucked up with a sponge: the womb is left intirely to itself, and by



contracting, soon returns into the *pelvis*; and with respect to the wound of the belly, two or three stitches are made therein, as in all other wounds of the *abdomen*. A few spoonfuls of some mild cordial are given the patient, and she is put to bed, and placed on that side on which the wound is, in order to facilitate the discharge of blood which proceeds therefrom, by this depending posture.

About an hour afterwards, the patient may take a basin of broth; and if, in the sequel, the fever becomes violent, she is bled in the arm, which is repeated according to the symptoms, and the state of her strength: the patient is to be kept to spoon meats during the whole course of the cure.

Some pledgets of dry lint are at first applied to the external wound. These pledgets are afterwards spread with yellow basilicon, or some other digestive ointment: and, according to the state of the wound, with proper balsams, or liniments; at first, anodyne injections, if thought proper; and, afterwards, deterfives injections may be thrown into the wound of the belly between the futures; they may also be injected into the womb through the *vagina*. Except this, the cure is left to nature, without our attending to it more particularly.

## ARTICLE II.

### *Observations on these operations.*

THE first of these operations has been practised a very long time ago, on women who have died towards the end of pregnancy, to extract from their womb the children of which they were pregnant, and endeavour to save their lives. Pliny \* acquaints

\* Natural History, book vii. chap. 9.



us, that three children were saved at Rome by this means, who afterwards became very illustrious persons. “Scipio Africanus the elder; (*P. Cornelius Scipio*) the first of the Cæsars, so called from his “being cut out of his mother’s belly; *Cæso matris* “*utero*, \* and Manlius, who entered Carthage at the “head of an army.” Since which time, this operation has been performed in the like circumstances with general approbation. Sentiments of humanity have induced the world to embrace it, being desirous of preserving the lives of children.

But this operation, the propriety of which admits of no contradiction, does not fail to give uneasiness when proposed to be put in execution. It ought never to be undertaken but when the mother is dead. How dreadful would it be, if she should shew signs of life in the midst of the operation. I am thoroughly satisfied that slight tremblings, of the parts which are wounded, are not sufficient to determine that she was alive, for I remember to have observed the like in dogs which were quite dead, whenever I dissected them while warm; but tremblings which might happen in this case, in a woman’s body, would not fail to cause the sharpest remorse.

In this circumstance, what must be done? *On the one hand*, we must wait for certain proofs of the mo-

\* It has been supposed, inconsiderately enough, that, by these words *primusque Cæsarum à cæso matris utero dictus* Pliny meant Caius Julius Cæsar, who became emperor, as if he had come into the world by this operation performed on his dead mother; but could they be ignorant that Aurelia, the mother of Cæsar, lived a long time after the birth of her child; that the father and grand-father of Cæsar bore that name, joined to the name of Julius: on which subject, consult John Glandorp, *on the family of the Julian race*. Lastly, That in the Julian family, to which Cæsar belonged, there were two branches; one of which was named *Tullius*, the other *Cæsar*, which, according to the report of Pliny, proceeds from the *first Cæsar*, who gave it to his branch, from his having been cut out of his mother’s womb.



ther's death, before the operation is performed : *On the other hand*, it is of consequence to make this opening as soon as possible, because the danger of the child's death encreases every moment. How are we to decide, when there is no certain sign to shew whether the woman is dead or not, especially in the very moment in which she dies. It is reported that *Vesalius*, \* though so skilful an anatomist, was mistaken in this point, and imprudently opened a person whom he thought dead, and in whom he found the heart still beat after she was opened.

I know of but one method of extricating one's-self from this difficulty, and this I once made use of when I found myself in the like situation. Every thing concurred to persuade me the person was dead, but before I consented to have her opened, I caused two incisions to be made in the buttocks, of a sufficient size to cause some motion, if any life remained; but which could not prove fatal, and were even capable of being cured, if the person was not dead.

This operation should be performed towards the eighth or ninth month of pregnancy, to give room to expect to save the child's life; but it may be performed sooner, if the child shews any signs of life.

This operation ought scarcely to be undertaken, except when the mother dies of a sudden death, as has been remarked in the preceding article. In lingering disorders, such as a slow fever, consumption, dropsy, &c. or in violent distempers, as the pleurisy, peripneumony, inflammatory fever, malignant fever, small pox, &c. the child generally dies before the mother; nevertheless, as the doing it is attended with no risque, prudence requires us to perform it.

\* The editors of the last collection of Vesalius's works, printed in Holland, say so, in a letter, of Hubert Languet.



In this operation the integuments of the belly are to be boldly cut through, the intestines put on one side, and the womb cautiously opened, for fear of wounding the child, and the incision must be made large enough to extract it conveniently; the right-hand, smeared with pomatum, is then introduced into the womb, and the membranes are ruptured, if they were not so before, and the child extracted: a ligature is made on the navel-string before it is divided; and leaving the care of sewing up the belly to an assistant, the child is placed before the fire, and a few drops of sugared wine are given it, and the usual methods taken to revive it, which are described in the 5th chap. of the 2d book.

But the operations which are performed in the two other cases, to extract a dead child from the belly of the living mother, or a live child, which cannot be delivered by any other means, are much less antient, and scarcely go farther back than the end of the sixteenth century. Bauhine \* relates, for truth, a story of a sow-gelder, who lived at Nortgaw, who, in the year 1500, performed an operation of this kind on a woman, following nearly the same method, which he practised in spaying sows; but such an example does not deserve to be reckoned; so that it was hardly before 1565, that these operations began to be performed by surgeons.

Francis Rouffet, † doctor of physic, of the faculty of Montpellier, and physician to the king of France, printed at Paris, in 1581, a treatise on this operation, intitled, *A New Treatise ‡ on Cesarean Delivery, which is the method of extracting the child by a lateral incision into the belly and womb of the mother (who cannot otherwise*

\* In his appendix to the treatise of Francis Rouffet.

† Varandæus, in his Treatise on the Diseases of Women, in the last chapter of the second book.

‡ Du Laurens, anatomy, book viii. chap. 32.



*ways be delivered) without prejudicing the life of either, or preventing the mother being pregnant hereafter.* This work made a great noise, and deserved to do so: it excited some surgeons to follow the practice which was proposed; so that Rouffet, properly speaking, is the author of this operation, at least on living women, as well as of the name which he gave it, and it still preserves; for he declares, “that he gave it the “name of the *Cesarean operation*, because, according “to Pliny, Scipio Africanus, the first of the Roman “emperors, being extracted from the belly of his “mother, by an operation of this kind, bore the “name of Cæsar;” which is a manifest corruption of the passage of Pliny, which has been cited already, and which he himself quotes, though he did not understand it. (See pag. 166.)

This treatise contains six sections: in the first, and most important, after having mentioned the necessity of the Cesarean operation in many cases, the author attempts to prove that this operation is not mortal, from four histories, or observations, which have been communicated to him, and five which he declares he himself has seen, which does not seem to agree very well with the account he gives. In the second, he attempts to prove, that the operation may be performed with success; and for this purpose examines the nature of the parts which are to be cut through, to shew that they can be wounded without occasioning any fatal accident. The third is a continuation of the same subject. In the fourth, he brings some observations of children dead and putrified in the womb, which have made themselves an opening by degrees through the integuments of the belly; and of the womb being extirpated without any bad consequences; whence he concludes there is nothing to fear from performing this operation. In the fifth, he endeavours to justify the Cesarean operation, by the example of female animals, which



are spayed by taking away the womb; and from the certainty there is, according to his account, that the accidents which may arise from this operation, are not to be feared. Lastly, the sixth chapter is designed to prove, that this operation does not render women barren.

As soon as Rouffet's treatise appeared, it was translated into Latin, by Caspar Bauhine, physician at Basil, who added a dissertation, in which he confirms the opinion of Rouffet, by some new observations, reprinted at Basil, 1582, under the title of *The excision of a living child from a living mother, without danger of life to either, and without destroying the fertility of the woman: wrote originally in French, by Francis Rouffet, translated into Latin, with the addition of various cases, by Caspar Baubine*. These cases are six observations communicated to Bauhine, by two French physicians, his friends, or taken from Felix Platerus.

Rouffet's work, translated by Bauhine, with Bowyer's dissertation annexed to it, is to be met with in the collections of Gaspar Wolphius, and Israel Spachius.

The praises which Rouffet and Bauhine bestowed upon this operation made an impression on many skilful surgeons, who thought themselves authorized to make a trial of it, without incurring the censure of imprudence; but it succeeded ill in the hands of Guillemeau\*, who made two trials thereof, in the presence of Ambrose Parey. It succeeded no better at three other different times, in the hands of three skilful surgeons of St. Cosme, which brought it into discredit, and made Ambrose Parey condemn it highly; in which he was followed by several physicians and surgeons, and among others by Mauriceau.

On

\* Mauriceau on the diseases of pregnant women, book ii. chap. 33.



On the other hand, this operation has been approved by many other surgeons, and even some physicians; but what is most singular is, that father Theophilus Rainaud, a jesuit, undertook to defend it, and composed a book on this subject, which was beyond his sphere. Lastly, Mr. Simon, a surgeon of St. Cosme, took the same side of the question, in a memoir, in which he relates as many as sixty-four new observations, of the success of this operation.

But it is neither by the number nor weight of the votes, that this question ought to be decided, at least not till after having thoroughly weighed the reasons on both sides. This operation is condemned as mortal, in that an incision of six inches long at least, is to be made through the integuments of the belly, and another of the same kind in the womb; it is true a few stitches are made in the wound of the belly, and even pledgets spread with proper ointments, may be applied, but the wound of the womb is forced to be left intirely to nature, without our being able even to know how it goes on. Lastly, because, notwithstanding all the precaution that can be made use of, a part of the blood which discharges from the wound, and of the matter which will be soon formed, falls into the belly, and must cause a gangrene. It was from these reasons that this operation was judged mortal, for the exceptions, if there were any, appeared to be so rare, that they thought they did not deserve consideration.

On the other hand, these reasons were combated by contrary reasons; but the espousers of this operation principally reckoned on the success which this operation had been attended with, both with respect to the children and mothers. Rouffet had not failed, as has been seen, to make use of this argument, and report some favourable observations. Bauhine



picked up some more of them, and Mr. Simon has still gone beyond them, in the memoir that has been just mentioned.

The question would be decided, if these observations were as certain and conclusive as they pretend, and sufficient to determine a judicious operator to follow this practice without scruple. It is with difficulty one can be persuaded, that an operation which failed in the hands of the most skilful surgeons of Paris, has succeeded so well in the hands of surgeons, or to speak more properly, country barbers: Of young surgeons, who had not the least notion of anatomy, as in the sixth history of Rouffet, and in the second of Bauhine's appendix, of a surgeon, who was drunk when he performed it; as in the fifth history of Rouffet, of those which are added in the Latin edition of his book, printed 1590: Lastly, of a *low-gelder*, as in the first history of Bauhine's appendix. Such testimonies cannot easily be credited.

Fortunately, there is at least one certain and incontestible observation, which ought to put an end to all these controversies, from its not only proving that the Cesarean operation may succeed, but that it has succeeded to the advantage of both mother and child. We owe this observation to Mr. Soumain, a skilful surgeon at Paris, who performed this operation there in 1740, with the greatest success, in the presence of several eminent surgeons, and thereby saved the life of both mother and child. It cannot then any longer be denied, that this operation, dangerous as it is, for it cannot be thought otherwise, may be useful and successful, which is sufficient to authorize its being practised, in cases where it is adjudged absolutely necessary, according to the maxim of *Celsus*: "That in certain danger of death, " it is better to try a doubtful remedy than none."



The question then is to determine the cases in which this operation should take place; in which we should take care not to imitate those who practised it so commonly, and have alledged the foregoing observations, for they used it when the child was placed crossways, or in a bad posture, or was dead, though the natural passages were sufficiently free, as appears from this circumstance, that most of the women who escaped this operation, and became pregnant again, were delivered easily in the common method; and when the passage is free, it is easy to extract dead children, or those which are badly situated, frequently with the hands alone, when dexterity is joined with patience; or in every case by means of the forceps.

The same conduct should be observed, when the matter in question is to deliver a monstrous or drop-sical child, because in this case, as has been already seen, there are easier methods of succeeding; and when the child is stopt by callosities, tumours, or polipusses, in the neck of the womb or *vagina*; because we know by experience, that nature alone frequently remedies these disorders; however, they must be extirpated according to the rules of art; and by this means the woman will be exposed to much less danger and pain, than if the Cesarean operation was performed on her.

Upon mature consideration, Mr. Levret, man-midwife to the Dauphiness of France, who has treated of the Cesarean operation, in a very judicious manner\*, saw but two cases in which it should be practised, to which I think a third may be added, from Mr. Simon.

One of the cases which Mr. Levret admits is †, *That in which there is so great a deformity in the bones*  
of

\* Sequel of observations on the causes and accidents of most different labours, page 237.

† The same, page 243.



*of the mother's PELVIS, that it is mathematically demonstrated, that a child at its full time cannot possibly pass through this strait.* This was the case of the woman, on whom Mr. Soumain performed the operation, which has been just mentioned, and in whom \* *the lower part of the spine of the back and the OS PUBIS were so near together, that there was not more than two inches distance between them.* As this deformity of the *pelvis* is easily known by the touch, we are very certain, in this case, of the absolute necessity of the operation, when it is performed.

The other case is† *when the child is formed without the womb, and is found contained in the cavity of the belly, in which it has arrived to its full time, without having lost its life: (which I think impossible) or rather being dead, threatens the mother with the same fate.* To which may be added, pregnancies of the fallopian tubes, in which the mother's life cannot be saved without performing this operation, and is the case related by Abraham Cyprianus, professor of anatomy and surgery at Frankfort ‡.

We may be assured of this case by examining the state of the womb, which is found small, and consequently empty, while a considerable swelling on the right or left side is felt in the belly.

The third case, which I think should be added is, that where, in a difficult labour, a child being strong, and placed across the womb, which is in this case particularly thin, ruptures its coats on one side or the other, either with its feet or head, and makes itself a passage into the cavity of the belly. This case is known, when in a difficult labour the child is

no

\* Mr. Simon, page 646 of his memoir.

† Mr. Levret as above, page 241.

‡ In his account of a human foetus that was, after twenty-one months, cut out of the fallopian tube, whose mother survived the operation.



no longer felt in the womb, but is felt in the cavity of the belly.

In the first case, where the child is contained within the womb, the whole operation must be performed, and both the belly and womb cut through, which makes the operation more dangerous. In the two other cases, to extract the child from the cavity of the belly, there is only to make an incision through the integuments, which renders the operation less cruel, and attended with less danger.



OF THE  
DISORDERS  
OF  
PREGNANT WOMEN.

**W**HEN a pregnant woman is attacked with any disorder which has no relation to pregnancy, it is to be cured before delivery, if possible, contrary to the opinion of those who insist, that delivery will cure the disorder, whatever it be; which experience proves to be bad advice, and frequently attended with worse consequences.

The first symptoms which appear after the menses are suppressed, are a sickness and vomiting, which proceed from the nerves of the uterus \* being compressed, and from a fulness of the blood vessels. If this complaint is not very violent, and does not continue longer than the third or fourth month, it is not dangerous; but if it continues with violence after that period, there is danger of a miscarriage. In this case the patient must lose blood from the arm, to the amount of about eight ounces, if her strength will allow. If costive, laxative clysters are to be administered, as occasion may require, and the following draught should be taken every six hours: Take salt of wormwood one scruple, lemon juice half an ounce, spirit of mint half an ounce, cinnamon water one ounce, and sweeten it to the palate

\* The nerves of the uterus communicate with those of the stomach, and thereby occasion these complaints. R.



palate with loaf sugar. The diet ought to be light, easy of digestion, and taken in a small quantity at a time, and frequently.

If the pregnant woman is troubled with a violent cough, she must lose blood according as her strength will bear, and take inwardly the following mixture, lest, from its long continuance and violence, it should endanger miscarriage. Take oil of sweet almonds, and syrup of balsam of Tolu, each two ounces, nutmeg water an ounce and an half, simple mint water four ounces, spirit of sal ammoniac thirty drops, and mix them together.

Tho' the force of imagination in pregnant women is a prejudice which both reason and experience prove void of foundation; nevertheless, as a woman becomes dejected, uneasy, and even her health affected, by being debarred from what she particularly longs for, we should endeavour to procure it as soon as possible.

From a full habit of body, or weakness of the vessels of the *uterus*, it sometimes happens that pregnant women continue to have their *menfes* till the fourth or fifth month, and even sometimes during the whole of pregnancy. In this case, after the fifth month there is great danger of miscarriage; and if the woman goes her time, the child is weak and sickly. The cure must be begun with bleeding, in such quantity as the patient's strength will allow; internally the tincture of roses, of the London dispensatory, with the tincture of bark, in the proportion of one ounce of tincture of bark to a pint of the tincture of roses, may be taken four table spoonfuls every four hours. A cooling, spare, but strengthening diet, is proper; the passions must be curbed, the patient kept quiet, and in a state of rest; and venery especially must be abtained from.



Pregnant women are also subject to a pain and swelling of the breast, owing to the fulness of the vessels, from the suppression of the menstrual discharge. This complaint is not dangerous, and is removed, by giving occasionally a gentle laxative, and, if attended with an inflammation, by losing a little blood: The part should be embrocated two or three times a day, with a little of the following mixture: Take oil of mucilages, and camphorated spirits of wine, each an ounce, and mix them together; after using this, cover the breast with flannel.

Pregnant women about the fourth month, when the child's motion first begins to be perceived, are often affected with a faintness and lowness of spirits, with a weak languid pulse. In this case the following medicine is excellent: Take volatile tincture of valerian, and tincture of castor, each half an ounce. Thirty drops of this tincture are to be taken four or five times a day, when faint, in a glass of wine or water.

In a diarrhæa, malt liquors must be entirely abstained from; harts-horn drink used freely, and the following bolus taken every six hours, until the disorder abates: Take powder of rhubarb eight grains, toasted nutmeg six grains, prepared chalk a scruple, syrup of white poppies as much as is sufficient to give it the proper consistence.

In costiveness, the quantity of a nutmeg of lenitive electuary may be taken occasionally; or if the excrement is hardened in the bowels, laxative clysters will be serviceable.

Pains in the back, loins, and hips, affect women towards the end of pregnancy, from the weight of the child, and distension of the womb, violent motion, or some external injury. In this case rest is necessary, and every precaution must be used to prevent miscarriage; bleeding is proper, and anodyne medicines;



medicines; the parts affected may also be bathed with opodeldoc.

From the pressure of the child on the blood vessels, which hinders the circulation, pregnant women are subject to swellings of the thighs and legs, sometimes very painful; but this complaint is of no ill consequence, and goes off after delivery: discutient fomentations, composed of chamomile flowers, juniper-berries and wormwood, may be successfully used, but the principal point is to keep the legs continually resting on a stool.

In women of a cold constitution, as has been already observed, there is often a collection of water in the womb, which is sometimes discharged before the child is delivered, sometimes afterwards. The *pudenda* are also distended so much, that it is proper to scarify them, to let out the water, which if the tumour was large, would hinder delivery; after which the part should be fomented with the foregoing fomentation.

If a bearing down of the *uterus* or *vagina* happens, which is known from a great weight, or bearing down at the bottom of the belly, that occasions a difficulty to walk, the part must be kept up as much as possible, by a proper posture of the patient, and supporting the belly with a suitable bandage: rest is absolutely necessary in this disorder.

The cause of flooding and miscarriage, with the proper steps to be taken therein, have been already mentioned fully in the short history of the Art of Midwifry; as also in the third article of the fourth chapter of the fourth book of this treatise. The pressure of the child upon the bladder, frequently occasions an incontinence or suppression of urine. If marsh-mallow tea sweetened with honey, and cooling emulsions with gum-arabic, do not presently relieve, the only resource is to draw off the urine with a catheter.



From the fullness of the *hemorrhoidal* vessels from costiveness, pressure of the child, or suppression of the menstrual discharge, pregnant women are subject to the piles; if they produce a considerable hemorrhage, attended with heat and pain, bleeding is necessary; if from costiveness, the quantity of a nutmeg of the following electuary, taken at discretion, will afford the greatest relief: Take lenitive electuary one ounce and half, cream of tartar and precipitated sulphur, each three drams, and mix them into an electuary.

With respect to exercise during pregnancy, women for the first three months (especially with their first child) should use as little exercise as possible, being more liable to miscarry before that time than afterwards; from this period till towards the eighth month, moderate exercise may be safely used, provided violent motions are avoided, such as jolting in a coach, walking much up and down stairs, &c. Towards the eighth month the child turns for delivery; therefore at this time it is proper the mother should be kept still and quiet, for a very little matter will occasion the child's taking a bad posture, besides the danger of displacing the womb, which is now very heavy, wherefore from this time till delivery, too little exercise cannot be used, and those persons who jolt themselves about towards the approach of labour, in hopes of a more favourable delivery, risque the causing one of the most difficult and dangerous kind, for the bottom of the womb being now quite loose and unsupported by its ligaments, may by any sudden motion be turned from its natural position, and thereby occasion difficult labour.

The method of distinguishing true labour pains from false, has been already shewn. To remedy false pains, give a carminative clyster, apply warm napkins to the belly, keep the woman still, and  
give



give the following anodyne: Take of the saponaceous pill of the London dispensatory ten grains, and dissolve it in two ounces of simple pepper-mint water, to be taken as often as occasion requires.

*Of the disorders of women after delivery.*

A suppression of the *lochia* after delivery, is of the most dangerous consequence, and if not removed generally kills the patient; if the woman is full of blood, it will be proper to bleed, in order to lessen the fever, which in this case always runs high: emollient fomentations applied to the belly, are of great service; as are also clysters rather stimulating; internally, the following medicines are to be given: Take compound powder of contrayerva root and sperma-ceti, each ten grains, compound powder of myrrh and castor, each six grains, and mix them into a bolus, with the simple syrup, which may be taken every four hours, with four large spoonfuls of the following julap: Take simple penny-royal water five ounces, histeric water two ounces, syrup of saffron one ounce, tincture of castor and tincture of valerian, each one drachm, mix them together: An immoderate flux of this discharge is to be treated in the same manner.

If the pains which happen after delivery, and are called after-pains, prove moderate, they are serviceable, by promoting the flux of the *lochia*; but if too violent, an anodyne may be had recourse to.

The milk fever is sometimes accompanied with an inflammation of the womb, which, if not discolled, generally proves fatal. The properest method to remove this disorder is to keep the woman under a gentle diaphoretic regimen, and to bleed according to the urgency of the symptoms. The belly should be rubbed with oil of mucilages, in which a little camphire has been dissolved.



A *proidentia ani*, or bearing down of the gut rectum, is sometimes the consequence of a difficult labour; this must be replaced as soon as possible, by laying the woman on her belly, applying emollient fomentations, and gently pressing up the part, whilst the woman draws up her breath as strongly as possible to hinder its return; restraining fomentations are also useful.

The bearing down of the womb, and its method of cure, have been already described in the first chapter of the 5th book, as has also the laceration of the *perinaeum*, and the swelling of the breasts from the stagnation of the milk.



OF THE  
DISORDERS  
OF  
NEW-BORN CHILDREN.

**T**O promote the evacuation of the *meconium*, a tea spoonful of syrup of violets, mixed with an equal quantity of oil of almonds, may be given now and then. The pap should be made very thin, and given but very little at a time; for want of this caution many children have been lost.

If the futures of the child's head are more open than ordinary, care must be taken to keep the part warm, and a moderate bandage will also be of service.

With respect to the bearing down of the fundament, the child must be laid on its belly, and the intestine gently pressed up with warm cloths. A fomentation of warm milk and water may be used till it is replaced: to prevent its return, the part may be fomented with a decoction of pomegranate bark and balauftine flowers, boiled in an equal quantity of red wine and water.

Children are subject to the gripes, which are sometimes occasioned from the child's sucking too plentifully, in which case abstinence from the breast for a little while, removes the complaint; a juniper berry or two, or a little powder of anniseeds, boiled in its victuals is good. But a few grains of *magnesia alba*, proportioned to the age and strength of the child, is beyond every other remedy.



If the child's navel is inflamed, from the navel-string's coming off too soon, a little Turner's cerate is the best application.

Children have, about the third or fourth month, eruptions, which are called the *red-gum*. These should not be repelled by external applications, but the child kept warm, and the *magnesia alba* administered in proper doses.

The *thrush* is not attended with danger, unless the fever is very high. The mouth should be washed frequently, with the following gargarism: Take spring water four ounces, syrup of mulberries one ounce, spirits of vitriol twenty drops. A gentle purge is to be given between whites.

The jaundice also affects young children, and if neglected, ends in a watry looseness, which proves fatal. The *magnesia alba*, given in proportion to the child's strength, certainly removes this disorder.

A looseness, if moderate, is not to be suddenly stopt in young children, but if it be violent, from a quarter of a grain to a grain of *ipecacuanha*, may be given every fourth hour; or three or four grains of rhubarb every other day, if the symptoms are not so pressing.

Any violent motion, as vomiting, coughing, crying, &c. may occasion a rupture in children, which is to be cured by replacing the intestine, and applying a proper truss.

Discharges from children's ears are serviceable, and should be by no means stopped; a few grains of rhubarb, once or twice a week, is all that is necessary to be done when they abate.

The cutting of the teeth is always attended with feverish symptoms, which often bring on convulsions; they are to be removed by bleeding, either in the arm or with leeches, and by the use of the *magnesia alba*; and cutting through the gum quite to the tooth, when the gums appear much inflamed.

Children



Children are also subject to the whooping-cough; bleeding, contrary to the opinion of some practitioners, is in general prejudicial; the best medicine is a tea-spoonful of the following mixture: Take two drachms of the pectoral elixir, four ounces of penny-royal water, and one ounce of syrup of balsam of Tolu, mix them together, to be taken as often as occasion requires.

A gentle purge should also be administered every other day, if the child's strength will permit.

The Rickets is also a disorder, which of late years has attacked children; it is in general owing to bad nursing, bad food, and unwholesome air. Its cure is to be attempted by light nourishing aliment, taken often; by the use of the cold bath, exercise, and a course of alterative medicines. *Boerhaave* particularly recommends a grain or two of *fores martiales*, in a spoonful of sack or canary, every evening, for three weeks or a month.







A N  
A N S W E R  
T O A

Casuistical letter from M. D. F. B. on the conduct of Adam and Eve, with respect to their first children.

YOU are engaged, Sir, in a dispute with a modern philosopher, concerning the manner in which Adam and Eve acted, with regard to the navel-string and after-birth of their first child. “*Did they make a ligature thereon, and divide it?*” as is the present practice. The objection against this is, *how should they learn this practice? Who taught it them?* they themselves were created without a navel, and had never seen a child born. *If they had not made a ligature thereon, and divided it, their children must have perished.* This is a truth universally acknowledged by physicians, and the whole race of mankind must have been extinct.

You observe, Sir, that this objection embarrasses you, and desire that I would point out a method of answering this question. But you seem very much dashed by the air of sufficiency and raillery with which it is proposed: are you unacquainted that this is the way of these kind of gentlemen? Full of an opinion of their own understanding, they think that the slightest difficulty raised by them must overthrow the most respectable truths. But they do not long enjoy this vain triumph: We answer them, and they are confounded. Like him of whom Horace speaks\*, *Qui fragili quærens illidere dentem offendet solido.* This is exactly the case of your philosopher; nothing can be more frivolous than his objection: I send you three or four answers, in order to give him his choice; they are all plausible, and I might say they are all solid.

\* First satire, second book.



## ANSWER I.

ADAM must have been surprised at the birth of Cain, to see a shapeless mass, known at present by the name of the *placenta*, hang to the navel by a long string. It is plain that he would not dare to meddle with it, for fear this mass should be part of the child's body. In this country, a like *placenta* full of blood, from the stronger and more plentiful nourishment of the woman, would soon contract putrefaction; but there is reason to think, that in the country where Adam dwelt, much hotter than our climate, it would dry up, especially, if we consider, that it must contain less blood, from the sparing nourishment of Eve, who lived upon fruits; but it does not signify, suppose it tended soon to putrefaction, as it does in this country: Adam and Eve could not have been long incommoded by it, for about the fifth or sixth day, the navel string must separate, and the child get rid of this extraneous body.

Adam profited no doubt, from this observation; he must understand, that this mass did not at all belong to the body of the child, and that it might and ought to be separated therefrom. Thus profiting by his reflections, he cut the navel-string of Abel, his second child, and finding that a little blood discharged from the navel-string, he made a ligature upon it. Thus the ligature and cutting of the navel-string was known and practised by Adam, from the birth of his second child, and consequently mankind preserved.

## ANSWER II.

ADAM was acquainted with the nature of animals, since, during his residence in terrestrial paradise,



dise, he gave names to every one, which expressed their qualities \*. He must have known then, from having seen it frequently, that the young of every kind of quadrupeds were brought forth with a shapeless mass, adhering to their navel by the navel-string. He must have known also, that the females of these animals, even those which did not live on flesh, eat this mass or *placenta*, cut the navel-string with their teeth, and thus freed their young ones from it.

Adam must have profited by these examples, when his wife, driven with him from terrestrial paradise, began to bring forth children. I do not pretend to assert that Adam eat their after-births; but he might very well have divided the navel-string with his teeth, as was customary with the savages of *Brazil*, when the French first arrived there, according to the testimony of John Lery, in the account of his voyage to the Brazils, chap. xvi. At least Adam must have judged, that since he could, without danger to the child, divide the navel-string with his teeth, he might divide it in any other manner, which he certainly did. It is true, that perceiving blood flow from the end of the navel-string, which was connected to the child, he tied it: thus behold the ligature and cutting the navel string established, and the human race preserved, even in this second supposition.

### ANSWER III.

I go still farther, and suppose, that Adam, who disliked the after-birth and navel-string, which hung to the navel of *Cain*, tore them off; what would have been the consequence? Your philosopher answers, the inevitable death of Cain: such is the unanimous opinion of all physicians, as he pretends; but he is mistaken. We tear both constantly from all calves, the moment of their birth, without any hemorrhage

\* Genesis ii. 21.



hemorrhage happening : We tear them also from young pigs, without the least danger. We often tear them from human foetuses through imprudence; without any fatal accident. Two dissertations on this subject, by John Henry Schultz, professor of physic at Hall, may be consulted, both in the *Collection of anatomical Theses*, published by Dr. Haller; vol. v. One on the umbilical vessels of children and adults : the other, *whether the ligature of the umbilical cord is absolutely necessary in new-born children*, which he denies; and that of John George Roederer, professor at Gottingen, a celebrated man-midwife, printed in the second part of his medical tracts, and intitled, *The Ligature of the Navel-string in new-born children, not absolutely necessary*. In these dissertations these physicians quote several authors, who have been of the same opinion, and have related several observations of children, on whom no ligature was made, yet nevertheless lived.

It is true, a great number of contrary observations are opposed to these, which might decide, that the ligature of the navel string was always necessary, if a judgment ought to be formed of what was done in the beginning of the world, from what is done at present in this respect ; but we ought to form our judgment on a more certain principle : God has provided for the preservation of the young of all quadrupeds, which are born with an after-birth, as well as children, without their having occasion for any assistance ; hence there is reason to conclude, that he had at least as much care for the preservation of children, which are the noblest of his works, and consequently established for them wise rules, in the order of nature, to effect every thing which was necessary for their preservation, and would not have left to man the care of providing by their skill, for what he neglected to do himself.



This consequence becomes almost a demonstration, if we compare the change which happens to the navel-string, with the other changes which are effected in children at their birth. An arterial canal, and the *foramen ovale* were necessary to maintain the circulation of the blood, while the child remained in its mother's womb without breathing, but this communication became useless as soon as it began to breathe, and then closes up. The umbilical vessels also are necessary for the nutrition of the child before birth, but they are of no farther use when it is born; they must then close themselves of their own accord, for it is not worthy of God, to suppose he left his work imperfect, and abandoned it to the care or skill of man.

The mechanism destined to effect this change may be seen in the conformation of the child's body; the navel string is formed of a vein and two arteries; during the time the child remains in its mother's womb, these vessels, necessary for its nutrition, are full of blood; but as they are of no farther use when it is born, they then change their state: nothing passes through the vein; it therefore must close up, from the elasticity of its coats. In the umbilical arteries, if any blood still circulates, it is very little, from the change which has happened in the direction of the *iliac* arteries, whence they take their rise. These arteries are curved during pregnancy, because the infant is rolled up like a ball, and its thighs are bent against its belly. In this position, the trunk of these arteries, which is below this elbow, can receive but little blood, and the greatest part must then pass into the umbilical arteries, whose origin is above the curve which these arteries form. But every thing is changed as soon as the child is born; the legs are extended, and a direct passage opened for the blood into the



*iliac* arteries: it no longer passes into the umbilical arteries, or, at least, but in a very small quantity; and, consequently, these arteries being empty, or less full than they ought, must, as well as the umbilical vein, be closed from the elasticity of their coats, and be obliterated.

This is not all yet: the elasticity of the tendinous circle, which forms the circumference of the opening of the navel, was counterbalanced by the umbilical vein and arteries, while these vessels were full of blood; but as soon as these vessels are empty, or less full than usual, this elasticity must get the better, and, by contracting, finish the closing of these vessels, so as to hinder any discharge of blood, which affords the means of tearing off the navel-string in certain cases, or at least neglecting to tie it, without any danger, as has been frequently observed.

These advantages must have been greater in the children of our first parents, because Eve, who was sober and laborious, furnished her children with little blood, and consequently their vessels must have been less dilated: besides, her children were stronger, their fibres were more elastic; and hence the coats of their blood-vessels must have been contracted quicker, and more strongly. Thus, in Eve's children, the navel-string might close of itself, without a ligature. This advantage remains still in animals, because they continue to live as they have always done; it subsists no longer in us, or but very rarely, because we have deviated from our first parent's regimen. Women with child eat a great deal of meat, and other juicy aliments, consequently make a great deal of blood, and furnish a large quantity to their children, which renders their umbilical vessels very large. On the other hand, the effeminate life they lead weakens their children, and renders their fibres lax, and improper to close these large vessels; for  
which



which reason we are obliged to make a ligature on the navel-string, to supply the defect of both these causes.

I finish, Sir, this digression, and conclude, from what has been said, that Adam might have torn away the navel-string from *Cain*, without the least danger of hurting him, or destroying the human race, as your philosopher has endeavoured to persuade you: it is true, that, as he perhaps saw, from tearing the navel-string off in this manner, a bloody serosity ooze from the navel for some time, he might have taken the method of tying the navel-strings of the rest of his children, as is the practice at present.

Thus you see, Sir, several answers to your philosopher's objection: you may give him his choice; they are all plausible and conclusive. For my own part, I do not adopt either of them, and you will be perhaps surprized at it; but I think your philosopher can be answered in a more general and decisive manner, which I shall communicate in the following answer.

#### A N S W E R IV.

I AM of opinion, Sir, that he who taught the birds which he created, and which had never seen a nest, to build them with marvellous art, to lay their eggs in, firmly fixed to the branches of trees, lined within with moss, wool, and feathers, proportioned to the size of their young; that he also instructed Adam and Eve in the manner in which they ought to act at the birth of their children, in order to preserve them, supposing their assistance was necessary. This might be, if you chuse it, by an instinct, which would be in the sequel weakened or effaced\*, when

O

they

\* Thus tame pigeons and doves have lost the instinct of making their nests, since we have made them for them, whilst wild pigeons and doves have preserved it.



they began to act by the light of reason, and had no more occasion to trust to instinct; or, which I think most probable, this might be by an express revelation. But it is not likely that God, who taught all the quadrupeds how they should act to preserve their young at their birth, has abandoned man, who is the most perfect of his creatures, to ignorance, in the like case.

It is not surprising that God instructed Adam how to act to preserve his offspring. It is certain that he has condescended to give instructions to mankind, in the beginning of the world, on subjects of much less importance \*.

Adam, whilst in the terrestrial paradise, gave to every kind of animal a proper name. He had then a language, and a language which was copious, of which he knew the value of all the words; and how could he have acquired naturally, and in so short a time, a knowledge which is the fruit of long use, and profound study †?

Cain, the eldest son of Adam, was a labourer, *and offered to God the fruits of the earth* ‡. Who taught him to cultivate the earth? who shewed him the necessary tools for this purpose? Lastly, Tubal Cain, the seventh descendant from Adam, exercised the art of working with an hammer, and was skilful in every kind of work in brass, and iron §.

Iron and brass were known then at this time, and how could they be known. These metals are hid in

\* And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought *them* unto Adam, to see what he would call them; and whatever Adam called every living creature, that *was* the name thereof. Gen. ii. 19.

† Who first, which seemed to *Pythagoras* the highest wisdom, gave names to all things, or who marked the sounds of the voice, which seemed infinite, with a few letters? Cicero Tusc. Quest. book i. chap. 11.

‡ Genesis, chap. iii. ver. 2, 3.

§ Genesis, chap. iv. ver. 22.



the bowels of the earth, under a form which renders them not easy to be known, and it is not but by repeated operations that they can be made appear in their natural form. At the time of Tubal Cain, could they have been able to find mines which furnished iron and brass; and could they have discovered the method of preparing them? Certainly not: how then can a reason be given for all these facts, unless by acknowledging that it was God, who taught Adam the language which he spoke; Cain, the art and method of cultivating the earth; Tubal Cain, the necessary knowledge to find metals, prepare and work them; and, in the like circumstances, why not say also, that God taught Adam the manner in which he should act for the preservation of his offspring, supposing he had left any thing to his care.

#### ANSWER V.

HITHERTO, Sir, I have only furnished you with the means of answering your philosopher: it is time to change the scene, and, by retorting his argument, oblige him to answer himself. These gentlemen think themselves very strong when they attack, but are very weak when obliged to defend themselves; to this it is easy to reduce your philosopher.

Mankind exists: it must then either have begun to exist by the will of God, who created it; or exists necessarily, and from all eternity.

If your philosopher takes the first side of the question, his opinion will only differ from the belief of the church, in allowing too great antiquity to the world; and, in supposing that it is fifty hundred thousand years since it was created; supposing this, you bring on his Adam and Eve, that is to say, on the

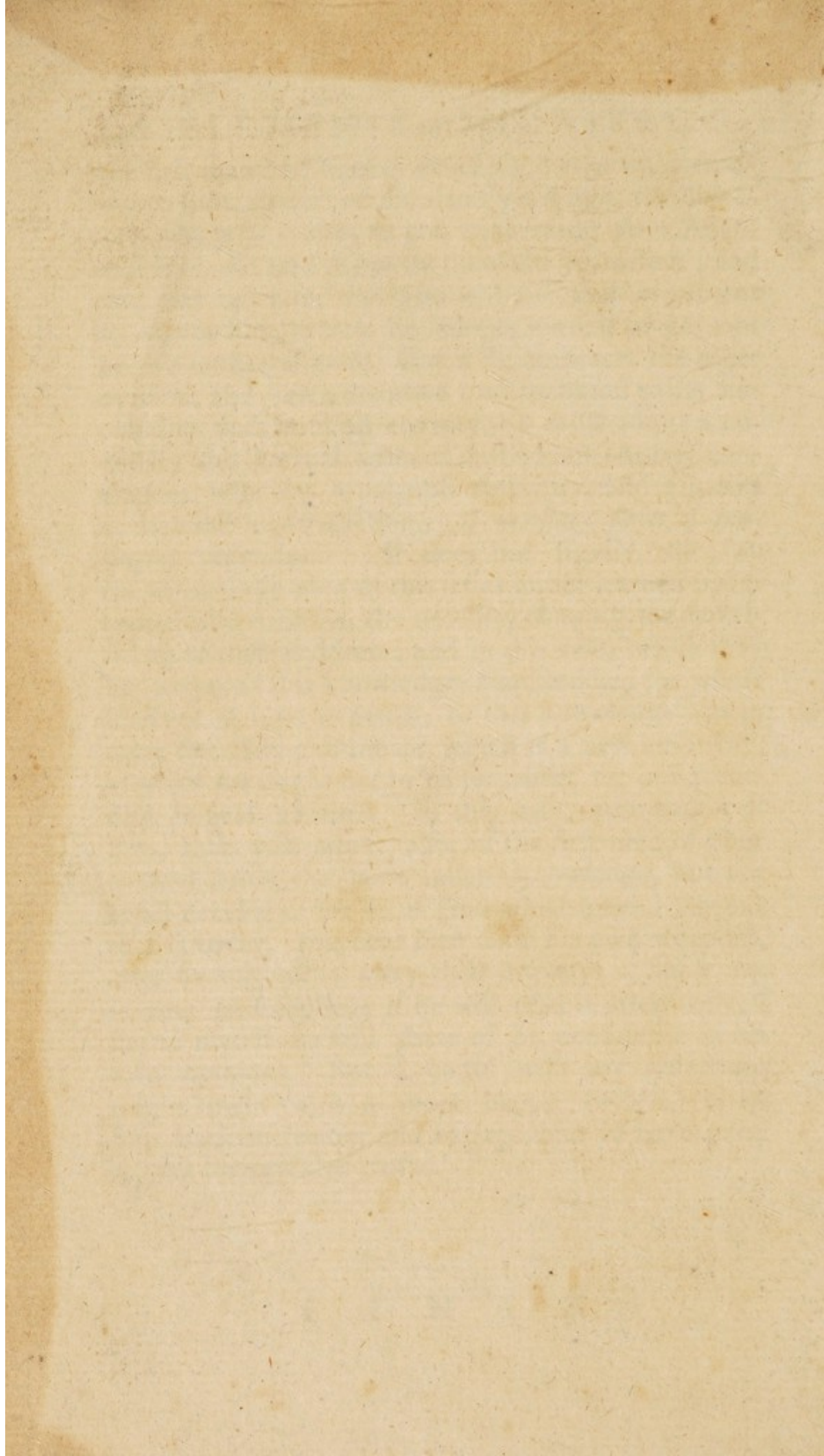


the first man and woman which God created, according to him, a hundred thousand years ago, the objection which he makes to you concerning your Adam and Eve, created about six thousand years since ; and you may tell him, that you will use that argument to answer him, which he adopts himself to get out of this embarrassment. But if he embraces the other opinion, and dares maintain that mankind exists necessarily, and from all eternity, he must admit a necessary and eternal series of individuals entirely contingent, which is a palpable absurdity, and contains a manifest contradiction. *A necessary series of contingent individuals !* It does not signify, Sir ; no quibbling ; the men of this series either learned by repeated observations, the necessity of tying the navel-string of their children ; and in this case, before they had acquired this knowledge, mankind had the whole interval of time to perish ; or this knowledge was in them necessary and innate, which is a new absurdity, at which we ought not to be surprised, for one absurdity begets another. In this case, you may tell him, that you admit also, in the first men of your created series, the same innate knowledge, but not at all necessary, for it is God which gave it them ; that is to say, you beat him with his own weapons, after having taken away their impiety. Shew this to your philosopher ; if he will read it attentively, I flatter myself he will abate of his confidence in his own opinions. But I could wish my reflections might meet with a more happy success, bring him back to reason, and engage him to have more respect for revealed truths.



the first man and woman which God created, according to him, a hundred thousand years ago, the object of which he makes to you concerning your Adam and Eve, created about the thousand years ago, and you may tell him, that you will use that argument to answer him, which he adopts himself to get out of this embarrassment. But if he embraces the other opinion, and does maintain that man and woman were created, and from all eternity, he must admit a necessary and eternal series of individuals, which is a palpable absurdity, and contains a manifest contradiction. I need not fight, but to anyone individual. It does not fight, but to question, the fact of this series either before or beyond observation, the necessity of trying the necessity of their children, and in this case, before they had acquired this knowledge, mankind and the whole interval of time to birth, of this knowledge was in them necessary and eternal, which is a new absurdity, at which we ought not to be surprised, for our author says, "In this case, you may tell him, that you admit also, in the first man and woman, created first, the same innate knowledge, that you admit necessary, for it is God which gave it them." It is to say, you bear him with his own weapons, after having taken away their impurity. Show this to your philosophy, it will read it satisfactorily. I flatter myself, he will spare of his conscience in his own opinion. But I could wish my reflections might meet with a more happy, useful, and him back to reason, and engage him to have more respect for revealed truths.







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