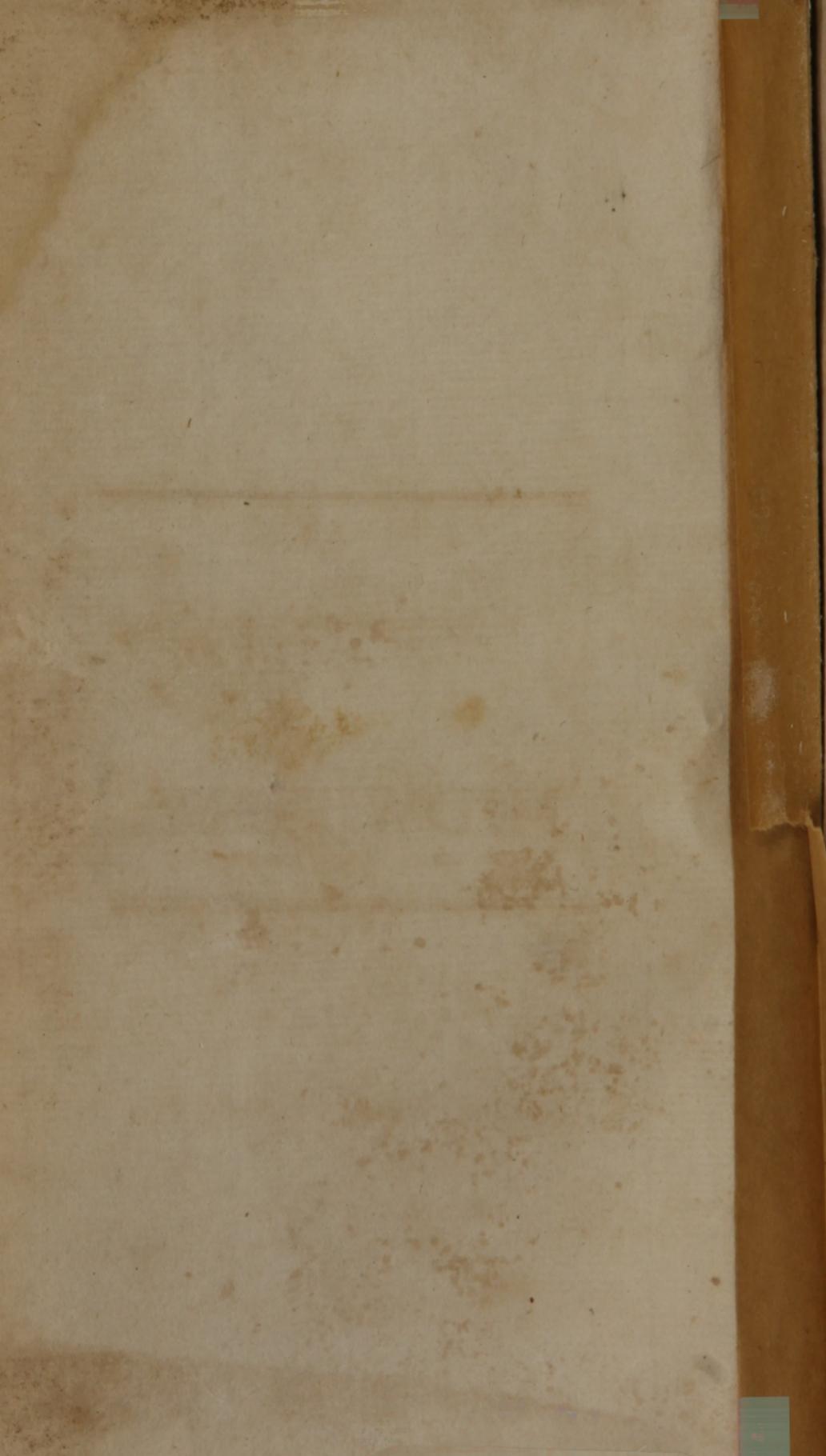




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AN
INTRODUCTION
TO
MIDWIFERY.

INTRODUCTION

BY THE AUTHOR

MIDWINTER.

BY THOMAS DEWITT

REPRINTED IN WHOLETY OF THE ORIGINAL BY THE
PUBLISHERS AT NEW YORK
AND BOSTON

IN TWO VOLUMES

VOL. II.

NEW YORK:

PRINTED BY JAMES GALE

AT THE NEW YORK AND BOSTON OFFICES

Isaac Motte Campbell
AN
1 March 1816 -

INTRODUCTION

TO THE

PRACTICE

OF

MIDWIFERY.

BY THOMAS DENMAN, M. D.

LICENTIATE IN MIDWIFERY OF THE COLLEGE OF PHYSICIANS,
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IN TWO VOLUMES.

.....
VOL. II.

NEW-YORK:

PRINTED BY JAMES ORAM,
FOR WILLIAM FALCONER AND EVERT DUYCKINCK.

.....
1802.

THE SECOND VOLUME
OF THE
PRACTICE
OF THE
COURT

MILWAUKEE

OF THE
COURT
OF
COMMON PLEAS
IN
THE
STATE
OF
WISCONSIN
IN
THE
YEAR
1854

CONTENTS

OF

THE SECOND VOLUME.

CHAPTER X.

	Page.
SECT. III. On the definition and distinction of difficult labours - - -	1
IV. On the first order of difficult labours - - -	3
V. On the second order of difficult labours - - -	17
VI. On the third order of difficult labours - - -	24
VII. On the fourth order of difficult labours - - -	32
VIII. General observations on difficult labours - - -	43

CHAP. XI.

SECT. I. On the fillet, forceps and vectis - - -	47
II. On fillets - - -	50
III. On the forceps - - -	51
IV. General observations on the use of instruments - - -	54
V. On the application of the forceps - - -	57
VI. On the action with the forceps when applied - - -	58
VII. On the application of the forceps under various circumstances - - -	61
VIII. On the vectis - - -	63
IX. On the different kinds of vectis - - -	65
X. On the comparison of the vectis with the forceps - - -	67
XI. On the manner of using the vectis - - -	70

CHAP. XII.

SECT. I.	On lessening the head of the child	73
II.	On the signs of a dead child	77
III.	On the causes of the death of the child	83
IV.	On the instruments used in the operation	85
V.	On the manner of performing the operation	86
VI.	On the perforation of the head	87
VII.	On the evacuation of the contents of the head	88
VIII.	On the extraction of the head	89
IX.	On the subsequent treatment	94
X.	On the propriety of bringing on premature labour	95
XI.	On the section of the symphysis of the ossa pubis	99

CHAP. XIII.

SECT. I.	On the Cesarean operation	103
II.	On the general reasons for performing the operation	105
III.	On the supposed reasons for performing the operation	106
IV.	On the actual reasons for performing the operation	107
V.	On the causes of death after the operation	111
VI.	On the manner of performing the operation	112

CHAP. XIV.

SECT. I.	On the distinction of preternatural labours	115
II.	On the signs of preternatural presentations	117
III.	On the first order of preternatural labours	118
IV.	On the distinctions of the second order of preternatural labours	124

SECT.		Page.
V.	On the first distinction - -	125
VI.	On the second distinction - -	128
VII.	On the third distinction - -	130
VIII.	On the evolution of the child -	134
IX.	On the distortion of the pelvis -	139
X.	On the separation of the head -	142

CHAP. XV. COMPLEX LABOURS.

SECT. I.	On abortion, and labours attended with hemorrhage - -	145
II.	On the frequency of abortion in women - -	148
III.	On the treatment of abortion -	151
IV.	On the symptoms preceding and accompanying abortion -	153
V.	On hemorrhages in the three last months of pregnancy -	159
VI.	On hemorrhages in which the placenta was attached over the os uteri -	162
VII.	On hemorrhages occasioned by the separation of the placenta attached to any part of the uterus -	166
VIII.	On hemorrhages which come on after the birth of the child -	169
IX.	On the exclusion of the placenta -	173
X.	On the extraction of the placenta -	178
XI.	On hemorrhages which follow the exclusion of the placenta -	184
XII.	On the inversion of the uterus -	189

CHAP. XVI. LABOURS ATTENDED WITH CONVULSIONS.

SECT. I.	General observations on labours attended with convulsions -	193
II.	On the reputed causes of convulsions -	196
III.	On the signs which precede convulsions - -	199
IV.	On the means of preventing convulsions - -	201
V.	On the treatment of convulsions -	203
VI.	On the delivery by art - -	207

CHAP. XVII. LABOURS WITH TWO OR MORE CHILDREN.

SECT. I.	General observations	-	-	212
II.	On the sign of twins	-	-	214
III.	On the management of twin cases			216
IV.	On the management of the placentæ			219

CHAP. XVIII. LABOURS IN WHICH THERE IS A DESCENT OF THE FUNIS UMBILICALIS BEFORE ANY PART OF THE CHILD.

SECT. I.	General observations	-	-	222
II.	On the descent of the funis when the os uteri is but little dilated	-	-	224
III.	When the os uteri is fully dilated			<i>ib.</i>
IV.	Farther observations	-	-	226
V.	On monsters	-	-	228
VI.	On the extrauterine fœtus	-	-	231

CHAP. XIX.

SECT. I.	On the management of women in-childbed	-	-	-	235
II.	On mania	-	-	-	269
III.	On the swelled legs	-	-	-	274

177

INTRODUCTION
TO THE
PRACTICE OF MIDWIFERY.

CHAPTER IX.

CONTINUED.

SECTION III.

OF DIFFICULT LABOURS.

WITHOUT some settled form of distinction, it will not be possible for us to comprehend such a knowledge of *Difficult Labours*, as will enable us to conduct women safely and properly through them; or to communicate our knowledge to another person. It is therefore necessary, in the first place, that we should define what is meant by the term; and we will say, that every labour, in which the head of the child presents, which is protracted beyond twenty-four hours, shall be called *Difficult**.

* *Fit partus difficilis et laboriosus, quod nec modo neque ordine debito res peragatur, aut pravis aliquibus symptomatibus impediatur. Harv. Exercit. de Partu.*

Dicitur autem partus ille difficilis, qui cum fœtus vel matris periculo accidit; vel quia cum gravissimis fit symptomatibus, vel tardius procedit, ita ut longo tempore prematur. Roderic. a Castro Lusitan.

Partus difficilis appellatur, qui aëbitas atque ordinarias naturæ leges non servat, sed longius tempus insumit, et dolores subito vehementiores, aliaque symptomata graviora comitantia habit—Riverii Prax, Medic, De Partu difficili.

Fœtus maturi enixus laboriosissimus. Linnæi Nosologia.

This definition, which is chiefly taken from time, is liable to some objections, as there may be more pain endured, and greater difficulties surmounted by one woman in six hours, than by another in twenty-four; but on the whole, it will be found to apply to practice in an advantageous, and often in an unexceptionable manner. It will in particular, afford a remedy for impatience, and guard the practitioner, in some measure, from premature attempts to give assistance, without incurring the danger of those evils, which might be apprehended from too long delay.

Of those labours, which come under the denomination of *Difficult*, there is an almost endless variety in their causes or degrees. Some are occasioned by one cause alone, but more frequently by a combination of various causes, though one may be more obvious and important than the rest*. For the uses and purposes of practice, it is not sufficient to say, that all labours are rendered difficult, either from the greatness of the obstruction, or by the insufficiency or debility of the power, by which the obstruction should be overcome; or, that some depend upon the mother and others upon the child. Such distinctions or references are too general. The particular causes of every individual difficult labour should be pointed out, as well as the conduct which each specific cause may require. These are to be stated by every person who teaches the art, and received for the present by the student. But when students have gained experience, they will, of course, examine and judge the doctrines which they have learned. For there are advantages accruing to every man's own mind from experience, of which no doctrine or words can convey an adequate idea, and those who are in possession of it seldom bend to the rules or admonitions of others. Nor indeed is this to be expected, except in a very limited degree. It is therefore of the greatest consequence to those, who have not yet attained experience, that they should gain, and exercise themselves in, the custom of registering and arranging the particular knowledge they may have an opportunity of acquiring, in regular and systematic order, or they will lose

* *As many causes concur in the production of compound effects, we are liable to mistake the predominant cause, unless we can measure the quantity of the effects to be produced, compare them with and distinguish them from each other, and find out the adequate cause of each single effect, and what must be the result of their joint action.*

See *Dr. Desaguliers's Preface.*

the benefit of it ; for it will otherwise either be forgotten, or recollected with difficulty, when they want to apply an observation made in one case to the exigencies of another : and it is very possible that rules may be too refined for general practice. To lessen these defects, and to point out a better method of preserving the advantages of experience, as well as to record, in the clearest manner, what my own has taught me, we will divide all *Difficult Labours* into four Orders or Kinds, and then enumerate the principal causes of each Order. As the knowledge of causes, and the management or removal of effects or difficulties, should accompany or immediately follow each other, the methods to be used for the relief of these will at the same time be pointed out.

In the *First* order will be included all those labours, which are rendered difficult from the inert or irregular action of the *uterus* :

In the *Second*, those which are occasioned by the rigidity of the parts to be dilated :

In the *Third*, those which are occasioned by disproportion between the dimensions of the cavity of the *pelvis* of the mother and the head of the child :

In the *Fourth*, those which are rendered difficult by diseases of the soft parts.

Under one or other of these Orders may be arranged every labour which can be properly called *Difficult*.

This kind of labour has by many writers been subdivided into lingering and difficult ; but as by the former appellation a less degree of difficulty only is meant both with regard to cause and effect, the subdivision seems unnecessary.

SECTION IV.

ON THE FIRST ORDER,

OR

THOSE LABOURS WHICH ARE RENDERED DIFFICULT FROM THE INERT OR IRREGULAR ACTION OF THE UTERUS.

THE action of the *uterus*, by which every child must be expelled, is accompanied with pain proportionate to the force and to the resistance made. But as this action may become imperfect, irregular, or insufficient for the purpose of expelling the

child, it is needful that we should be acquainted with the causes of such imperfection, irregularity, or insufficiency. Of these causes there is,

1. *The too great distention of the uterus.*

It was formerly believed, that the *uterus* was distended mechanically, by the increase of the *ovum* contained in it. With this opinion, it might be concluded, that either from the size of the child, or the quantity of water, the *uterus* might be brought into a state similar to that which takes place in the bladder, which, when distended beyond a certain degree, loses all power of action. But later observations have proved, that the impregnated *uterus* is never completely distended, nor in any degree by its contents, but by the operation of a principle, which it acquires in consequence of pregnancy; which principle ceases to act at the conclusion of the term of utero-gestation, and is immediately succeeded by another directly contrary, that of expulsion*. But though the *uterus*, when in a healthy state, cannot be distended beyond its power of action, occasion has been before taken to observe, that, from the slowness, and smallness of the effect of the first pains of labour, the power exerted by the *uterus* is generally suited to the state of the parts, and the parts to that of the *uterus*, with a wonderful coincidence. Yet as every principle in nature may, in particular cases, alter or fail, so that of the distention of the *uterus* may prevail to such a degree, or may continue so long a time, that its possible expulsoy force shall be weakened, its energy lessened, and, of course, the progress of the labour be for the present retarded. This seems to be proved, not only by the slackness and feebleness of the pains in the beginning of all labours, especially in those cases in which there are two or more children, but by the increase of that action, when part of its contents are evacuated. It is however to be recollected, that the *uterus* cannot be distended beyond its power of action, though when greatly distended it is capable only of slow and feeble action, which is nevertheless then suited to the general state of the parts, and preparatory to that which is stronger. This slow or feeble action, from distention, is not therefore an object of art; and it is perhaps beyond the influence of any earthly power, to give to the *uterus* its native or genuine disposition to act, before it is disposed to assume it, to add to its

* See Vol. I. Chap. v. Sect. xi.

power, or in any material degree to increase its energy, though many applications and medicines have been recommended and tried for this purpose. Human art may put or preserve the constitution in a state best fitted for such action, or it may remove any impediment to its effect; but the principle is wholly independent of the will of the patient, or the skill of the practitioner. When therefore the pains of labour are in the beginning feeble and slow, as no harm can arise from this cause, either to the mother or child, except that the former is under the necessity of bearing them for a longer time, though on the whole, perhaps not in an increased degree; and as the methods advised, and usually practised, for the purpose of accelerating labours rendered tedious from this cause, are either immediately injurious, or may lay the foundation of future mischief to one or both, it becomes our duty, under such circumstances, to wait with patience, leaving the business entirely to its own course without any interposition. Even when a labour has made considerable progress, and there was reason to expect, that it would have been concluded in a short time, there may be a suspension of the action of the *uterus* for many hours, without any mischief or hazard, as experience has often shewn, though the cause of such suspension may not be obvious to, or explicable by, us*.

Immediately on the accession of labour, it has been the custom to confine women to their beds, or to some particular position, on the presumption that it would be thereby rendered more easy than in any other. By such conduct, expectations of a speedy delivery are often raised; and when these are balked, the mind of the patient will be disturbed, and the process become irregular. But it will always be found more comfortable and useful, to leave the patient to her own choice in these matters, and her inclination will be the best guide. Time is the safest, and generally the only remedy, for lingering and tedious labours occasioned by the too great distention of the

* *With the ancients it was a custom in these cases, to introduce a stimulating pessary into the vagina: and lately with a physician in France, to apply a mixture of the berries of the Bay tree and oil to the navel, in the time of labour, by which he was supposed to do some good, and certainly gained some credit. It would not however be unreasonable, to try the effect of various applications to the abdomen for this purpose. A dossil of lint, moistened with tinct. opii, applied to the navel, does certainly, in some cases, appease uterine pain.*

uterus, as well as by many other causes : and the patient will often find relief, either by walking or standing, pursuing some amusement, or choosing that position which she herself prefers, because she will instinctively seek that which is proper. However, in many situations of this kind, the repeated exhibition of emollient clysters will be of service ; and when the labour is far advanced, in some cases in which the action of the *uterus* is very feeble and slow in its returns, as if it were unwilling to come on, a clyster rendered stimulating by the addition of one ounce of culinary or cathartic salt, will often rouse the dormant powers into action, and the labour will be much sooner completed*.

2. *Partial action of the uterus.*

It was observed, that previous to labour the *uterus* commonly subsided lower into the *abdomen*, and that the more perfect this subsidence was, the more kindly would the labour probably be ; because the *uterus* would act with more advantage. But in some cases, the *fundus* of the *uterus* does not subside before or even in the time of labour, the patient herself being sensible of, and complaining that the child is then very high in the stomach. Sometimes she will also complain of vehement and cramp-like pains in various parts of the *abdomen*, producing no good or adequate effect, which are afterwards proved to have been occasioned by the irregular contraction of the *uterus*. This irregular and partial action, which is properly called spasmodic, is capable of throwing the *uterus* into various forms ; sometimes the longitudinal, and at others the hour-glass, with all their varieties and degrees. Every change in the form of the cavity of the *uterus*, from the genuine, will be productive of inconvenience, according to the peculiarity and degree of alteration ; and it is to be wished, that we could discover the means of altering the form of the *uterus* when thus irregular, of suppressing its action when too vehement or disorderly, and of strengthening it when too feeble, according to the necessities of each case, as they may arise. But as these things, are beyond our power, and at least any method of producing them, is at present unknown : all that we

* *Clysteres injiciantur, quorum irritatione expultrix uteri facultas excitatur, et depleta intestina ampliorem locum utero relinquunt.*

can generally do must depend, not on commanding what we choose, but on making the best of such circumstances as do really occur; and it is necessary to consider, whether by any previous management it be possible to prevent this irregularity of action, or remedy its effects, when it is in such a degree, as to be very painful or troublesome before, or productive of inconvenience at the time of labour. When there is any unusual kind of pain in the region of the *uterus*, greater than, or different from, that which may be considered as one of the common effects of pregnancy, there is generally an increase of that feverish disposition, which in a certain degree is, perhaps, natural to all women with child; and it will then be necessary to take away small quantities of blood, to give cooling medicines, to be very attentive that the regular course of the bowels be procured or preserved, and I think I have seen much good done by gently rubbing the whole *abdomen* with warm oil. At the time of labour the same means may also be necessary and proper, on account of this irregular or insufficient action of the *uterus* and the concomitant pains, which most frequently happen to those who are naturally too irritable, or who lead inactive lives. To such women should be pointed out the necessity of acquiring a composure of mind, and of using exercise in the open air as far as their unwieldiness will with propriety allow; even in the time of labour, if rendered tedious from this cause, in which the pains are very sharp yet ineffectual, it is of use to bear them, when in an erect position, and to walk about as long and as often as they are able, in the intervals. The chief part of what can be further done is, to impress upon their minds the necessity of exercising that patience, which we on our parts ought never to want. In some cases of this kind, when the patient has suffered much and for a long time, after bleeding, and the administration of a clyster, I have directed twenty drops of *tinct. opii* to be given, with the intention of suppressing the present pain, which was irregular, and with the hope that, when it returned, it would be with regularity and efficacy. But in general I have great objections to opiates on slight occasions for women in labour; being persuaded that, by disturbing the order of labour, they frequently produce very untoward symptoms, and make that which was in itself natural become difficult or dangerous to the mother or child, as evidently as any other kind of unseasonable interposition.

3. *Rigidity of the membranes.*

This has been mentioned by the generality of writers, as a

cause of difficult labours ; and I have observed, when a labour proceeds slowly, the membranes being unbroken, that their rigidity is usually assigned as the cause of the difficulty or delay. This subject has already been considered in the history of natural labours ; but we cannot too often inculcate, as the observation is of the greatest importance, that neither the mother nor child is ever in any danger, on account of the labour, before the membranes are broken ; and that there is infinitely more caution required, to avoid breaking them too early, than there is difficulty in breaking them when necessary. The true cause also, why the membranes do not break at the usual or proper time, is not in truth from the rigidity of the membranes, so commonly as from the weak action of the *uterus* ; because the membranes are scarcely ever so rigid, as to withstand the force of very strong pains, and if they were, the whole *ovum* might be expelled at the same time, a circumstance not unfrequent in premature births. More than one case has occurred in my own practice, to which particular attention has been paid, for the purpose of registering the observation, in which the labour has commenced properly, and proceeded with much activity, till the *os uteri* was fully dilated, and then ceased altogether for several days ; at the end of that time the membranes breaking, the action of the *uterus* has instantly returned, and the labour been finished speedily, with perfect safety to the mother and child*.

The circumstances of labours are however sometimes, though very seldom, such as make it not only justifiable, but eligible, or perhaps necessary, to break the membranes artificially. Yet before this is attempted, we ought first to be assured of the state of the *os uteri*, because this will sometimes be spread over the head of the child, so thinly and uniformly, before it is in any degree dilated, as to resemble the membranes. But when the *os uteri* is wholly dilated, and we have determined upon the propriety of breaking the membranes, no instrument is required for that purpose. If they be confined with the end of the forefinger upon the head of the child, during the time of a pain,

* When the head of the child is born with the membranes unbroken, it is said to be born with a cawl. To this cawl imaginary virtues have been attributed, and a fancied value has been set upon it. It was esteemed the perquisite of the midwife, and perhaps the whole was the contrivance of some intelligent man, to prevent her from interfering with any labour, which was going on in a natural way.

they generally give way ; or if this be insufficient, they may be rubbed with the end of the finger, on one particular spot, till they are worn through ; or they may be scratched with the nail of the finger, cut and turned up for that purpose. I am persuaded, that no person, who is capable of judging when the membranes ought to be broken, will ever meet with any difficulty in breaking them.

4, *Imperfect discharge or dribbling of the Waters.*

This circumstance is a cause, or at least a frequent attendant on Difficult Labours, especially when the membranes have been broken designedly, or spontaneously, before the *os uteri*, was dilated, though far more frequently in the former case. For if the membranes do not break, or be not broken, before the complete dilatation of the *os uteri*, the whole quantity of the water is generally discharged at once, and the head of the child is speedily advanced by the succeeding pains. Sometimes indeed the head of the child is so placed, as to lock up a great portion of the water, which cannot escape, till the head is expelled. Should the water be imperfectly discharged, a further small portion of it is usually evacuated whenever there is a pain, and the pain is not immediately efficacious, or entirely ceases after the discharge. In this situation there are only two methods to be pursued ; we must either wait till all the water is drained away by these repeated small discharges, or we must contrive some method, by which their evacuation may be hastened. If there be no particular reason against our waiting, it is better not to interfere, but to leave the business entirely to nature, explaining the state of the case to the patient or her friends, taking care to prevent their apprehension of danger from the delay of the labour, and not by our solicitude to raise their expectations or their tears unnecessarily.—But when the water dribbles away in the advanced state of a labour, or there is reason for our wishing a speedy conclusion of it, either on account of the mother or child, it will be expedient to forward the discharge of the water, by raising the head of the child a little higher into the *pelvis*, by the introduction of the fingers and thumb of the right hand, which may be done without prejudice either to the mother or child, during the continuance of the pains ; or by pressing the head towards the hollow of the *sacrum*, by which means more room will be made for the water to escape. However, the dribbling of the water is not a circumstance of much importance, when it is not combined with other causes of difficulty ; and it may be again mentioned, that

it is generally occasioned by the artificial or premature rupture of the membranes.

5. *Shortness of the funis umbilicalis.*

The *funis umbilicalis* seems to admit of a greater variety, both in thickness and in length, than any other part of the *ovum* when at its full growth, being in one subject several times thicker than in another, or perhaps three or four times as long in one as it is found in another. It may be naturally very short, or it may be rendered so accidentally, by its circumvolution round the neck, body, or limbs of the child. Whichsoever of these is the case, the inconvenience produced at the time of labour is the same; that is, the labour may be retarded; or perhaps the *placenta* may be loosened prematurely; or the child may, in a tedious labour, be injured or in danger of being destroyed by the tightness of the ligature drawn round its neck; or by the mere stretching of it, as this must necessarily lessen the diameter of the vessels, if not perfectly close their cavity. But the two latter consequences very seldom follow.

The shortness of the *funis* is always to be suspected, when the head of the child is retracted upon the declension of every pain; and it may sometimes be discovered, that it is more than once twisted round the neck of the child, long before it is born.

Various methods have formerly been recommended for preventing this retraction of the head, some of which are insufficient, and others unsafe*; and the inconvenience is usually overcome, by giving the patient more time. But if the child should not be born, when we have waited as long as we believe to be proper or consistent with its safety, or that of the parent, it will be requisite to change her position, and instead of suffering her to remain in a recumbent one, to take her out of bed, and raise her upright, to permit her to bear her pains in that situation; or according to the ancient custom of this country, to let her kneel before the bed, and lean forwards upon the edge of it; or, as is now practised in many places, to set her upon the lap of one of her assistants. By any of these methods the retraction of the head of the child is not only prevented by its own gravitation, but the weight of the child will be added to the power of the pain; and it will likewise be expelled upon an inclined plane instead of a level. In the course of practice, I can with infinite satisfaction recollect a great number of cases, in which,

* *Nocet obstetricis digitus auro immixtus, item nimia, festinatio.*—*Ruyfch.*

by adverting to the benefits to be gained by an erect position, labours have not only been accelerated, but the use of instruments, which were before thought necessary, has been avoided.

When the head of the child is expelled, if the *funis* be twisted round its neck, there is sometimes a little delay and difficulty, before the body can be protruded or extracted. We are, in the first place, taught, that it is proper to bring this over the head forwards, lest the *placenta* should be separated, or the body of the child be hindered from advancing till it suffers detriment, or is brought into absolute danger. But it is in some cases drawn so tight round the neck, that this cannot be done, without increasing the hazard of the mischief we wish to avoid. We have then been advised to slide the *funis* back over the shoulders, but this may be equally impracticable with the former method. If either of these intentions can be accomplished without violence, they are to be attempted, otherwise they must be omitted. The child will nevertheless be expelled, if we wait for the return of a few pains, which we may safely do, and without any other inconvenience than some increased distention of the *perinæum*; the body making a shorter bend or doubling, on account of the confinement of the neck by the twisting of the *funis*,

Instances have occurred, in which, though the head of the child was expelled, and the pains continued, the body has remained, and could not even be extracted with all the force which could be exerted, for a long time, perhaps for several hours. Two things are then to be considered, first, whether the child be living; secondly, whether it be hindered merely by the shortness of the *funis*. If a child in this position should shew any signs of life, if the pulsation in the navel-string should be vigorous, or the child should breathe, though imperfectly, we have no occasion to be in a hurry, it being only requisite, that we should keep its mouth open, to allow of the free access of the air, till it is expelled, or can be more readily extracted; for the internal organs will accommodate themselves to that state, and the child will possess a species of life half uterine, and half breathing. But when it has remained in that situation as long as we think consistent with its safety, and it cannot without great violence be extracted; should it then be hindered by the shortness of the *funis* only, we have been taught*, that it is adviseable to divide the *funis*, before the body is expelled. Previous to our doing this, it will however be expedi-

* See Chapman—p. 63. and 85.

ent to tie the *funis* with two ligatures, and then to divide it between them, otherwise the child will be instantly destroyed by the sudden gush of blood; as happened in an unfortunate case under my own care, though it was living when I divided the *funis*, and was afterwards very soon expelled.

When the child is dead, and the total exclusion of it is prevented by the tumefaction of the body, by the size or awkward position of the shoulders, or any other cause; by passing a napkin or handkerchief round its neck, and taking both the ends in our hands, we shall be able conveniently to exert much force; and if we pull steadily and in a proper direction, we shall usually succeed in extracting it. But if we be yet foiled in our attempts, by turning the head on one side, we must endeavour to bring down one or both arms, which being included in the handkerchief, will allow us to pull with yet more force, and facilitate the passage of the body, by lessening its bulk. The greatest difficulty of this kind I ever saw, was in consequence of the inflation of the whole surface of the body from its putrefaction, and there was occasion for all the force I could exert for several hours. But in other cases I have succeeded better, by availing myself of the changes produced, by waiting and giving more time, rather than by the exertion of much force. The case of one woman, who absolutely died under these circumstances, was related to me; but I could not satisfy my mind, that her death was to be attributed merely to this situation and retention of the child.

6. *Weakness of the constitution.*

The health of women at the time of parturition is often impaired, either by some general indisposition, which may have continued through pregnancy, though not altogether dependent upon it; or by some disease with which they are attacked, when they are perhaps in daily expectation of falling into labour. The more perfect their health is, the better fitted they are for child-bearing, as the process will not only go on with more regularity, but they will also recover more favourably, as is well known to those who are engaged in the practice of midwifery. Because, though it be allowed, that the state of child-bearing is not a state of disease, yet experience has shewn, that women are then more liable to be infected with contagious diseases than at any other time, and that all diseases, with which they are then affected, are not only apt to fall upon those parts which are left in a more irritable state, in consequence of the

changes they have so lately undergone, but the progress of disease is also then more violent, and the event far more dangerous*.

But the case of which we are now speaking is, when the general health of women is reduced below its proper standard, by some previous or accompanying disease, not absolutely connected with a state of pregnancy; of which a consumption is a very fair example, as consumptive persons seem of all others to be in the most hopeless state. Yet though such are often in their own minds, and in the opinion of their friends, not able to go through the fatigue and other unavoidable consequences of child-bearing, I do not recollect one instance of any woman, in that situation, being unequal to her delivery, or having her fate hastened by it. If such women have little strength, they have little difficulty to overcome; the state of the parts, which in a common way might require the exertion of much force to dilate, corresponding with the force which they are able to exert; and more time only is required. When a prognostic however is made of the probable event of such labours, it is to be presumed, that no particularly untoward circumstance shall occur; for if there should, it cannot be expected, that with extreme debility there should be the same power or resources, as in great strength and good spirits.

In constitutions much reduced by a consumption, or disease of any part not immediately affected by child-bearing, there is usually not only sufficient strength for perfecting the business of a common labour, but the patient appears to be relieved for a certain time after her delivery; and then, if the diseases were not dependent on pregnancy, or were incurable, they return, and make their wonted progress.

The effect of diseases seems also, in many cases, to be suspended during pregnancy. Of the distinctions to be made in the opinion we may be called upon to give of the event of acute diseases, during which a patient may either be delivered at her

**Hence at the time of any epidemic disease, women more frequently fail in child-bed, though they are managed with equal skill and care. In the history of the different plagues in London, there are sometimes two or three hundred women who are put down as dying in child-birth in one month. Procopius has also told us in his account of the plague at Constantinople—Tres saltem puerperæ convaluere; that is, I presume, of those who actually had the plague. On this subject we shall speak again in the chapter on the puerperal fever.*

full time, or suffer abortion, we shall speak when we come to the subject of uterine hemorrhages.

7. *Fever or local inflammation.*

On the accession of labours, there is usually some increase of heat, of the quickness of the pulse, thirst, flushed cheeks, and a general feverish disposition; and commonly these continue in proportion to the exertions required or made for the completion of the labour, with respect to which they are, properly speaking, merely symptomatic. But in some cases the excitement is too great, and instead of helping the action of the parts concerned in puration, it prevents their acting with regularity or energy. Whenever the pains of labour are feeble, it is a vulgar custom, without regard to the cause, to give cordials very freely, with the view of accelerating their returns, or of strengthening them, though, under many circumstances, by such proceeding* we evidently add to the evils we mean to remove. In some cases also, from the acuteness and constancy of the pain which the patient endures, and from its situation also, it may be readily distinguished from that which is occasioned by the action of the *uterus*, giving us too much reason to suspect, that some of the contents of the *abdomen* are already in a state of inflammation, which may require immediate attention.

It does not seem necessary to bleed every patient on the accession of labour, and for some it must be highly improper. But whenever the feverish symptoms become violent, it is I believe universally proper, the quantity of blood taken away being suited to the degree of fever, and to the constitution of the patient; and much service will also be done by the frequent exhibition of emollient clysters, or even a common purging draught, by keeping the room cool and well aired, by giving cooling drinks and medicines, and by keeping the patient in a quiet state. When the fever is removed, the natural pains will come on, and perform their office with propriety and success, Independently of fever, when the exertions which the patient makes are vehement, if she be plethoric, there is on that ac-

* Lord Bacon seems to have had a clear idea of this, though, by the manner of expression, his meaning is rendered somewhat obscure: "To procure easy travails of women, the intention is to bring down the child, whereunto they say the loadstone kelpeth; but the best help is to stay the coming down too fast."

count sometimes a necessity of taking away some blood; for during these vehement exertions, if the blood-vessels be distended, some of them may give way, and the patient be brought into the most imminent danger, before the delivery, then at hand, is completed. Of one instance I have been informed by the medical attendant, in which a patient, thus circumstanced, burst a blood-vessel in the lungs, and died immediately, in the exertions of the very pain by which the child was expelled.

8. *Want of Irritability in the Constitution.*

Under many circumstances which occur in the practice of medicine, it has been observed, that when a cause of pain exists, it is found to produce an effect quite contrary to what might be expected; that is, instead of exciting the powers of any one part, or of the whole frame to action, it creates a partial or universal insensibility, and a disproportionate action. In some cases, on the accession of labour, the cause, instead of raising a disposition to act, or a power of acting with energy, in the parts concerned, seems to lessen both the disposition and power to act, and sometimes even to deprive them, for a certain time, of all power, as effectually as if they were become paralytic. Inconveniences of this kind are most frequently observed to take place in fat and inactive women; and such, in spite of all the means which can be safely used, will necessarily often have very slow and lingering labours; and though they at length be delivered by their pains, feeble as they are, when there is no material cause of obstruction, much time will be required for every part of the process. I have often suspected, that the foundation of this imperfect action, or total inaction in the advanced state of labour, may have been laid by some error or accident in the beginning, perhaps by exciting the action prematurely, which will, of course, cease when the artificial cause is removed*; but sometimes these imperfections have evidently been occasioned by some specific affection or action of the constitution.

The circumstances attending labours are generally alike, yet in many women they are marked with some peculiarity, most frequently in the time required for their completion. When there has been an opportunity of observing the progress of a labour in two or three instances, we shall be able to tell what will be the probable termination of any future labours in the same

* See Vol. I. Chap. v. Sect xi.

person, and at what time it will take place; but we can no more control the order of a labour in one woman, so as to make it correspond with or exactly resemble that of another, than we can judge of the quantity of food which one person may require by that which is sufficient for another, or regulate any other function. One woman may require twelve hours for the production of the same effects in the time of labour, that another may finish in four hours, or even in less time; and it would be in vain to attempt to make an alteration by art, because the reason exists in some essential property of the constitution, beyond the power of medicine, or of any method to alter.

9. *Passions of the Mind.*

As the infirmities and particular state of the body, have a powerful influence upon the mind, and as the affections of the mind have, on various occasions, a reciprocal effect upon the body, it might be reasonably expected, that the progress of a labour should sometimes be forwarded or hindered by the passions. It is constantly found, that the fear of a labour, or the same impression from any other cause at the time of labour, often lessens the energy of all the powers of the constitution, and diminishes, or wholly suppresses for a time, the action of the parts concerned in parturition. It is also observed, that a cheerful flow of the spirits, which arises from the hope of a happy event, inspires women with an activity and resolution, which are extremely useful and favourable in that situation. In the time of a labour proceeding very slowly or irregularly, doubts and fears in the mind of the patient have an evident and great influence upon the pains; and when these are removed, and her resolution confirmed, she will go on with courage, and effects will be produced, which would have been impossible, if she had remained in a state of depression. The intelligent practitioner, who should be the last person to despond, will avail himself of the knowledge of these things, and by his discretion he will inspire his patient with sentiments, which will enable her to go through difficulties, which to her feelings, and perhaps to his own judgment, appeared insurmountable. He will also regulate the conduct of all her attendants and friends, and lead them step by step to co-operate in his views and intentions, which will at length terminate to the real advantage of his patient, the satisfaction of her friends, and the increase of his own reputation.

10. *General Deformity.*

Many women, who are gibbous or distorted in the course of the spine, have the *pelvis* well formed; and there are a few in general appearance perfectly straight, who have yet some defect in the *pelvis*. Of the ease or difficulty of labours, depending simply upon the capacity or form of the *pelvis*, we are to speak in another place. Those who are gibbous, are not unfrequently asthmatic, or have some infirmity which prevents their breathing freely, or retaining their breath; and such must suffer some inconvenience at the time of labour, though the action of the *uterus* may be proper, and all the parts concerned in parturition in a natural state. For as both the instinctive and voluntary force, especially the latter, are affected by the manner of breathing, and duly exerted only when the breath is retained, and this not being under such circumstances possible, of course the progress of the labour must be retarded. Should there be any reason to suspect inflammation about the *thorax*, particular attention must be paid to it, otherwise we have only to give more time for the completion of the labour, and to wait for that effect from a repetition of feeble pains, which, without this inconvenience, would have been produced by a smaller number. I have known one instance of a patient labouring under a fit of spasmodic asthma, who was immediately freed from the asthmatic symptoms on the accession of the pains of labour.

 SECTION V.

ON THE SECOND ORDER;

OR

THOSE LABOURS WHICH ARE RENDERED DIFFICULT BY THE RIGIDITY OF THE PARTS TO BE DILATED.

1. *First Child.*

EVERY woman is expected to suffer greater pain, and to have a more tedious labour with her first, than with subsequent children, and the difference is not unusually in proportion to the

number which she has had*. Thus if a woman were to be twenty-four hours in labour with her first child, she might be six with her second, and with the rest four, or perhaps two; but from any general estimate of this kind there will be many deviations. It was before observed, that when women have had several children, the practitioner is often able to form a tolerably precise opinion of the kind of labour, which they will in future be likely to have, and which may be as peculiar to their constitutions, in manner and time, as any other function of the body. It is no more in our power to change this constitutional labour, as it may be called, than it is to alter the frame of the body, or any of the functions thereon depending.

The difficulty, with which first labours are often completed, not only depends upon the greater rigidity of the parts, or upon their re-action, but on the imperfection or irregularity of the action also, by which they are to be dilated; for this is generally far less perfect and regular in the first instance, than when the same office has been frequently performed, as in many instances which might be adduced. But though there is a somewhat greater chance of women wanting assistance with first labours than in subsequent ones, there may be no specific cause of difficulty, and they generally require only more time to be given for their completion. We are to remember, that even with a first child it would not be proper to denominate a labour *difficult*, till it had continued twenty-four hours, if the presentation were natural, and no other adverse circumstance should occur.

2, *Advanced in Age.*

If a woman be far advanced in age at the time of having her first child, the difficulty attending her labour may be expected to be greater. At a certain time of life every woman arrives at maturity, or that period when she may be considered as having acquired the greatest degree of perfection, of which her frame is capable; when the inconveniencies of youth are passed, and those of age are not arrived. The state of perfection, the time of which will vary in different constitutions and climates, and which may be determined as the best fitted for the act of parturition, may include several years. But if a woman should first be with child before or after this time of perfection, she will be liable to difficulties, as in the one case she would be scarcely able to bear without injury the changes

* *I have heard a voice of a woman in travail, and the anguish as of her that bringeth forth her first child.*

Jeremiah chap. iv. ver. 31.

she must undergo; and in the other, the firmness, which all the parts have acquired, might lessen their disposition or capability of dilating. Greater force will therefore be necessary, or the same degree of force must be continued for a longer time in the latter case; in other words, she must have a sharper, or a longer labour. In this country there has seldom been any reason to suspect women to be pregnant, before they were able to bring forth children without any or much inconvenience on that account. For the prevention of such difficulties, as may attend the first act of parturition in those who are advanced in age, we have been advised to order frequent and small bleedings towards the conclusion of pregnancy, that the patient should take some emollient laxative medicine, and sit over the steam of warm water every night at bed time, and afterwards anoint the external parts with some unctuous application. Perhaps there is not authority for saying, that no advantage can be derived from the use of these or such like means; but certainly the impression made upon the mind of the patient by the novelty and peculiarity of the method will, in patients of a timid disposition, raise such apprehensions of danger and difficulty, as will over-balance the good which can possibly be derived from them. It is therefore better, to omit the use of any such means on this account; at least, not to recommend them in a formal way, for this specific purpose, more especially as it does not constantly happen, that the difficulty of labour is in proportion to the age of the patient when she has her first child; this being in many cases as easy at forty years of age or upwards, as if she were only twenty-five. In the worst labours arising from this cause, there is no peculiarity in the difficulties, but merely a general increase of those which are produced by the rigidity of the parts, and therefore a longer time only is commonly required for their completion.

3. *Too early Rupture of the membranes.*

The premature rupture of the membranes, whether natural or artificial, has been often mentioned as the cause of much mischief, and of many tedious or difficult labours. If it be allowed, that the membranes containing the waters were intended to be the medium by which the *os uteri*, and other tender parts, ought to be dilated, some inconvenience must arise when these are broken and the waters discharged, the head of the child being substituted for them; and this, being a firmer and less accommodating body, cannot, for a long time, be admitted within the circle of the *os uteri*, which will of necessity be dilated more untowardly and more painfully.

After the rupture of the membranes, many hours, or several days, sometimes pass before the accession of labour, and the difficulties arising from this cause, even in first labours, will then be very much lessened, if the patient have generally lain in a recumbent position, and we have deferred, as far as was in our power, the coming on of the action of the *uterus*, till the most perfect disposition to dilate was previously assumed by the parts.

More pain will be endured, and a longer time will certainly be required for completing labours attended with this circumstance only, principally those with first children; but they may in general be more properly called lingering or tedious, than really difficult, and they very seldom require the interposition of art.

4. *Oblique Position of Os Uteri.*

The natural position of the *os uteri* at the commencement of labour, and that in which it is most conveniently distended, is at the centre of the superior aperture of the *pelvis*; for when thus placed, the effect of the action of the *uterus* is most favourably produced. But the *os uteri* is seldom found exactly in this situation, being in some cases projected on either side, and in others so far backwards, that it cannot even be felt for many hours after the labour has begun. This oblique position of the *os uteri*, to what direction soever it may tend, has been considered not only as a frequent, but as the most general cause of difficult labours; and this doctrine, which was first promulgated by *Deventer*, was, at one period of time, taught and received in all the schools of midwifery in *Europe*. In every inquiry after knowledge, in almost any science, opinions may be advanced, which sometimes lead to further improvement; but when experience has proved, opinions should end; for if so much regard be paid to opinions, as to found any certain practice upon them, and they should prove erroneous, they become the source of much mischief, the practice remaining, when the doctrine on which it was founded may have been disproved, become obsolete, or forgotten. The present case is a striking example of the truth of his observation; for when it was presumed, that every difficult labour was occasioned by the oblique position of the *os uteri*, it was immediately supposed necessary to remedy the inconvenience thence arising by manual assistance, and to drag the *os uteri* from its oblique to a central position during the time of every pain, which must have been greatly prejudicial. The opinion of the oblique position of the *os uteri* being the chief cause of difficult labours was soon fully

proved to be erroneous, yet the practice remained. Though it were oblique, such position is not to be considered as a general cause of the difficulty, but as an accompaniment of some other primary cause. Thus when the *pelvis* is distorted, the *os uteri* is constantly found in an oblique situation, yet the difficulty of the labour, as well as the obliquity, is occasioned by the distortion.

It must however be allowed, that some labours are procrastinated by the mere oblique position of the *os uteri*, and that it is often combined with other causes of difficult labours, though, singly, it may not be of sufficient importance, to be the cause of truly difficult ones. But when it does retard a labour, or accompany a difficult one, it does not require any manual assistance, or that we should retract it to a central position with respect to the cavity of the *pelvis*; both the thing itself, and the difficulty thence arising will be obviated, without detriment or much trouble, if the patient be confined to a proper position. If, for example, the *os uteri* be projected to the left side, she ought to rest as much as possible on the same side, and so of the right; if it be projected backwards, which is always the case when we cannot reach the *os uteri* in the beginning or early part of a labour, she ought to lie upon her back. By this method the *fundus* of the *uterus*, constantly leaning or inclining to the side of the obliquity, will gradually but effectually project the *os uteri* more and more towards a central position.

Cases have been recorded, in which it was said, that the *os uteri* was perfectly closed, and in which it has not only been proposed to make an artificial opening instead of the closed natural one, but the operation has actually been performed, the labour, it is said, being thereby accelerated, the patient recovering without inconvenience. I do not know that I should be justified in saying, that such cases have never occurred, because they have not occurred in my practice; but I am persuaded, that there has been an error in this account, and that what has been, in some cases, called a perfect closure of the *os uteri* has not been such, but that the practitioner has, at an early period of a labour, been unable to discover it by reason of its obliquity.

5. *Extreme Rigidity of the Os Uteri.*

Difficult, as well as tedious and very painful labours are frequently occasioned by the unusually rigid state of the *os uteri*. The manner of, and the time required for, its dilatation, will depend upon two circumstances; first, the degree of disposition

to dilate which it may have previously acquired; and secondly, the degree or force of the action exerted by the *uterus*. The former of these is, in general, far less perfect with first than with subsequent children, as well as in premature labours, even presuming that it was in its most natural state; but when the *os uteri* assumes from any cause a still greater indisposition to dilate, of course the labour will be both more difficult and tedious. In a first labour it not unfrequently happens, that the *os uteri* may not be dilated in less than twenty-four or even forty hours, when the rest of the labour may be completed in four, or perhaps a shorter time, yet the very same person may have the whole process with her next child completed within six hours, or even a shorter time.

We have before taken notice of the advantages arising from the changes in the state of the soft parts being perfected, before the accession of labour. But when these are as favourable as can be wished, by the very action of the *uterus* pressing its contents upon the *os uteri*, and much more frequently by attempts to dilate it artificially, this part may become inflamed, and indisposed to dilate according to the degree of inflammation. The inflamed state of the part is often indicated by its heat and dryness; but whenever it is extremely rigid, and there has been a long continued action of the *uterus*, with little or no advantage, the impediment to the progress of the labour being clearly occasioned by the resistance made by the *os uteri*, I believe it is always right to consider that part as inflamed. If this be allowed, instead of attempting to dilate it artificially, it is the proper object of art, to recover in the first place the natural disposition to dilate, and then the pains of labour will be equal to the purpose. With this view it will be necessary to take away some blood, to give cooling medicines and drinks, to direct emolient clysters to be frequently injected, and, instead of using any means with the intention of increasing the force of the pains, to confine the patient to a recumbent posture; to gain, if it were in our power, a suspension of the labour, till the inflammatory disposition be removed, when the dilatation will proceed more speedily, less painfully, and without danger of affecting the constitution.

When a labour comes on prematurely, or before the parts have acquired their dilatable state, as it may be called, the position of the *os uteri* will at that time be very different. In some cases it begins to dilate when it is high up in the *pelvis*, but in others, especially when the *pelvis* is, in comparison with the child, very large, the *os uteri* may be protruded very low

down before there is any degree of dilatation, though it is spread so thin over the head of the child, or the membranes, as to give the feel of the membranes alone. If, under these circumstances, the external parts should be much relaxed, and the pains at the same time strong, it is possible for the head of the child to be expelled, though enveloped in the *os uteri*, and much mischief may be thereby occasioned*. For the prevention of this accident, or any tendency to it, when there is reason to dread it, the patient ought to be confined to an horizontal position, and the practitioner to restrain the advancement of the head; or, if the case should actually have happened before he was called, he must use all the means he safely can, to extricate the head, and to support or replace the *os uteri*. When the *pelvis* is large, and the head of the child, being moved from its resting place upon the *pubis*, drops by its own weight into the lower part of the cavity of the *pelvis*, bearing the *os uteri* before it, the accident often becomes a cause of a *procentia* or *prolapsus* of the *uterus*, which cannot, as far as I know, be always prevented. All that art dictates to be done at the time of labour, is to render this as slow and gradual as possible, and after delivery to confine the patient longer to her bed, using at the same time such applications as may strengthen the tone of the parts, without interrupting the customary discharges.

6. Uncommon Rigidity of the external Parts.

The state of the external, as well as of the internal parts is very different in different women, both in the beginning and in the progress of labours. Even in first labours they readily yield in some women, so as to allow the head of the child to pass through them with great facility and safety, but in others they are extremely rigid and unyielding, and withstand the action of the *uterus*, though strong, for a very long time; and then do not dilate without great danger of laceration. A more difficult dilatation is always to be expected in first labour than in others, and more care is required to prevent a laceration. In the original structure or formation of these parts there is also a considerable difference, as well as in their state or disposition, and these require some attention in every labour. There ought to be, and usually is a correspondence between the state of the parts and the power of the pains: but in some cases the

* *Os uteri aliquando prolabitur*—Ruysch. *Obs. Anatom.*
XXV.

external parts are rigid when the pains are feeble, whilst in others, when the parts are indisposed to dilate, the pains are exceedingly strong, pushing, with unabating force, the head of the child, so that the parts must either dilate or be lacerated. Of many of these circumstances we have already spoken.

In first labours the external parts may require one, or several hours continuance of the pains, before they are sufficiently dilated to allow the head of the child to pass through them without danger of laceration; but the difficulty thence arising does not seem to require, or to be relieved by our interposition, farther than to prevent injury as far as that is in our power, from too speedy an exclusion of the head of the child, in the manner before advised. The merit of our conduct under these circumstances will be chiefly negative; for if we cannot give to the parts their disposition to dilate, and ought not to dilate them artificially, there only remains for us to wait the due time in order to avoid mischief; art being more frequently exercised on such occasions in remedying the evils, which the mistaken exercise of the art has before produced, than in rectifying those which are necessary or unavoidable. It is also to be observed, when the head of the child passes through the inferior aperture of the *pelvis* with difficulty, though the external parts are pressed upon with considerable force, that the impediment to the delivery does not always arise from the resistance made by these, but properly speaking from the elongation or bending of the spinous processes of the *ischia*, and the labour should then be referred to the next order.

SECTION VI.

ON THE THIRD ORDER;

OR

LABOURS RENDERED DIFFICULT BY DISPROPORTION BETWEEN THE DIMENSIONS OF THE CAVITY OF THE PELVIS AND THE HEAD OF THE CHILD.

1. *Original Smallness of the Pelvis.*

THE cavity of the *pelvis* in women generally bears a certain proportion to the common size of the heads of children; yet as they both admit of considerable variation, independent of dis-

tortion or disease, it is possible, that a woman with a *pelvis* rather under the common dimensions may have conceived a child far beyond the usual size; and when this is the case, there must of course be an increased difficulty at the time of parturition. When therefore the smallness of the cavity of the *pelvis*, and the largeness of the head of the child are mentioned, they are to be considered as relative and not as positive terms; because the *pelvis* of some individual woman may be so large, as to suffer the largest head of a child, of which we have any example, to pass easily through it; and the smallest head may be esteemed large, if compared with a yet smaller *pelvis*.

Though a labour may from either of these causes, separate or combined, be rendered more tedious and painful than usual, as in consequence of the action of the *uterus* the head of a child rather larger than ordinary will be compressed into a much less compass, and moulded to the form as well as the demensions of the cavity of the *pelvis*, there is not usually occasion for the assistance of art, if the labour be in other respects natural. But we are to wait patiently for those changes, which in due time may be reasonably expected, and scarcely ever fail to take place.

2. *Distortion of the Pelvis.*

On the causes, kinds, and degrees of distortion of the *pelvis*, we have already spoken very fully*. The effects produced, or the impediments occasioned by this distortion, at the time of parturition, will somewhat depend upon the part distorted, or upon the kind of distortion, but chiefly on the degree of change made in, or reduction of, the dimensions of the cavity, by which the natural relation between it and the size of the head of the child is perverted or destroyed. Distortion of the *pelvis* at the superior aperture creates an obstruction to the passage of the head of the child, which will be overcome with more difficulty by the powers of the constitution, and which will be more inconveniently managed by art, than an equal degree of obstruction in the lower part of the *pelvis*. The greatness of the difficulty will nevertheless chiefly depend upon the degree; and in the various degrees which are found to occur, every person must see an evident cause for all the kinds of difficulty which he may meet with in practice. A small degree of distortion, like an originally small *pelvis*, may occasion a difficult labour of that kind which may not be an object proper for the exercise of his

* See Vol. I. Chap. i. Sect. x.

art, as it will at length be completed by the long continued action of the *uterus*, first moulding and reducing the form and size of the head till it is adapted to that of the *pelvis*, and then forcing it through the diminished cavity. Or, the degree of distortion may be such, that, notwithstanding all the moulding and reduction of the head, which can be accomplished by time and the efforts of the constitution, there does not remain sufficient room for the passage of the head through the *pelvis*, but it may nevertheless be at length brought into such a situation, as to afford us the hope of safely delivering the patient by art and of preserving the life of the child. Or, the distortion may be so considerable, that it is impossible for the head of the child to be expelled without lessening it, and the child, if living, must be sacrificed to the safety of the parent. Or, lastly, the distortion may be actually so great, that if the head of the child could be lessened, there would not be a possibility of extracting it, and we must either submit to lose the lives both of the parent, and child, or attempt to save that of the latter, by the *cesarean* section, or by some other operation almost equally hazardous, such as the division of the *symphysis* of the *ossa pubis*.

In many of those cases in which there is a very great degree of distortion of the *pelvis*, the impossibility of the head of the child passing through it is self-evident, and readily discovered on the first examination *per vaginam*. But in less degrees of distortion, no judgment can be formed *a priori* whether the head can pass or not; and we ought to defer any determination upon the necessity or propriety of giving assistance, as well as the kind of assistance to be given, till we are convinced by consequences, that the difficulty cannot be overcome by the powers of the constitution; and the conviction is in many cases not satisfactory, till the efforts of the patient are discontinued, or cease entirely. Degrees of difficulty to our apprehension insurmountable are often overcome by the mere force of the pains, and so long as these continue vigorous, we are not to despair of a happy event; but encouraged by experience, and supported and justified by moral as well as scientific principles, we must rely upon the advantages, which time and proper conduct may afford.

The far greater part of those labours, which are rendered difficult by the distortion of the *pelvis*, only require a longer time for their completion. Some however demand the assistance of art; and when this is the case, the kind of assistance must vary according to the circumstances. But these will be more particularly stated, when we come to speak of the various operations in the practice of midwifery.

3. *Head of the Child uncommonly large; or too much ossified.*

No arguments are required to prove, that a small body will pass through a small space with more facility than one that is large; the size of the body being supposed to bear any reasonable comparison to the dimensions of the space. Of course, it may be presumed, that the larger the head of the child is at the time of birth, with the greater difficulty it will be expelled.—Should the *pelvis* not be distorted, but of a common size, we may always expect that the woman will be ultimately delivered by her natural pains, if there be no other cause of difficulty than the largeness of the head, though a longer time may be required for the completion of the labour.

It is not merely from the size of the head of the child, that a labour may be rendered more tedious, more painful, or even truly difficult. The usual connexion of the bones of which the head is constructed, is such as to allow of considerable diminution and change of form in its passage through the *pelvis*. The extreme degree of diminution and change, which it is generally capable of undergoing, is perhaps impossible to be determined; but it does not seem unreasonable to conjecture, that it may be reduced to one third of its original size, without the destruction or even injury of the child from the compression; the alteration being so gradually made. The advantages gained by this compression of the head in all cases of difficulty, occasioned by the natural smallness of the *pelvis*, or in less degrees of distortion, are often greater than could have been hoped for, on almost any calculation, as was before observed. But as there is great difference in the degree of ossification in the heads of different children at the time of birth, those heads, which are most perfectly ossified, must of course be capable of undergoing the least change; and the degree of change, which they can undergo, must be produced with the greatest difficulty, and purchased at the expense of more severe or longer continued pains. On this account a large head, with a very imperfect ossification, is often found to pass through a *pelvis*, which might be considered as relatively small, with more ease than a smaller head in which the ossification was more complete; and yet the cause of the delay may not be discovered before the birth of the child. In cases of difficult labour proceeding from these and similar causes, it not being in our choice to select the circumstances, all that we can do is, to manage such as occur in the most prudent manner; and we have commonly to wait only for those effects to be produced, which may be

esteemed as consequences of the efforts of the constitution fairly exerted, and never to despair so long as these efforts are properly continued.

4. *Head of the Child enlarged by Disease.*

Two diseases have been mentioned by writers as the cause of this enlargement, tumours growing on the heads of children, and the *hydrocephalus*; but either of these very rarely occurs. With respect to the first, it has been said, that when the tumour, of whatever kind it may be, is of such a size as to be an absolute impediment to the birth of the child, it should, and may be opened or extirpated, and that the operation is not only perfectly consistent with the safety of the mother, but frequently with that of the child also. Of the existence of these tumours the instances recorded do not leave a doubt*; or of the possibility, when they are large, of their obstructing the delivery of the patient; but of their extirpation with safety to the child I should very much doubt, though no human being can circumscribe possibility. As it is the duty, and must ever be the solicitous wish of every practitioner, to preserve a life, when it is in his power, he may be induced to try the extent of his art, when there is little hope of success. From long continued compression the integuments of the head of the child may become so much tumefied, and altered from their natural form and state, as sometimes to give the feel of a distinct and adventitious tumour; and yet simply considered, such are so far from requiring any surgical assistance, that it would be absurd and flagitious to intermeddle with them. Yet when there really are any unnatural tumours or excrescences, the point of practice would depend upon the degree of impediment to the passage of the head, which might be thereby occasioned; or upon the nature of the tumour, whether it could be extirpated, or only admitted of an opening to be made into it for the purpose of lessening its bulk; or if neither of these could be done with propriety, by acting as if no such tumour existed, on the general principles by which we are to be guided in difficult labours.

With regard to the *hydrocephalus*, which, if of a certain size, would certainly be a great obstacle to the delivery, this is not readily to be distinguished in the early part of a labour, because the membranes of the *ovum*, in some cases, resemble by their thickness the integuments of the head in others. But if we were assured, that an *hydrocephalus* did exist, there

* *Partus difficilis a tumoribus, é capitibus fœtuum dependentibus.*—*Ruyſch. Obſ. Anatom. LII.*

would not always be occasion for us to act ; as it is far more eligible even then to wait so long, as to give time for the expulsion of the head of the child by the natural efforts, if they be equal to that effect. Should the head be so much enlarged by the quantity of fluid contained in it, that it is too large to pass, even in this case the integuments will generally burst by the force of the pains. But when the fact is ascertained, and the labour is rendered extremely tedious and lingering from this cause, or if any suspicious symptoms should arise, it would not be justifiable to allow the patient to undergo such long continued pains, as when we have any hope of saving the life of the child, or of producing a child with a reasonable chance of living. The delay recommended is not intended, therefore, to go farther than the prevention of mistakes. But when we have determined upon the necessity or propriety of delivering the patient, all that generally is necessary to be done, is merely to perforate the integuments of the head, immediately after which the water flowing away, the head is speedily expelled, and the birth soon and easily completed. In the extraction of the child by the feet there is not much more difficulty on this account, as the force with which we have the power of extracting is so great, as to burst the integuments.

5 *Face inclined towards the Pubes.*

On a former occasion we have mentioned, that there are four varieties in the position of the head of the child at the time of birth. The first when the *vertex* or hind head is turned towards the *pubes*: the second when the face is turned towards the *pubes*: the third, when the head presents with one or both arms: the fourth when the face presents. The first of these may be considered as the standard position, because it is not only the most common, but the most easy also; the head of the child being so constructed as to admit, in this position, of the greatest and most ready compression and adaption to the *pelvis*, and of course the easiest passage through it. Yet the other positions are not to be considered as constituting labours of any other class, but as varieties of the natural position: though they must of necessity occasion considerable delay in all labours in which they happen; either because a portion of that space, which should be wholly devoted to the head of the child, is occupied by some other part unfavourably; or because the bones of the *cranium*, in such positions, more slowly and imperfectly conform to the size or shape of the *pelvis*. When the face of the child is inclined towards the *pubes*, the peculiarity

of the position is not usually discovered in the early part of the labour, or even when the first stage is completed, the practitioner being generally satisfied with knowing, that it is a presentation of the head. But when there is any unusual delay, perhaps without any very obvious cause, it then becomes a duty to investigate and explore the cause, and it is not a very unfrequent thing to find the face turned towards the *pubes*. This position is most readily known by our being able to feel the greater fontanel in a common examination, though it is also proved by other circumstances relating to various parts of the head, which may be readily discriminated. When this is found to be the position, it does not follow that any artificial assistance ought to be given, but knowing that these cases are not in general dangerous, we are to wait a longer time for the effect of the natural pains; experience having proved, that the head in this position may be, and almost universally is, ultimately expelled without the assistance of art. Yet in some of these presentations, that of the face towards the *pubes* in particular, it is said, that by pressure with the fingers the face may be gradually inclined to the *sacrum*, and the head reduced without much difficulty to the first, or that which was stated as the most eligible position*. But when the pains cease, or when we are fully convinced that they are unequal to the exigencies of the case, such assistance must be given, as the situation of the parent may require, and allow.

With this position of the head, besides the greater length of time which may be required for moulding and expelling it, there will also be a greater distention of the external parts, because the hind head cannot properly be cleared of the *perinaeum* before the chin has descended as low as the inferior edge of the *symphysis* of the *ossa pubis*; by which an inconvenience is produced equal to what an increased depth of the cavity of the *pelvis* would occasion, or a deficiency in the arch of the *pubes*. There are also some peculiarities in the operation when we deliver with the *forceps* or *vectis*: but of these we shall speak, when we come to the directions for the use of those instruments.

6. Presentation of the Face.

The presentation of the face is discovered by the general inequalities of the presenting part, or by the distinction of the particular parts, as the eyes, the nose, mouth or chin, which is

* See *Transactions Medical and Chirurgical*, Vol. ii. in which there is a paper on this subject by Dr. J. Clarke.

usually turned towards the *pubes*. In this presentation the child will generally be expelled by the natural efforts, but a much greater length of time will be required for the completion of the labour, especially with first children, for the reasons mentioned under the last cause, which are in this perhaps increased. But the child may be and generally is born without any injury, though the face will sometimes be swelled in an astonishing manner, and the external parts of the mother being infinitely more distended than in a natural position, greater care is necessary to prevent their laceration.

If after a long continuance of the labour we should be convinced, that extraordinary assistance is required, then the same observation may be made with regard to the use of the *forceps* or *vectis* as in the preceding article; but of the peculiar conduct, which it may be necessary to pursue, we shall speak hereafter.

7. *Head presenting with one or both Arms,*

Though the head should present with one or both arms, experience hath fully proved, that a woman may be delivered by the natural efforts with safety to herself, and without prejudice to her child, if the *pelvis* be well formed. But as a part of the cavity, which should be appropriated to the head, will be filled by the additional bulk of the arms, there will be an evil similar to what would be produced by a small, or by a somewhat distorted *pelvis*. Should the *pelvis* be barely of sufficient dimensions to allow the head of the child to pass through it, then the additional bulk of the arms may render the passage of the head impossible; or the labour may be so much retarded, as to make it what is properly called difficult.

In the beginning or in the course of a labour of this kind, the practitioner will often be able to return and to detain the presenting arm or arms beyond the head without any detriment; at all events, he must make the attempt, and be very careful not to solicit the descent of the arm before the head, lest he should change the whole situation of the child, and convert that which would have been only a variety of a natural, into a preternatural labour.

In some cases we are enabled to feel the head, a foot and an arm at the same time, and it will then be expedient to grasp and bring down the foot, and to deliver in that manner. But it becometh us to distinguish very cautiously between a hand and a foot, because the mistake would lead us to the necessity of turning the child, an operation which would otherwise not have been required.

In presentations of the head together with one or both arms, unless there should be any particular reason for wishing to turn the child, the propriety of which must rest upon the judgment of the practitioner, unless we have the power of returning the arm, we are to be prepared to wait with patience for the expulsion of the child thus placed, by the natural efforts. When we are convinced by the failure or cessation, that these are not equal to the effect, such assistance is to be given as the nature of the case may require; and whatever the instruments, which it may be necessary to use, are, their action must be nearly the same, as if the arms had not been in the *pelvis*.

Whether these cases are completed by the natural efforts, or by the assistance of instruments, the arms of the child will be very much tumefied or bruised, and the child is for a certain time as unable to use them, as if they were paralytic. But by the help of fomentations and poultices, if needful, and by moderate motion and gentle friction, their natural appearance and use are recovered in the course of a few days; at least I have not seen an instance of any permanent mischief from this cause.

When the extremities present at the time of birth, there is often a doubt whether the child be living or not, unless it can be perceived to move. Now the fact may be ascertained by the consequences of any violence, as no part of a dead child can either tumefy or change its colour, however compressed it may be, and only shews one effect of violence, that of solution of continuity.

SECTION VII.

ON THE FOURTH ORDER;

OR

LABOURS RENDERED DIFFICULT BY DISEASES OF THE SOFT PARTS.

1. *Suppression of Urine.*

THE various affections of the urinary bladder during pregnancy have been already mentioned. On the commencement of labour, it was said, that an involuntary discharge of the urine might be occasioned, but in its progress, there is more com-

monly a frequent inclination with a difficulty in voiding it, and sometimes there is a total suppression. The inconveniences thence arising will be according to the quantity of urine retained, and to the length of time that the bladder may continue distended. The first may hinder the proper action of the *uterus*, and of course be an impediment to the passage of the head of the child, by occasioning a less space for it to pass through, and projecting it also out of its proper direction. By the latter the bladder itself may be injured in consequence of the continued pressure, which some part of it may undergo from the repeated actions of the *uterus*, causing inflammation terminating in partial gangrene; and in some cases in which relief was not given, the bladder has even been ruptured, the patient being thereby speedily destroyed*.

In the beginning and course of labours, especially of those which are expected to be tedious or difficult, great attention is therefore to be paid to the state of the bladder; the patient is to be frequently admonished to void the urine, and in all cases of doubt we are to be satisfied only with seeing the quantity of urine which has been discharged; error being often committed by confounding the water of the *ovum* with the urine. By the application of the hand to the *abdomen* of the patient, it is generally an easy matter to distinguish between the tumour of the *uterus*, and the flattened but circumscribed tumour of the bladder, which lies below and before that formed by the *uterus*. The patient herself is sometimes capable also of distinguishing that pain which is the consequence of the action of the *uterus*, from that which is occasioned by the pressure upon the distended bladder.

To remove the obstacle, to the passage of the child, which may be produced by the distention of the bladder, and to prevent any injury to the bladder itself, it is necessary to draw off the urine with a catheter, whenever it is retained beyond a certain time or degree. In slighter cases the common catheter will answer the purpose; but when the head has been long wedged in the *pelvis*, there is not sufficient room for that to pass, even though the head be elevated or pressed towards the hollow of the *sacrum*. But in such cases the flattened catheter, contrived by my worthy and ingenious friend Dr. *Christopher Kelly*, will often pass with ease and convenience; though the elastic catheter, or that kind which is made of a soft and pliable metal, is

* See *Chapman*, page 143; see also *Medical Observations and Inquiries*, vol. iv.

often to be preferred even to this. But whatever catheter it may be found expedient to use, or however necessary it may be to draw off the urine, we are to take great care not to introduce the instrument with violence, because we may do as much positive mischief with the instrument, as we aim or wish to prevent. In some cases, from want perhaps of timely care, though we are assured there is great quantity of urine in the bladder, the head of the child is so immovably locked in the *pelvis*, that we cannot possibly introduce any catheter, and are therefore obliged to submit to the inconveniencies, which may follow the distention of the bladder. But if care were taken in the beginning of labour, this does not often happen; nor is it always attended with the evils we might dread, the head of the child being at length pressed so low as to allow the urine to escape, though very slowly. But in all such cases it will be prudent and necessary, to introduce the catheter before or soon after the expulsion of the *placenta*, that we may prevent the mischief which might be expected to follow such great distention of the bladder, if this were to remain many hours after delivery.

2. *Stone in the Bladder.*

If a woman should have a stone in the bladder, this would be no cause to prevent her being with-child, or proceeding through her pregnancy without molestation. Nor if it were of a small size, would it be any impediment to her delivery; though if it were large, the head of the child could not pass through the *pelvis*, or not without much trouble and inconvenience. Of this case I have never met with an instance in practice, and may therefore be allowed to consider it as very rare, though there does not appear to be any reason for judging it impossible. I have reflected upon the case, and upon the conduct which it might be necessary to pursue, if it had occurred to me; and though it behoves me to speak with reserve, and to be satisfied if little confidence be placed in what I advance, it is better on the whole to give my opinion than to leave the matter without considering, or making mention of it.

In the beginning of labour, supposing there is a stone of a large size in the bladder, one of these consequences must follow; the head of the child must advance before the stone, or the stone must be protruded before the head of the child. If the former should be the case, we might presume that the labour would proceed in a natural way, as if the stone did not exist; there would, at least, be no demand for the assistance of art,

and no justifiable reason for exercising it. But if the stone should be protruded before the head of the child, our conduct must be regulated by the circumstances. It seems reasonable, that we should first attempt to raise the head in such a manner, and to such a degree, as to allow us to return the stone beyond the head. Or if this should be found impracticable, either because the head of the child was too far advanced, or firmly locked in the *pelvis*, we must then weigh the evils to be apprehended, from the compression of the soft parts, that is of the anterior part of the bladder, between the head of the child, and the stone in the bladder; besides the distraction of the parts which must be necessarily occasioned. Whatever conduct we might pursue must be attended with some evils, as it is only in our power to choose the least of these, it seems better, even in the time of labour, to suffer the evils which might follow the performance of the operation for extracting the stone, than to suffer those which may be occasioned by the compression and probable laceration of the parts. With regard to the operation, there is both less difficulty and danger in it to women than to men, though these will in some measure depend upon the size of the stone. In some cases independent of pregnancy also, in which the stone is contained in a distinct cell of the bladder, and could not therefore be grasped or extracted by the *forceps* when introduced; it has been proposed to make an incision through the anterior part of the *vagina*, directly upon the stone. This operation, which may in some cases be eligible, has been performed twice, by two surgeons of great ability and eminence in the country, and, as I was informed, without occasioning the effect to apprehend; that of leaving a fistulous opening, by which the urine would have been voided for the remainder of the patient's life.

2. *Excrescences of the Os Uteri.*

Excrescences of the *os uteri* are usually combined with some degree of scirrhus disposition of that part. It was before observed that these excrescences do not prevent conception, or disturb pregnancy, at least in the early period but according to their size and situation, they must necessarily be obstacles at the time of labour. The following case, which was curious in the circumstances attending, as well as the nature of the complaint, I may be permitted to transcribe, as it was an example of an excrescence of the largest size I have ever seen.

In June 1770, I was desired to see a patient in the eighth month

of her pregnancy, who in the preceding night had a profuse hemorrhage. Her countenance shewed the effects of the great loss of blood she had sustained; and from the representation of the case given me by the gentleman who was first called in, I concluded that the *placenta* was fixed over the *os uteri*. On examination I felt a very large fleshy tumour at the extremity of the *vagina*, representing and nearly equalling in size the *placenta*, which I judged it to be. Had this been the case, there could not be a doubt of the propriety and necessity of delivering the patient speedily; and with that intention I passed my finger round the tumour, to discover the state of the *os uteri*. But this I could not find, and on a more accurate examination, I was convinced that this tumour was an excrescence growing from the *os uteri*, with a very extended and broad basis. I then concluded that the patient was not with child, notwithstanding the distention of the *abdomen*, but that she laboured under some disease which resembled pregnancy, and the hemorrhage was the consequence of the disease. A motion which was very evidently perceived when I applied my hand to the *adomen*, did not prevail with me to alter this opinion.

It was of all others a case in which a consultation was desirable both to decide upon the disease, and the measures which it might be necessary to pursue; and several gentlemen of eminence were called in. That she was actually pregnant, was afterwards proved to the satisfaction of every one; and it was then concluded, that such means should be used as might prevent or lessen the hemorrhage, and that we should wait and see what efforts might be naturally made for accomplishing the delivery.

No very urgent symptom occurred till the latter end of July, when the hemorrhage returned in a very alarming way, and it was thought necessary that the patient should be delivered. There was not a possibility of extirpating the tumour, and yet it was of such a size, as to prevent the child from being born in any other way than by lessening the head. This was performed; but after many attempts to extract the child, the patient was so exhausted, that it became necessary to leave her to her repose, and very soon after our leaving her, she expired.

We were permitted to examine the body. There was no appearance of disease in any of the abdominal *viscera*, or on the external surface of the *uterus*, which was of its regular form; and when a large oval piece was taken out of the anterior part, the child, which had no marks of putrefaction, was found in a natural position. An incision was made on each side of the

cervix to the *vagina*, and then a large cauliflower excrescence was found growing to the whole anterior part of the *os uteri*. The *placenta* adhered with its whole surface; so that the blood which she had lost must have been wholly discharged from the tumour. This *uterus*, containing the child, is now in the *museum* of the late Dr. Hunter.

The propriety or advantage of a practice, by which the life of neither the parent nor child was preserved, ought to be considered; but such cases occur so rarely, that there is always room for animadversion, when they are concluded. Yet the general principle of its being ever our duty to preserve both their lives, if possible; or to preserve that of the parent; or, if she cannot be preserved, then to save the child, if it be in our power; would have been a better guide on this occasion, than that which was followed.

Excrescences of a smaller size are not unfrequently met with in practice; and as even these are usually accompanied with some degree of scirrhus disposition of the *os uteri*, more time is required for the completion of the labour. It is to be remarked, that in cases of this kind, there is often a long continuance of the pains without any sensible effect; but all at once, the rigid *os uteri* yields and dilates speedily and unexpectedly, or perhaps in some instances is lacerated. In some cases also, the excrescences are of so tender a structure, that they are crushed by the passage of the head over them, and entirely destroyed. During labours of this kind, and after delivery also, the great object is to guard against all causes of inflammation, at first perhaps local, but afterwards extending to other parts, connected or readily consenting with the *uterus*, and more immediately necessary for the functions of life; but I have not known any case of this kind to prove fatal, except that above described.

4. *Cicatrices in the Vagina.*

From diseases of the soft parts, especially those arising from violence sustained in former hard labours, the *vagina* may have become ulcerated; and when care was not taken to prevent the surfaces from abiding in contact with each other, the opposite sides might adhere in different degrees, according to the depth and extent of the ulceration is slight, and the inflammation is not so great as to bring the tumefied parts into contact, after a certain time they heal; but circular cicatrices being formed in the *vagina*, the diameter of the passage is lessened, and the part is left with a disinclination to yield to any future

occasion, In some cases a superficial slough has been thrown off from the whole internal surface of the *vagina*, and the cicatrices of an irregular kind were formed from the *os uteri* to the external orifice. In other cases there has been a cicatrice only at one part, and if this should happen near the external orifice, the contraction has been such as to mimic an unruptured *hymen*.

Amidst a great number and variety of cases of cicatrices in the *vagina*, I have not met with one example in which they were able to withstand the pressure of the head of the child, if the pains were of the customary strength. The labours have indeed been considerably retarded, but they have terminated favourably. But when the difficulty arising from this cause has been combined with other causes, it must of course have added to the trouble, which the patient would otherwise have undergone. Or, if the pains should cease before the labour is completed, then such assistance must be given as the case may require; being on our guard that we do not offer assistance before there are proofs of the necessity, and are assured that the difficulty cannot be overcome by the natural efforts.

5. Adhesion of the Vagina.

Adhesions of the *vagina* are occasioned by an increased degree of the same causes as those which occasion cicatrices. There may be an adhesion from disease, in women who were never pregnant, or it may be the consequence of a slough thrown off after a former labour, with or without the use of instruments*. Cases of adhesions of this kind are commonly mentioned as of very easy management, nothing more being required, it is said, than to separate the united surfaces with a knife, and to prevent their re-union by the introduction of a tent or canula for this purpose. It is true, when an adhesion has taken place near the external orifice, that it may be in general managed without difficulty; but when there has been a deep slough, and the parts adhere high up in the *vagina*, perhaps through its whole extent, it is clear from the structure and connexion that there is need of the greatest circumspection, lest on the one

* I have been informed of the case of a patient, who was in the hands of a very skilful practitioner, in whom, after her delivery, which was not attended with any circumstances of peculiar difficulty, the whole internal surface of the *vagina*; and all the external parts, entirely sloughed away.

hand we perforate the bladder, or, on the other, the *rectum*, all these parts being drawn close together. This accident I have seen happen under the hands of a very dexterous surgeon, and it seemed unavoidable.

In some cases then it appears, that the adhesion is of such a kind, as not to admit or justify any attempt to separate the parts with a knife; but even in these, by suffering the menstuous discharge to be collected, after a certain time, the part, where an incision or puncture with a trocar may be safely made, will sometimes be pointed out, and this being gradually dilated, a cure may be effected.

It is possible for an adhesion to take place after a woman is become pregnant, and of this I have known one instance. Of course when labour comes on, the contents of the gravid *uterus* would be impelled against the adhering part, which would either separate, or resist the exclusion of the child. In the former case nothing would be required to be done by art; but in the latter, it would be necessary to divide the united parts by an incision made with great care, and to a certain degree, leaving the full separation to be made by the membranes containing the waters; or by the head of the child, which will then effectually answer the purpose, in a better way than by any operation.

6. *Steatomatose Tumours.*

Of this cause of difficult labours I have never met with an instance in my own practice; but the following case was communicated to me by a gentleman, whose authority and accuracy are unexceptionable.

A lady, after the birth of her eighth child, fell into a state of bad health, with many painful and troublesome symptoms, but no marked disease. These were by some physicians considered as nervous, by others as scorbutic, and by others as rheumatic, or of a gouty nature. Various medicines were given, and different means tried for her relief, but without any good effect. At the expiration of two years she became again pregnant. All her former labours had been very easy and natural; but when Dr. *Hunter* was called at the commencement of this, he found an obstruction at the superior aperture of the *pelvis*, which he believed could only be occasioned by the projection of the lowest of the lumbar *vertebræ*, or the upper part of the *sacrum*. It was then supposed, that she had the *osteosacrofis*, of which her complaints had been the symptoms. It was impossible for her to be delivered in any other way than by lessening the head

of the child. She died on the fourth day after her delivery. Leave was given to open the body, and when the *pelvis* was examined, the tumour, which was imagined to be a projection of the bones, was found to be an excrescence of a firm, fatty substance, springing from one side of the upper part of the *sacrum*, and passing across so as to fill up a great part of the superior aperture of the *pelvis*.

It is probable, that the preceding complaints of this lady were occasioned by the pressure of this tumour upon the *uterus*; and had the real state of the case been known before the time of labour, or even during her labour, it does not appear to have been proper, or within the bounds of art, to have attempted or to have afforded her any other assistance.

7. Enlargement of the Ovaria,

Diseases of the *ovaria*, both of the scirrhus and dropical kind especially the latter, are known to be very frequent. Either of these must generally prevent conception; but as one of the *ovaria* may be very much diseased, when the other is in a perfectly healthy state, instances sometimes occur of women becoming pregnant under such circumstances, and then the enlarged or diseased *ovarium* may produce inconveniences during pregnancy, or become an obstacle to the progress of labour.

With the history of two cases of this kind I was many years ago favoured by Dr. *John Ford*, a gentleman of great skill and experience. In the former he was surpris'd to find a large and firm tumour lying between the *rectum* and *vagina*, filling up all the concavity of the *sacrum*, and a considerable share of the cavity of the *pelvis*. Being convinced of the impossibility of the child passing by this tumour, which did not yield or diminish by the force of the pains, it was determin'd, in consultation, that the patient ought to be deliver'd by lessening the head of the child. The operation was performed with great care, but the patient died at the end of three weeks. When the body was opened, the tumour was found to be an encysted dropsy of the *ovarium*, in which there was a considerable quantity of hair,

In the latter case, which in all its circumstances resembled the former, instead of lessening the head of the child, a trocar was pass'd through the posterior part of the *vagina*, directly into the tumour. A large quantity of water was immediately discharged, the tumour subsided, and a living child was born without any further assistance. This patient recover'd from her ly-

ing-in, but some time after becoming hectic, she died at the end of about six months, though from the symptoms it did not appear, that the fever was occasioned either by the disease or the operation. This patient was not examined after her death.

Having related these two cases, I have said all I had to advance on the subject, except that I have met with more than one instance of a circumscribed tumour on one side of the *pelvis*, which I at first suspected to be diseased *ovarium*. But as these tumours have always given way to the pressure of the head of the child, the passage of which they have only retarded for a short time, I have concluded they were formed either by some fatty substance collected there, or were cysts containing lymph casually effused, and forming to itself a cyst from the cellular membrane. But on taking an examination after delivery, the tumours were found to have again acquired their primitive form and size, and to have resumed their former situation.

8. *Rupture of the Uterus.*

The human *uterus* is found to retain its original thickness during the time of pregnancy, notwithstanding its distention; or to become somewhat thicker than it was in the unimpregnated state. This thickness, we have therefore reason to think, is consequent to some principle acquired coeval with conception. But if the whole, or any part of the *uterus*, should be deprived of this principle, or affected with any disease destructive of its operation, then the whole *uterus*, or the part so affected, would be mechanically distended, and become thinner in proportion to its distention; and at the time of labour, when the action exerted might become greater than the unthickened part was able to bear, the *uterus* would be of course ruptured. Or if the *uterus*, which had acquired its proper thickness, became affected with inflammation or any other disease, weakening its power, and speedy in its progress, the texture of some part so affected might be destroyed, and the *uterus* ruptured by its own action in the time of labour. Or independently of disease, the *uterus* may be worn through mechanically, in long and severe labours, by pressure and attrition between the head of the child and the projecting bones in a distorted *pelvis*, especially if they be drawn in points or a sharp edge. Or, it has been supposed, a rupture may be occasioned by a violent and spasmodic action of the whole or some part of the *uterus*, independent of disease, or any mechanical cause. Or the *uterus* may be ruptured by violent accidents happening to the mother in the

advanced state of pregnancy. If the *uterus* be strongly contracted, it may be ruptured also by attempts to pass the hand for the purpose of turning a child; but in this last case a rupture could only happen, when the force with which the hand was introduced was combined with the proper action of the *uterus*: for the strongest person has not the power to force his hand through a healthy and unacting *uterus*. The part of the *uterus* which commonly gives way, whether posterior, which is most common, or anterior, or lateral, is usually near the union of the *cervix* with the *vagina*, in which such a change is made at the time of labour, when the *os uteri* is completely dilated, that the distinction between them is lost, the *vagina* and *uterus* forming together one cavity, though of unequal dimensions.

Some of the causes of the rupture of the *uterus* are unavoidable, for it is not within the sphere of human abilities, to give to any part the principle by which it has the disposition or power to perform any function; though art may sometimes excite the power to action, if the principle be dormant, or repress it when too vehement. Nor is it often possible to discover or prevent the degree of pressure or attrition, which some particular part may undergo in a difficult labour, before the effect is produced. But the two other causes, that which is preceded by inflammation, or that which may be occasioned by attempts to turn the child, may be corrected or avoided, by abstaining from the use of all such means as are likely to act as causes or promoters of inflammation, or by proper treatment when it does exist; or from making such attempts as may be necessary for the purpose of turning a child, when the action of the *uterus* is strong.

The rupture of the *uterus* is accompanied with a sense of something giving way internally, always perceptible by the patient, with sudden excruciating pain in some part of the *abdomen*, with an instant vomiting of the contents of the stomach, or of a brown fluid, and an abatement or a total cessation of the pain, together with some degree of hemorrhage from the *vagina*; as the *placenta* has uniformly been found to have been partly or wholly separated in every case which has come within my knowledge. After these symptoms, by the application of the hand to the *abdomen*, the limbs of the child are so easily distinguished through the integuments, as to leave no room to doubt of the accident; and if the head of the child be not locked in the *pelvis*, it immediately recedes or even goes out of the reach of a common examination, however low it might have descended. The death of the patient usually follows soon,

though not immediately after the accident ; but I have seen one case, in which there was reason to believe, that she walked a considerable distance, and lived several days after a rupture of the *uterus*.

In general there is reason to think, that the children have died immediately or soon after this accident ; and there is certainly little chance of any person surviving a rupture of the *uterus*. It therefore might be doubted, whether it would be more eligible to suffer the patient to die without giving her further trouble, or whether it were our duty, hopeless as the case must be, to pass the hand into the *uterus*, to turn and deliver the child by the feet ; or with the *forceps*, or *vectis*, or in any way the case would allow. What might be the sentiments of former practitioners, is not to us very material ; for besides several others of which I have been informed, or which are recorded, a case has occurred to my very worthy, able, and experienced friend Dr. *Andrew Douglas*, in which, though the *uterus* was ruptured, he turned the child, the patient recovered, and afterwards had children, at the birth of one of which I was present. If no other case had been recorded, this would be of sufficient authority, to render it in future the duty of every practitioner, to attempt without delay to deliver the patient, and bad as her chance certainly would be, to be strenuous in using all the means which art dictates, to extricate her, if possible, from danger, and to preserve the child. But for more particular information on this subject I must refer the reader to an essay on the rupture of the *uterus* by Dr. *Douglas*, and to several periodical papers of this time in which similar cases are related ; but from the statement of some of these, one cannot help doubting whether the *uterus* was actually ruptured.

SECTION VIII.

THESE causes of difficult labours I have enumerated in this order, with a hope of pointing out a more useful method of arranging the knowledge we possess, of increasing our knowledge and of removing some part of that obscurity, in which the practice of midwifery has been involved, and by which its further improvement hath been hindered. Two things appear in the general result ; first, that the evils attending parturition are more frequently adventitious, than unavoidable or of necessity ; and secondly, that the native powers of the constitution when not interrupted, are not only superior to the common obstructions of the process, but in general to the various kinds,

and degrees of deviation from the natural course of labours, Yet with every prudential regard to our own conduct, and the most judicious regulation of that of our patients, we shall in practice certainly meet with cases, in which, either from the debility of those powers which commonly exist, and which are generally exerted; or, from the greatness or stubbornness of some obstructing cause; or, from some cause actually produced by the labour itself, we shall be compelled by necessity to give artificial assistance, or the mother, or child, or both, will be lost.

Before we proceed to the consideration of the various means, which have been contrived for the relief of women in cases of difficult parturition, it may be again observed, that the causes of difficulty are generally combined; and as there are few instances of a disease according to the simple definition of it in nosological writers, so there are few examples of difficult labours produced or attended by one single cause. Together with the dribbling of the waters, there will often be a retraction of the head of the child from the shortness of the *funis*; and with great rigidity of the parts, or a small *pelvis*, there may be a weak action of the *uterus*; and so on to an almost endless variety. One cause will however predominate, and of course become the principal object of our attention. But when by time, or art, this cause is removed, we must apply ourselves to the removal of that which is important in the next degree; and sometimes the same means may be properly used for the removal of difficulties proceeding from several different causes.

But besides the causes already mentioned, there is one much more frequent than the rest, which is the derangement of the order of the labour by an officious interposition, or by improper management. Upon this subject it would be unpardonable to make an assertion, which is not supported by experience; but I am fully convinced, that the far greater number of really difficult labours, to which I have been called, and I must not conceal the truth on this occasion, some of those which have been originally under my own care, were not of that denomination from unavoidable necessity, but were rendered such by improper management, in the commencement or course of the labour. Nor does the disturbance of the order of a labour depend upon the practitioner alone; for the intractability of the patient herself*, or of her friends and attendants, which, though

* *Dela part de la mère c'est quelquefois sa mauvaise humeur, son impatience, son indocilité, la violence et l'irrégularité des mouvements.*

it may be founded in affection and compassion to her sufferings, may also arise from many other motives, is too frequently productive of the same effect.

In the management of difficult labours there is required much previous knowledge and present judgment on the part of the practitioner, to distinguish in cases of great difficulty, which of them may demand the assistance of art, and when this ought to be employed, and which may be resigned to the efforts of nature; and no situation can be imagined, that requires greater address to procure the confidence and co-operation of all the parties concerned; or more firmness in the pursuit of the negative conduct, which it is often absolutely necessary, yet extremely difficult to follow. Whatever may be the resolution of particular women, and whatever may be the general estimation of natural labours, every woman is impressed with the opinion, and the opinion is often well founded, that in difficult ones, her life is to be preserved by the skill and judgment of the practitioner, under whose care she is placed. If therefore her confidence be secured, the delay to give assistance will be construed into a proof that none is required, and of freedom from danger.

The distress and pain, which women often endure while they are struggling through a difficult labour, are beyond all description, and seem to be more than human nature would be able to bear under any other circumstances. The great principle of all their patience and resolution is perhaps that deep-rooted affection of the parent to the offspring, implanted in the female mind. But the principle of self-preservation, though varying in its operation, will recur, and demand its share of regard. In long continued labours it is therefore proper, by frequent allusions to the child, to encourage and strengthen the former principle, for its power is lessened or overcome by the weight of their present distress; their love for their child is conquered; and the prospect of distant pleasure is not able to stand in competition with the evils of the present moment. With the firmest determination, to do what is right, they willingly persuade themselves, that the child is dead; that the object, for which they should persevere, no longer exists; and the practitioner, in opposition to his own feelings, and against the solicitations of those who confide in him, is often the only advocate for the child. But his decision to act, in cases in which the life of a child is concerned, must stand upon a better principle than conformity to the inclinations of others; for though he might avoid present censure, or even gain present credit by giving ar-

tificial assistance unnecessarily, when the case comes to be reviewed, and it always is reviewed, the blame of acting precipitately, in cases which do not terminate fortunately, will be cast upon him, and the satisfaction of others will be established by the discovery of some cause of blame in his conduct. In the exercise of the most hazardous part of a profession, perhaps in general more subject to censure than any other, it behoves us to be particularly circumspect: and though events are often beyond the power of human control, we may always act with intelligence, with prudence and firmness; and no man's character can long be supported, if he be not governed by the determination to do what is right, to the best of his own judgment and power, under every circumstance.

The events of difficult labours, either with respect to the mother or child, very much depend upon the prudence and foresight, with which women may be conducted through them; but however averse the practitioner may be from the use of such means as may prove hazardous to or even destructive of the child, cases must occur, in which the assistance of art will be absolutely needful, and the use of instruments justified. A time does certainly come when, if they be not delivered by art, in case of the inability of the powers of the constitution to effect the purpose, women would inevitably perish. As correct a judgment must therefore be exercised, and equal care taken, that he does not delay that assistance which may be necessary, so long, that it cannot answer the end for which it was given; or while he is endeavouring to preserve the life of the child, he may lose that of the mother also, which is undoubtedly of more value.

The intentions in the use of instruments may be of three kinds. First, to preserve the life both of the parent and child; secondly, to preserve the life of the parent; and thirdly, to preserve the life of the child. The instruments which have been contrived to answer the first intention, are, the *fillet*, the *forceps*, and the *vectis*. Of each of these, together with all the collateral circumstances which demand our regard, we shall speak in their turn, and then proceed to the consideration of other parts of our subject.

CHAPTER XI.

SECTION I.

ON THE FILLET, FORCEPS, AND VECTIS.

WHEN men, first collected into societies, had provided for their subsistence, they would endeavor to amend their state, by removing such evils and inconveniencies as were most urgent, either from their importance or frequency. Next to those arts by which the means of support were acquired, that of medicine would be of principal consideration, as from the nature of their employments, hunting, fishing, pastoral or agricultural, men must have been liable to diseases and to injuries, which by accident or trial they would learn some method of relieving : and he that should have gained the greatest collection of knowledge, or the most dexterous method of applying it to useful purposes, would have become a physician. But the origin and progress of that branch of medicine of which we are treating would be somewhat different. When the customs and manners of life were simple, and not much disposed to produce diseases, difficulty or danger in the parturition of women would seldom occur ; and, notwithstanding the distress with which they might sometimes be accompanied, the general termination of labours would be easy and safe. In the very few cases which might require more than ordinary assistance, there were none to afford it ; and those women, who could not bring forth their children by their own efforts, were suffered to die without any attempts being made to relieve them, according to the relations which are given of the people of some countries, even at this day.

As mankind advanced in civilization, the evils attending parturition would probably increase, though ignorance or inability to give relief might long continue. But the supplications for assistance, and the affections of men, would not permit them to remain unconcerned or inactive spectators of the misery of those, to whom they were indebted for the chief part of their happiness. They gave such aid as their information or ingenuity enabled them to devise, and this, in the first instance, con-

sisted of ceremonies, or of particular precatory exclamations*, of amulets, or of medicines, to which some mysterious properties were attributed, as the skins and some other parts of serpents, the eagle stone, the blood stone, the stony substance found in the head of a shark, with many others of the like kind; and such things would, by their influence on the imagination, mightily succour the minds of women, strongly impressed with a sense of their utility, in a state of actual danger, overwhelmed at the same time with extreme pain and apprehension. In times more enlightened, for every kind of distress religion offered its consolations, by soothing the mind, by teaching mankind, when oppressed with difficulties, to use their own endeavours, by inculcating the necessity of submitting to evils which could not be prevented or avoided, and by encouraging with the hope of happy events. After the discovery of the mechanic arts, these were applied to the exigencies of every occasion; and when the sufferings of women in child birth could no longer be endured, attempts were made to relieve them by extracting, without regard to its safety, the head of a child which could not be expelled by the efforts of the mother; and for this purpose the first kind of *forceps* was invented and used. The same motives of compassion or affection, which led to the wish of relieving women, would readily extend to children; and, to combine the interests of both, fillets and the *forceps*, now in common use, were contrived. When the head of a child was found to be too large, to pass through a very small or distorted *pelvis* with the help of such contrivances, there was no relief to be obtained except the head of the child was lessened, and for this purpose, perforators and hooks or crotchets of various kinds were invented. The intrepidity of some man seeing no other way of giving relief, or the desperate resolution of some woman frantic with her sufferings, might lead to a more

* *It is extremely curious to see the many ancient customs preserved by Ovid, in several parts of the Metamorphoses.*

——— *Nec habent sua verba dolores:*

Nec Lucina potest parientis voce vocari.

Constitit ad tamos mitis Lucina dolentes;

Admovitque manus; et verba puerpera dixit.

Reddit onus. vagitque puer, quem mollibus herbis

Naiades impositum, lachrymis unxere parentis.

Metamorphos. Lib. x. Fab. x.

summary way of obtaining it*; and, with a determination to free herself from the cause of her misery, or to put an end to her existence, a child might have been extracted through a wound made into the part which contained it, and the manner of performing the Cærean operation would be shewn.

In some times and countries, in which the *forceps* and other instruments of that kind were not known, or their use not fully understood, and afterward, in some cases not thought suitable for their use, it became a custom in many difficult labours, by whatever cause produced, to return the presenting head, to pass the hand into the *uterus*, to turn and deliver the child by the feet. But this operation of turning could only be performed under very limited circumstances; for if the head of the child were very low in the *pelvis*, or the *uterus* strongly contracted round its body, it could not be turned, or not without defeating the very purpose for which the operation was performed, producing at the same time great danger to the parent. This practice was in general very unfortunate in the event, yet cases may occur, in which, by turning the child, the chance of saving its life is greater than can be gained by the use of any instrument, of which the following is an example.

Many years ago I attended a patient in two labours, in both of which there was a necessity of delivering with instruments, on account of the smallness and distortion of the *pelvis*, and neither of the children could be preserved. In her next pregnancy I made a proposal to bring on premature labour, to which she and her friends would not consent, and I was dismissed from my attendance. In the course of twelve or fourteen years she had five more children, not one of which was born living. In the forty-sixth year of her age she proved with child, and again applied to me. When her labour came on, the first stage was suffered to proceed without interruption, but when the membranes broke, I without delay passed my hand into the *uterus*, and easily brought down the feet and body of the child, but the head being stopped by the narrowness of the superior aperture of the *pelvis*. I was obliged to exert, and to continue

* See *London Medical Journal*, Vol. VI. and VII. in which there is a curious history of a Negro woman, who, in the agony of her labour, performed this operation upon herself, given by Mr. E. Home. I was informed by Dr. J. Hunter, that the same woman, for she recovered, was obliged to be watched in her subsequent labours, to prevent her from again performing the same operation.

much force, before it could be extracted, The child was born with very little or no appearance of life ; but by the strenuous use of the common means recommended for this purpose it was recovered. On the left parietal bone there was a depression of considerable extent, and to my apprehension of full one inch in depth, occasioned by the projection of the *sacrum* ; but the depressed part gradually rose, in the course of a few months the bone regained its natural form, and the child was for several years in good health, with its faculties perfect. The woman recovered without any untoward circumstance.

But the success of such attempts to preserve the life of a child is very precarious ; and the operation of turning a child, under the circumstances before stated, is rather to be considered among those things, of which an experienced man may sometimes avail himself in critical situations, than as submitting to the ordinary rules of practice.

SECTION II.

ON FILLETS.

THE fillet used in the practice of midwifery is a single band, intended to be fixed upon the head of a child detained in its passage through the *pelvis*, for the purpose of extracting the head.

It has been supposed, that fillets were used in the practice of midwifery as early as the time of *Hippocrates* ; but whenever they were invented, they have since undergone a variety of changes, by which it was intended to gain some advantage, or to avoid some inconvenience. Fillets have been constructed of silk, cotton, linen, or leather of divers kinds, strengthened, or rendered more commodious for application, by the addition of cane, whalbone, wire, or very thin and narrow plates of iron variously braided and worked together according to the opinion or judgment of the contriver.

The manner of applying the fillet was, by conducting it with the finger, or an instrument contrived for the purpose, to some fixed point, as the chin, or round the circumference of the head of a child, as high up in the *pelvis* as could be reached ; then, after twisting the two ends together to acquire a firm hold, we were taught to extract, in a proper direction, with all the force the fillet enabled us to use, or the necessity of the case might require.

The peculiar advantages expected to be derived from fillets were these. They were supposed to be applicable with great

facility in every direction of the head, or when this was too high to allow of the use of any other instrument recommended with the same intention; to supply us with sufficient power to extract the head when detained an unreasonable time, by any cause, to the hazard of the mother or child; and to do less injury to either, on account of the softness and pliability of the materials of which they were composed.

But experience has fully proved, that a fillet of any kind could not in many cases be either safely or effectually applied without much difficulty and trouble; that when applied it was very apt to slip; that when it remained fixed, it was often inadequate to the purpose of extracting the head; that it created new difficulties, or added to those which before existed, by changing the direction of the head disadvantageously; and that the injury done to the mother or child was not in proportion to the hardness of the materials of which instruments were constructed, but according to the force or violence with which they were used.

For these reasons fillets of every kind gradually declined in estimation, and they are now wholly neglected. They may be considered among the first attempts of art to give relief, which have been superseded by other contrivances, equally safe and more efficacious.

SECTION III.

ON THE FORCEPS.

THE *forceps* used in the practice of midwifery is an instrument composed of two equal parts, each part consisting of a curved blade and a handle, so formed that, when applied separately upon the head of a child obstructed in its passage through the *pelvis*, they may be connected together, and used as two alternate or conjoined levers, for the purpose of extracting it.

Forceps have been occasionally made of wood or silver, but those now generally used are formed of iron properly tempered, with wooden handles, and when used, are covered with smooth and thin leather; which, without any significant increase of bulk, renders their introduction more easy, and takes off, both in appearance and reality, the asperity of the instrument. Each blade must be introduced separately, but in such directions, that when introduced they may be connected as antagonists to each other; and there have been different contrivances or locks at the part where the handles and blades unite, to keep them fixed together.

It would be difficult to determine the time when *forceps* were first used, but we have very early accounts of two kinds, with one of which it was intended to extract the child, without regard to the injury which might be done to it, and with the other to extract and preserve its life. The first was armed with teeth or sharp protuberances on the internal surface which grasped the head; but those of the second kind had no protuberances, and when used, were clothed with linen or some soft material, to prevent their doing any injury to the child. The first are never used at the present time, and would have been forgotten, except for the patterns which are preserved in the collections of those who teach the art. Of the latter kind there is an endless variety, but every variety regards one or other of these conditions; their length, their strength, or their different degrees or kinds of curvature.

From the length of the *forceps* formerly made, we may conclude that it was usual, at least sometimes the practice, to apply them before, or as soon as the head of the child had entered the superior aperture of the *pelvis*; and from their strength, that it was thought necessary to provide for the exertion of great force. The common curvature was varied according to the opinion entertained of the form and dimensions of the head of a child at the time of birth; but the lateral curvature was given for the accommodation of the instrument to the form of the *pelvis*, or for lessening the pressure upon, and of course the danger of lacerating, the external parts, while the child was extracting. As the *forceps*, though well applied, sometimes slipped from the head when brought into action, a groove, with a slight eminence on each side, was proposed to be made on that part of the internal surface which embraced the head, to prevent that accident, and to allow of a change in the manner of acting, by admitting of some degree of rotation.

Forceps have also been contrived in such a manner, that one blade received the other, and these were called male and female. They have also been made with hinges or joints between the handle and the blade of each, answering no other purpose than that of concealing them, that there might be an opportunity of performing the operation with them in a clandestine manner. But as the reasons for using the *forceps* will justify the operation to the most severe examiner; and as these may be explained without adding to the terror or distress either of the patient or her friends, there never can be occasion for concealment, which, in these cases, ought to raise a suspicion of the judgment or integrity of those who should attempt to practise it. There is, in

truth, at the present time, more frequently a necessity for resisting the solicitations both of patients and friends, urging us to the use of instruments, than of persuading them to comply with our proposals when we really think them needful.

Besides the different kinds of *forceps* which consist of two blades, others have been contrived with three, which, when separately applied, were received and screwed in a hollow handle, or fixed by some other contrivance. By those who supposed labours to be chiefly obstructed or rendered difficult by the inflection of the *os coccygis*, a third blade was added for the purpose of raising the head of the child over that part. But those who supposed difficulties to be occasioned by the *sacrum* jetting, and of course projecting the head of the child over the *symphysis* of the *ossa pubis*, added a third blade, for the purpose of bringing back the head thus projected into a right line with the cavity of the *pelvis*, before any attempt was made to extract it with the other two blades. Whatever credit may be due to the authors of these contrivances for their ingenuity, the third blade has certainly been added on erroneous principles; and *forceps* thus constructed would not only be embarrassing in practice, but in every case, as far as can be judged, useless, or extremely injurious*.

It is remarkable that *forceps* were made of an unnecessary length, when we were forbidden to apply them before the head of a child had descended very low into the *pelvis*; and they were made very strong, when it was well understood, that the force, which they enabled us to use, was far greater than could be exerted with propriety or safety to the mother. They were however by degrees made shorter and less cumbersome, and about the year 1748, Dr. *William Smellie*, who was eminent in practice, and as a teacher of midwifery in *London*, after many trials, altered them, and brought into general usage a kind of *forceps*, more convenient than any before contrived. These before they are curved do not measure more than twelve inches from the end of the handle to the extremity of the blade; and, when properly curved, little more than eleven inches, of which the handle measures near five inches. The widest part of the blade measures about one inch and five eighths, and this gradually declines towards the handle, preserving at the same time the flatness of the blade till it meets the handle. Being simple in their construction, applicable without difficulty, and equal to the management of every case in which the *forceps* ought to be

* See Chapman.

used, I have, with very little alteration, adapted the following rules to them. But if *forceps* of any other kind should be preferred, though the principles will hold good, the rules must be varied according to their size and form, at the discretion of the person who may perform the operation.

SECTION VI.

GENERAL OBSERVATIONS.

It has been long established as a general rule in this country, that the use of instruments of any kind ought not to be allowed in the practice of midwifery from any motives of eligibility*. Whoever will give himself time to consider the possible mistakes and want of skill in younger practitioners, of which I fear many of us may have recollection, the instances of presumption in those who by experience have acquired dexterity, and the accidents, which, under certain circumstances, seem scarcely to be avoided, will be strongly impressed with a sense of the propriety of this rule, as well as from the general reason of the thing. But when, from any cause, the parent becomes unequal to the expulsion of the child, the assistance of art, by whatever means it can be afforded, is justifiable by necessity; because without such assistance the parent would die undelivered, and with her life, that of the child would also be inevitably lost. Yet it behoveth every person, who may use instruments in the practice of midwifery, to be well convinced of this necessity before they are used, and to be extremely careful in their use; that he may not create new evils, or aggravate those which might be existing. But though it be our duty to avoid, if possible, the use even of those instruments, which are intended to be employed without injury either to the mother or child, it would, on the other hand, be absurd to defer their use till the child was dead, and the mother reduced to a state, not of apprehended, but of real danger; or, which is worse, that if she should survive, her life would be rendered miserable from the consequences of mischief done before the instruments were used.

* *Non nisi summa necessitate illud exigente atque tum demum educendis ex utero infantibus abmovenda esse ferramenta, quum nihil omnino spei reliquum est fore, ut solarum manuum subsidio extrahere ipsos liceat.*—Heister. *Capt. Liij. ix. and many other writers.*

When it is proposed to deliver women with the *forceps*, the intention is, to supply by these means the total want, or deficiency, of the natural pains of labour; in other words, to extract the head of a child, which cannot be expelled by the efforts of the mother. But so long as these efforts continue with any degree of vigour, there is always reason to hope, that they will ultimately accomplish the effect of expelling the child without any artificial assistance, in which case the use of the *forceps* is not required. We are moreover to recollect, that in labours of long continuance there will often be an abatement, or even a temporary cessation of the pains, for many hours, without any apparent reason or alarming symptoms; but that cessation of the pains, which is the consequence of long continued, fruitless action, and of great debility, is to be considered as the only justification of the use of the *forceps*.

Before the completion of the first stage of a labour, that is, before the *os uteri* is perfectly dilated, and the membranes broken, the use of the *forceps* can never come under contemplation. Because the difficulties before occurring may depend upon causes, which do not require their use; or, if required, they could not be applied with safety or propriety before those changes were made.

There is infinitely greater difficulty in deciding upon the proper case and time when the *forceps* ought to be applied, than in applying or using them; but it is universally agreed, that the lower the head of the child has descended into the *pelvis*, the easier will their application be, and the operation with them more certain and successful. With a view to this observation, a practical rule has been formed, that the head of a child shall have rested for six hours, as low as the *perinæum*, that is, in a situation which would allow of their application, before the *forceps* are applied, though the pains should have altogether ceased during that time. This, with other rules, was intended to prevent the rash or unnecessary use of the *forceps*, and certainly time, in these and many other cases, is a very good corrector of practice. It is scarcely possible to say too much against a hasty recourse to the *forceps*, even in cases which may ultimately be relieved by using them.

The *forceps* ought to be applied over the ears of the child, because when thus placed, there is the least likelihood of doing injury to the child, or of their slipping, and they enable us to act with the greatest advantage and safety to the mother. It must therefore be improper to attempt to apply them before an ear can be felt, either because the head is too high to allow us

to reach that part, or because it is so closely locked in the *pelvis*, that there is not sufficient room to pass the finger for that purpose between the head of the child and the *pelvis*. If an ear of the child can be felt, the case is always manageable with the *forceps*, should their use be required. But when the question, whether they ought to be applied, comes under consideration, the ears are not turned to the sides of the *pelvis*, but that ear which is to guide us will be found towards the *pubes*, or in a diagonal direction with regard to the *pelvis*. However we are always to remember, that the *forceps* are not to be applied because we have the power of applying them, but because the necessity of the case is such as to require their use. Yet cases sometimes occur in practice, in which we may despair of the ability of the mother to expel the child; and which, though not such as have been stated as perfectly suitable, for the use of the *forceps*, become suitable, merely by waiting a certain number of hours, and a repetition of the slight efforts of the parent. In that desponding state, with which every tedious and difficult labour is accompanied, I have also found the patient very much comforted and encouraged, by having some distant time held up to her when she should be assisted, if the labour were not before concluded: as this gives her new resolution, by offering to her imagination a certain period to her suffering.

Every change in the position of the head, and every alteration in the construction of the *forceps* from those already stated, will require some difference in the manner of applying and using them. But the preference, which ought in reason to be given, of one kind of *forceps* to another, is merely because one instrument may be more handy and convenient than another, for an intelligent and skilful man would be able to apply and use those of any form or size, in such a manner that they should effectually answer his purpose; as an expert surgeon would be able to amputate a limb with a knife of any kind. No consideration or advantage to be gained by instruments of any particular structure ought to lessen our attention and care when we use them; as the success of every operation must necessarily depend, not upon the excellence of the instrument, but upon the justness of the idea entertained of it in the mind of the person who may perform it, and the dexterity or skill with which the instrument may be guided by his hands.

When we have determined on using the *forceps* according to the preceding observations, corrected by our own judgment; and when we have represented our opinion, and explained the reasons for it to the friends of the patient, as is customary in all

other operations, we must prepare for this in the following manner. The patient is to be placed upon her left side, across, and very near the edge of the bed on which she is laid, with her knees drawn up to the *abdomen*, and a pillow placed between them, that we may be able to reach the patient with all convenience, and possess the free and uninterrupted use of our own hands. The instruments, being warmed in water, and smeared with some unctuous application, are to be so placed, that they can be readily taken hold of by ourselves, or handed to us by an assistant.

SECTION V.

ON THE APPLICATION OF THE FORCEPS.

THE first part of the operation consists in passing the fore-finger of the right hand between the *ossa pubis* and the head of the child to the ear. Then taking the part of the *forceps* to be first introduced, by the handle, in the left hand, the point of the blade is to be slowly conducted between the head of the child and the finger, till the instrument touches the ear.

There can be no difficulty or hazard in carrying the instrument thus far, because it will be guided, and in some measure shielded, by the finger. But the farther introduction must be made with a very slow semi-rotatory motion, keeping the point of the blade, as it is advanced, not rigidly, yet closely to the head of the child, by raising the handle towards the *pubes*. In this manner the blade must be carried gently along the head, till the lock reaches the external parts near the anterior angle of the *pudendum*.

The point of the blade, while introducing, sometimes hitches upon the ear of the child, and then it requires a little elevation, which is given by depressing the handle. But when it has passed the ear, and is beyond the guidance of the finger, should there be any check to the introduction either of this or the other blade, it should be withdrawn a little, to give us an opportunity of discovering the cause of the obstacle, which we must never strive to overcome with violence, though we must proceed with firmness. When the first blade is properly introduced, it must be held steadily in its place, by pressing the handle towards the *pubes*, and it will be a guide in the introduction and application of the second blade.

Let the second blade be introduced in this manner. Keep the blade first introduced in its place, with the two lesser fingers of the left hand, and carry the fore-finger of the same hand between the *perinæum* and the head of the child, as high as you can reach. Then take the second blade of the *forceps* by the handle, in the right hand, and, conveying the point between the finger placed within the *perinæum*, and the head of the child, conduct the instrument with the precautions before mentioned, so far that the lock shall touch the interior part of the *perinæum*, or even press it a little backwards. In order to fix the two blades thus introduced, that which was placed towards the *pubes* must be slowly withdrawn, and carried so far backwards, that it can be locked with the second blade retained wholly, or nearly, in its first position: and care must be taken, that nothing be entangled in the lock, by passing the finger round it. When the *forceps* are locked, it will be found convenient to tie the handles together, with sufficient firmness to prevent them from sliding or changing their position, when they are not held in the hand, but not in such a manner as to increase the compression upon the head of the child.

Should the blades of the *forceps* be introduced so as not to be opposite to each other, they could not be locked; or if when applied the handles should come close together, or be at a great distance from each other, they would probably slip, or there would be a failure of some kind in the operation, as the bulk of the head would not be included, or they would be fixed on some improper part of the head; though allowance is to be made for the difference in the size of the heads of children. But if a case be proper for the *forceps*, if they be well applied, and we were to act slowly with them, there would not be much risk of failure or disappointment.

The difficulty of applying the *forceps* is most frequently occasioned by attempting to apply them too soon; or by passing them in a wrong direction; or by entangling the soft parts of the mother between the instrument and the head of the child, against all which accidents we are to be on our guard.

SECTION VI.

ON THE ACTION WITH THE FORCEPS WHEN APPLIED.

It was before observed, that the *forceps*, when applied, and fixed upon the head of a child, might be considered as a compound instrument, which allowed of a separate action, with

either of the parts of which it was composed; or of a conjunct action, as if the two parts formed one instrument. The separate action with either part will be on the principle of the lever; but that with both the blades will be simple traction. Yet in practice we shall find very few cases, in which it will not be necessary to exercise or to combine both these kinds of action.

As it is the intention, when the *forceps* are used, to supply with them the total want or insufficiency of the natural pains of labour, the whole power or force, which the instrument enables us to use, ought not to be exerted in the first instance, but such a degree as any individual case may require; which can only be known by the first trying a moderate degree of force, increasing it slowly and deliberately, according to the exigence of each case. Because the impediment may not be great, and the point of obstruction may exist only at one part; and these being surmounted by one, or a few actions with the instrument, there would be no cause for acting any more. In some cases also, though the pains had entirely ceased, they will return with force sufficient to expel the child, from the irritation made by the mere application of the instrument. But when the *forceps* have been applied, they should not be removed before the head is expelled, though their assistance be not required; lest the pains should cease, and we should again be obliged to apply them.

The effects of the *forceps*, or the consequences which result from their action, are these; compression of the head, descent of the head, inclination of the face to the hollow of the *sacrum*, extraction of the head. As the descent of the head precedes the inclination of the face to the hollow of the *sacrum*, it would be improper to attempt to change the position of the head before it has descended, and it is afterwards unnecessary. Because if the action with the *forceps* be slow, and, according to the direction of the handles, the position of the head becomes altered in proportion to its descent, without any aim on the part of the operator, and without his guidance.

When the *forceps* are first locked, they are placed far backwards, with the lock close to, or just within the internal surface of the *perinæum*; and they can have no support backwards, except the little which is afforded by the soft parts. The first action with them should therefore be made by bringing the handles, grasped firmly in one or both hands, to prevent the instrument from playing upon the head of the child, slowly, towards the *pubes*, till they come to a full rest. Having waited a short interval with them in that situation, the handles must be

carried back in the same slow but steady manner to the *perinaeum*, exerting, as they are carried in the different directions, a certain degree of extracting force; and after waiting another interval, they are again to be raised towards the *pubes*, according to the situation of the handles. Throughout the operation, especially the first part, the action of that blade of the *forceps*, originally applied towards the *pubes*, must be stronger and more extensive than the action with the other blade; this having no *fulcrum* to support it, and chiefly answering the purpose of regulating the action with the other blade. If there were any labour pains when the operation was begun, or should they come on in the course of it, the *forceps* should only be acted with during the continuance of the pains; the intention being not only to supply the want or insufficiency of the pains, but to follow them, and imitate also by the action with the *forceps* the manner in which they return.

By a few repetitions of this alternate action and rest before described, we shall soon be sensible of the descent of the head; and it will be proper to examine very frequently, to know the progress made, that we may not use more force than needful, or go on with more haste than may be expedient or safe. In every case, even those which allow of the easiest management, we ought to proceed slowly and circumspectly, not forgetting that a small degree of force, continued for a long time, will in general be equivalent to a greater force hastily, exerted, and with infinitely less detriment either to the mother or child. But after some time, should we not perceive the head to advance, the force hitherto used must be gradually increased, till it is sufficient to overcome the obstacles to the delivery of the patient,

It was before observed, as the head of the child descended, that the face would be accordingly turned towards the hollow of the *sacrum*, without any aim or assistance on our part. Of course the position of the handles of the *forceps*, and the direction in which we ought to act with them, should alter; for they becoming first more diagonal or oblique, with respect to the *pelvis*, and then more and more lateral, every change in their position will require a differently directed action, because the handles should ever remain, and be acted with, as antagonists to each other. In proportion also to the descent of the head, the handles of the *forceps* should approach nearer to the *pubes*; so that in the beginning of the operation, though we acted in the direction of the cavity of the *pelvis*, towards the conclusion we should act in that of the *vagina*, to prevent a laceration of

the parts. When we feel that we have the command of the head by its being cleared of any obstruction in the *pelvis*, and the external parts begin to be distended, we ought to act yet more slowly, especially in the case of a first child, or there would be the greatest danger of a laceration of the soft parts: and this can only be prevented by acting most deliberately; and in the direction of the *vagina*; by giving the parts time to distend; by duly supporting the *perinaeum*, which is the part chiefly in danger, with the palm of the hand firmly applied; by soothing and moderating the hurry and efforts of the patient; and, in some cases, by absolutely resisting for a certain time the passage of the head through the external parts, as in a natural labour. When the head of the child is born, the *forceps* are to be removed, the delivery being completed as far as their assistance was required, and the remaining circumstances are to be managed as if the labour had been natural.

On the whole it appears, that necessity alone, and not any sense of eligibility or expediency, will justify the use of the *forceps*; that when such necessity exists, their use is not only justifiable, but highly advantageous; that with care they may be safely applied; that slowness and steadiness in our action with them will effectually secure both the parent and child against untoward accidents; but that no skill or knowledge can prevent disappointment or mischief, if they be improperly or prematurely applied, or if the operation with them be performed with hurry or violence. It is not possible to fix any limits to the time that may be required for the operation with the *forceps*, but I have frequently known more than an hour to pass from the fixing of the instrument, before I could with safety extract the head of the child through the external parts.

SECTION VII.

ON THE APPLICATION OF THE FORCEPS, UNDER VARIOUS CIRCUMSTANCES.

WE have before considered the manner of applying and using the *forceps*, when the head of the child presented in the most natural way, that is, with the face inclining towards the *sacrum*. But they may be equally necessary in other positions of the head, that especially which is the next place most frequent, when the face is inclined towards the *pubes*. This position

is discoverable by the readiness with which we can feel the greater fontanel in the common examination, by the direction of the ear, and often by feeling distinctly the features of the face tending towards the *symphysis*.

It was before observed, that this position of the head only constituted a variety of natural labours, as far as position was concerned in the definition. We are not therefore to be guided in our opinion of the propriety of using the *forceps* by any position of the head of the child, but, whatever the position may be, by the necessity of any case, proved by the absolute inability of the mother to expel the child. Should such necessity exist with this position of the head, the *forceps* are to be applied, in the manner before described, over the ears of the child. But when they are applied we must act with them with the greatest caution; for having a different and less perfect hold of the head, they are apt to slip, and, acting with less advantage, must be more precarious. But if we succeed, when the head, thus situated, is brought so low as to distend the external parts, there will of course be greater danger of laceration, if we be ever so much upon our guard; because, in extracting the head, the chin of the child, unless the head be unusually small, or admits of a change of position, should be cleared of the *ossa pubis*, before the hind head is suffered to slide over the *perinaeum*, which will very much increase the distention, and produce the same effect as if the arch of the *ossa pubis* was too small to receive the head of the child.

The same observations are also generally true when the face of the child presents; or when, together with the head, there are one or both arms. For though in such cases there might be a necessity for, and a propriety in, using the *forceps*, the operation with them would neither be so certain nor so easy as in the position of the head first stated.

In labours attended with convulsions, or dangerous hemorrhage; or when from any other urgent cause it may be necessary to hasten the delivery of the patient, to free her from immediate danger, should the *forceps* be used, the general rules will be sufficient to guide us, varying and suiting our conduct to the exigence of any particular case.

Lastly, when there are signs of imminent danger, however averse we may be to the use of instruments, we may be induced to try the *forceps*, though a case might not be altogether such as may be esteemed most eligible for their application; merely to take an indifferent chance of saving the life of a child, which must otherwise be inevitably lost. In such cases we must advert to the general principle, and make

our attempts in a manner consistent with the safety of the parent ; and, from motives of prudence, prepare the friends for that disappointment, which it may not be in our power to prevent.

SECTION VIII.

ON THE VECTIS.

THE *vectis* used in the practice of midwifery is an instrument consisting of one blade, slightly curved, and a handle ; somewhat larger, but similar in form to one of the blades of the *forceps*.*

The true origin of this instrument, or time when it was first discovered, it is not known ; but before any accounts of the *vectis* were published ; some difficult cases were recorded*, in which women had been delivered with one blade of the *forceps*, which might then be well considered as a *vectis*, though not called by that name. But when only one blade of the *forceps* had been used, the operation was mentioned as something extraordinary, to shew perhaps the judgment, skill, or good fortune of the person who performed it ; and not as leading to the use of a particular instrument, or to a rule of practice. It is probable, that the instruments used by the *Chamberlens* in the last century was the *vectis* ; but this is conjecture, for, after much inquiry, though scarcely credible, no person has yet been able to discover, that any of them left either a pattern or description of the instrument which they used. In the second volume of *Heister's Surgery* there is a delineation of a true *vectis*, by *Palsyn*, a surgeon of eminence at *Gkent* ; but neither this instrument nor its description engaged much attention, nor was the *vectis* generally known in this country, before the year 1750. For though it had been used before that time by *Rhonhuysen*, a surgeon at *Amsterdam*, after whose name it has been since called, it was reserved by him with great secrecy, to his own credit and advantage ; and, after his death, became the property of his only daughter, from whom it was purchased by *De Bruyn*, an eminent surgeon of the same place. It appears that *De Bruyn* concealed the secret with as much caution as *Rhonhuysen* ; or that he instructed students in the use of the *vectis* at a considerable price, and with an obligation not to divulge to others what he taught them ; which must have raised

* See Chapman.

great suspicion of imposture on his part, and of credulity in those whom he taught. The names of other gentlemen who changed or improved the instrument soon became known; and, annexed to a paper written on this subject by the celebrated professor *Camper*, in the fifteenth volume of the *Memoirs of the Royal Academy of Surgery*, is a plate representing the *veclis* used by *Rhonhuysen*, *Boom*, and *Titling*.

The advantages arising from the use of the *veclis* in the hands of *De Bruyn*, ostentatiously urged, appearing to be very great, *Vischer* and *Vander Pol*, two physicians at *Amsterdam*, from motives of pure benevolence, purchased the secret from *De Bruyn*, in the year 1753, and immediately published a description of the instrument, with directions for using it; but none of the papers printed on this subject in the Dutch language have ever been translated into our own. While the *veclis* remained a secret, the reports of the benefits obtained by it were probably much exaggerated, especially those of *De Bruyn*, though *Van Swieten* says he was an honest man; but, when it was divulged, and the positive and comparative merits of the *veclis* strictly examined, it retained its credit and estimation, in the opinion of many competent judges, in different parts of Europe.

When the *veclis* was very much used, and highly esteemed, at *Amsterdam*, as an invaluable improvement in the practice of midwifery, the *forceps* was the favourite instrument in this country, especially as altered by *Smellie*, who was then the principal teacher of the art in *London*. But the chief practice in this city* was successively in the hands of *Drs. Bamber*, *Griffith*, *Middleton*, *Nesbit*, and *Cole*, some, if not all of whom, except *Dr. Bamber*, whose *forceps* I have seen, preferred the *veclis* to the *forceps*. To those gentlemen succeeded *Dr. John Wathen*, a man of great ingenuity, and most pleasing manners, who altered the form and reduced the size of the *veclis*, and frequently used it with dexterity that has astonished me. In the year 1757, that most excellent charity for delivering poor women at their own habitations was established; and *Dr. John Ford* was the first physician appointed to conduct it. On every occasion which required instruments of this kind, *Dr. Ford* used the *veclis*; and his coadjutors and successors,

* *Mr. Malden of Putney*, very obligingly shewed me a letter of *Dr. Griffith's* containing directions for the application and use of the *veclis*, but in that there was nothing particularly excellent. *Dr. Sims* has also a letter on the same subject, written to his father by *Dr. Cole*.

Drs. Cooper, Cogan, Douglass, Sims, Dennison, Squire and Croft, with many others, have followed his example. From the deserved reputation of these gentlemen, who have at all times expressed their approbation of the *vectis* in preference to the *forceps*, many have been induced to try it, and the general opinion of its utility has increased. At the present time, all who are engaged in the practice of midwifery would consider themselves as deficient, if they were not acquainted with the structure and manner of using the *vectis*; some who formerly preferred and used the *forceps*, relinquished the use of this instrument for the *vectis*; and others who, from education or habit, continue to use the *forceps*, are very willing to allow the equal, if not superior utility of the *vectis*.

SECTION IX.

ON THE DIFFERENT KINDS OF VECTIS.

THE first *vectis* of which we had any knowledge in this country, was similar to that of *Palsyn* before mentioned. The instrument purchased by *Vischer* and *Vander Pol*, which was made public in a pamphlet written in the Dutch language, is different from that of *Palsyn*. In the account given by *Camper*, there appears to be some difference in the form, length, manner, and degree of curvature of the *vectis* used by *De Bruyn, Boom, and Titsing*. But if the powers of the instrument were preserved, and the general principle of using it followed, it is probable that all those who preferred the *vectis* thought themselves at liberty to alter its form, or to vary its dimensions, making the instrument, by such alterations, suitable to their own ideas of the properties required.

When the *vectis* was first known in this country, that described by *Heister* was preferred to those recommended by the surgeons at *Amsterdam*. The *vectis* used by *Dr. Cole* was like one blade of the *forceps*, somewhat lengthened and enlarged. That of *Dr. Griffith* was of the same kind, with a hinge between the handle and blade; and that of *Dr. Wathen* was not unlike *Palsyn's* but with a flat handle, and a hook at the extremity of the handle, which prevented its slipping through the hand, and might be occasionally used as a crotchet. Many other changes have been made in the construction of the instrument, but the *vectis* now generally used is of the following dimensions:

The whole length of the instrument, before it is curved, is twelve inches and a half.

The length of the blade, before it is curved, is seven inches and a half.

The length of the blade, when curved, is six inches and a half.

The widest part of the blade is one inch and three quarters.

The weight of the *veclis* is six ounces and a half.

The handle is fixed in wood.

From this description, any person acquainted with the *forceps* could find no difficulty in forming a just idea of the *veclis*, or an artist in making it. It appears that a single blade of the *forceps* might, in many cases, be used not inconveniently, instead of any other *veclis*, and would generally answer the purpose without the trouble of introducing the second blade, as I have often experienced before I was acquainted with the *veclis*.

With respect to the part of the blade of the *veclis* which ought to be curved, and the degree of curvature, there has been some difference of opinion; but this must relate either to the ease of introducing, or the advantage of acting. With a small degree of curvature, diffused through the blade, the instrument may be most easily introduced, and it is most suitable to the form of the head, nor can the degree of curvature required, on any principle, be very great. But if, together with the power of the lever, we aim at acquiring much extracting force, the curvature should be somewhat increased towards the extremity; because the two centres, on which the force used would rest, would be at those parts of the head on which the instrument might bear, and the part on which it would rest, whether the sides of the *pelvis* or the hand of the operator.

For rendering the introduction of the instrument more easy, and for preventing all the inconveniencies which might arise from the difference of curvature, Dr. Aitkin of *Edinburgh* contrived a *veclis*, which he has fancifully called the living lever. When this is at rest it is quite straight; but while it is introducing, by turning a screw in the handle, the blade is jointed in such a manner as to bend gradually forwards as the instrument is advanced, so that the extremity of the blade is always kept close to the head of the child, whatever dimensions that may be. There is much ingenuity in the contrivance; but of the effect in practice I cannot speak, having never tried this instrument, not wishing for one more perfect than that in ordinary use. But a gentleman informed me, that in a trial he made, the chain, on which the mechanism chiefly depends, broke, and he

was obliged to finish the operation with a common *vectis* ; so that in all probability the common *vectis* are actually preferable to any of the complex kinds.

To lessen the pressure made by the instrument, when in action, upon the parts of the mother, on which it might bear, some person contrived two holes on a part of the blade, near the handle, through which a strong ribband or tape was to be passed, which being afterwards tied and pulled firmly, when the instrument was acted with, was supposed to confine it firmly to the head of the child, and prevent or lessen the pressure which might otherwise be made upon the parts of the mother ; but it appears that the same end may be answered better by an intelligent and dextrous management of the instrument, than by this contrivance.

SECTION X.

ON THE COMPARISON OF THE VECTIS WITH THE FORCEPS.

THE general principle of practice, that the use of no instrument is to be allowed, except in cases of absolute necessity, ought not to be infringed, because we entertain a high opinion of any instrument, or because we may have acquired dexterity in using it, for such reasons would be indefensible, and any conduct founded upon them would be highly culpable. That principle founded in common sense as well as medical knowledge, and confirmed by daily experience, must be held inviolable. The real value of any instrument will be shewn by its efficacy to answer the purpose for which it may be used, and by the safety and convenience with which it can be managed, when its use becomes absolutely necessary.

There has been much verbal dispute among those who vindicated the superiority of the *vectis* to the *forceps*, and those who maintained the long established credit of the *forceps* against the encroachments of the *vectis* : but the comparison between the two instruments has never been brought fairly to an issue, which might have been done by a discussion of the two following questions.

Is it possible to deliver a woman safely with the *forceps*, in any case not manageable with the *vectis* ?

Is it possible to deliver a woman safely with the *vectis*, in any case not manageable with the *forceps* ?

We may take it for granted, and I believe it is true, that in

far the greater number of cases which occur in practice, either of these instruments may be used indiscriminately, with equal safety, advantage, and ease, allowing for the dexterity which may have been acquired by the habit of using either instrument. It is but lately that those who prefer the *forceps*, have asserted, that they could deliver a woman in any case of difficulty not manageable with the *vectis*; but, as far as my experience enables me to judge, such a claim in favour of the *forceps* cannot be supported. The debate on this point of the question seems to have turned formerly, not upon the superior efficacy, but upon the greater safety and facility with which the *forceps* might be used; and upon the abuse, rather than upon the proper use of the *vectis*. I have not heard of any well authenticated instance, in which after being foiled with the *vectis*, and without a change of circumstances, any operator, who had acquired a commonly dextrous use of this instrument, was able to succeed with the *forceps*; though it is worthy of notice, that some who are accustomed to the use of the *forceps* only, think themselves at liberty to depreciate the *vectis*, and others who do not use them, speak of the *forceps* in terms of unjustifiable contempt.

It might be questioned, if we were to admit the objections made by the approvers of such instrument, whether they do not ultimately lead to the abandonment of both; and it is certain, that the greatest improvement in the practice of midwifery at the present time is to be attributed to an established aversion to the use of instruments of any kind, whenever they can possibly be avoided.

With respect to the second question, we will take the facts, and relinquish the arguments, used by those who have preferred the *vectis* to the *forceps*; which I allow sometimes to have been extravagant, as is not unusual with those who are the introducers of novelties to public notice, till experience has corrected partialities. If any confidence may be placed in medical reports, it appears that many cases have occurred, in which, after the introduction of the first blade of the *forceps*, it has been very difficult, or scarcely possible, without the hazard of mischief, to introduce the second blade, and the operation has been performed with the single blade, used as a *vectis*. Of this I have known and been informed of several instances. It appears also, that before the head of the child has been so low down as was stated to be eligible for using the *forceps*, that the *vectis* has sometimes been readily applied, and effectually used, with safety both to the mother and child, when the necessity of some particular case required the operation. When the head of a

child has not only been high up, but locked also in the *pelvis*, when there was not space sufficient to admit the two blades, or more force perhaps was required than the *forceps* in that situation enabled us to exert, and we should otherwise have been compelled to lessen the head, it has been feasible to apply the *vectis*, and the patient has been safely delivered, with a probable chance of preserving the life of the child; but of this I have not myself known any instance. Moreover, in all the deviations from that position of the head, which is most natural, as when it is turned with the face towards the *pubes*, or when the face presents, in which it is allowed that the *forceps* cannot be used with the utmost advantage or certainty; in all such cases, I know, the *vectis* may be applied and used both with safety and efficacy. From this statement it may be presumed, that the *vectis*, prudently used, is, in every case, an equally safe and efficacious instrument with the *forceps*, and a better adapted instrument in many cases which occur in practice. It is with this persuasion, that several teachers in the art of midwifery in London, at the present time, never use the *forceps*, or speak of them in their lectures; while others, to whose judgment I owe much respect, continue to use the *forceps*, and I think I have advanced more than experience will justify in favour of the *vectis*. But these different opinions respecting the preference due to the *forceps* and *vectis* prove to my mind, that in the generality of cases, either instrument may in expert hands be used with equal safety and advantage. I may also be permitted farther to observe, that I know several gentlemen of eminence, in the early part of their lives, accustomed to use the *forceps*, who discovering, by accident or trial, that they were able to afford every assistance with a single blade, have abandoned the *forceps*, afterwards never using more than a single blade, or the *vectis*; but I never knew an example of any person, who, having been accustomed to the *vectis*, relinquished its use and resorted to the *forceps*. The reader will observe, that in giving my opinion of these instruments, I do not speak of their abuse, but of their use on really necessary occasions; and may be assured that I generally consider disputes about the preference of instruments, among the frivolous and most unworthy occupations of men of understanding.

SECTION XI.

ON THE MANNER OF USING THE VECTIS.

By the first accounts it appears that the *vectis* was recommended, not only in such cases as were thought fit and suitable for the *forceps*, but to supersede the necessity of lessening the head of the child; It was, in short, asserted, that no other assistance could, in any case, be required, beyond that which we were enabled to give with the *vectis*. But if those accounts were allowed to be true, they would prove the miserable state of the principles and practice of midwifery at the time, and in the country in which they were written, in much stronger terms than they would describe the excellence of the instrument; or that such degrees of obstruction did not exist, as are frequently met with in this country.

The general condition and circumstances of labours before stated, as requiring the use of the *forceps*, will hold good, and with equal propriety, when the *vectis* is intended to be used; and the rules already given for the *forceps* will shorten what we have occasion to say respecting the manner of using the *vectis*. For though this instrument might be applied when the head of the child was high in the *pelvis*, or even when it was firmly locked in the the *pelvis*, in cases of great emergency, success in the management of such cases depending upon much previous knowledge and experience with the instrument, I dare not attempt to form a precise rule for the extent of our conduct with the *vectis*, that is, how high we may venture to introduce it, or with what degree of force we may use it. But when, without regard to the facility with which the *vectis* may be introduced, or any other consideration except the necessity of the case, under the circumstances before stated, we have determined upon using this instrument, the patient being placed in the same situation, and every thing prepared as when the *forceps* are to be used, the operation is to be performed in the following manner:

Pass two fingers, or the forefinger of the right hand, to the ear of the child, and introducing the *vectis* between the fingers and the head of the child, conduct it slowly forwards till the point of the *vectis* reaches the ear, wherever that may be.

Then advancing the instrument as if it were a blade of the *forceps*, carry it on till, according to your judgment, the extremity of the blade may reach as far, or a very little beyond, the chin of the child, when the line of the head, on which the instrument rests, will be in a straight direction from the *vertex*, over the ear, to the chin of the child; and this is the most favourable position in which it can be placed. Then grasping the handle of the instrument firmly in the right hand, wait for the accession of a pain, during the continuance of which, raise the handle of the instrument gently but firmly towards the *pubes* at the same time exerting a small degree of extracting force. When the pain ceases, let the instrument rest; and when it returns, repeat the same kind of action; and every time of acting endeavour to lessen the pressure on the soft parts of the mother, with the two fingers, or the inferior side of the palm of the left hand placed in such a manner as to form, in some sort, a cushion on which the instrument may play, or be supported. By a repetition of this action during the continuance of the pains, the head of the child will soon be perceived to descend, and the face to turn gradually towards the hollow of the *sacrum*. But should the very moderate force we have recommended be found insufficient to bring down the head of the child, it must be gradually and cautiously increased, till it is sufficient to answer the purpose; and this may be done consistently with the safety both of the mother and child. When the *vertex* begins to fill and protrude the external parts, it is probable there may be no farther occasion to act with the instrument; or, if further action be required, it must be extremely gentle, taking all possible care, by turning the handle towards the *ischia* or side of the *pelvis*, by supporting the *perinæum*, and by slow proceeding, to guard against a laceration of the parts, as was before advised.

During the operation, the *vectis* being confined to that part of the head where it was originally placed, must, as the head descends, necessarily change its relative situation to the mother, and be gradually turned from the *pubes* to the side of the *pelvis*; as was remarked of the handles of the *forceps*.

It is also to be observed, though from the name of the *vectis*, it might be supposed we had the power of acting with it as a *lever* only, that it will be found to possess a considerable degree of extracting force, even when the curvature is but small; and that we are able at the time of using it, to direct with convenience, and in various ways, the head of the child as it descends.

In using the *vectis* some have recommended the application of

it towards the hollow of the *ſacrum*, and ſpoken of the advantages of this mode of application. But I have perſuaded myſelf, that the opinion which could lead to this practice was erroneous, that the instrument would then be worked with leſs efficacy, and there would be a greater hazard of doing miſchief to the mother and child.

It may laſtly be obſerved, that ſome gentlemen have, by frequent practice, acquired ſuch wonderful dexterity in the uſe of the *vectis*, as to finiſh the operation of extracting the head of a child with one ſingle action of the instrument. But being ever afraid of ſacrificing ſafety to dexterity, I only pretend to deſcribe a method of uſing this instrument ſecurely and efficaciously ; and muſt therefore be excuſed from commenting farther on all that has been unadviſedly objected againſt, or advanced for, the uſe of the *vectis*, under various circumſtances*.

* See a full and accurate hiſtory of the *Vectis* in, *Observations on Human and Comparative Parturition* by R. Bland M. D. A. S. S.

CHAPTER XII.

SECTION I.

ON LESSENING THE HEAD OF THE CHILD.

HAVING finished all the observations we had to make on the use of those instruments, which have been contrived to answer the first intention in practice, that of preserving the lives of both the mother and child, we come to consider an operation yet more important, though the necessity of performing it far less frequently occurs. In this operation being convinced that, under certain circumstances, it is impossible that both their lives should be preserved, we feel ourselves justified in acting as if the child were already dead, as the only measure by which the life of the mother can be preserved.

This operation has ever been esteemed of the utmost consequence with regard to its principle and practice. The right or equity of taking away one life for the preservation of another being doubted, the question was referred to divines, as the most competent judges of the case; and by them it was decided to be unlawful to take away one life, on any account, for the preservation of another*. The reference of the question may perhaps be considered as an instance of humanity and benevolence, and in some measure, as a proof that this operation had been performed too frequently; and the decision seemed actually to forbid it altogether. But, as far as the general determination could be supposed to relate to this operation, there appears to have been fallacy in the statement of the question, and sophistry in the reply. For by the first it was presumed that the child was always living when this fatal operation was

* *Peu in his Pratique des Accouchements, has preserved the forms of the statements and decisions upon this subject by the Doctors of the Sorbonne.*

Non enim licet unum interficere alterius vitæ gratia. Rodericus e Castro.

to be performed, though that could not universally, nor indeed, very frequently, have been the case; and by the latter it was allowed, that the authority of the decision did not apply, or might be suspended, if there were reason to believe that the child was already dead. It was probably for these causes that all the symptoms of a dead child, certain and equivocal, were collected and distinguished by authors with such great assiduity and circumspection, because they were the authorities for and the justifications of, a practice, which, without them, would have been very reprehensible, if not punishable.

In cases of dangerous parturition the prerogative of deciding upon the life or death of the mother or child, was supposed by some to be inherent in the husband, to whose powers of judging, or of feeling, appeals were to be made. This erroneous opinion, though I have formerly heard it mentioned in practice, being also contrary to the rights and interests of society, never could have satisfied the mind, or justified the conduct of any person, who should have submitted to be governed by it. Nor do these cases admit of such election; for if the husband had preferred the child, his wish of preserving it at the expense of the life of the mother could seldom have been gratified; he at least could be no competent judge of the necessity of the case, and certainly could claim no peculiar dominion over the life of either of them. Nor do I think it reasonable and just, that the head of a child should ever be lessened on the testimony and judgment of any single person, however well he may be informed and experienced.

True religion, and the common sense of mankind, appear to have nothing contradictory. The doctrine they teach of its being our duty to do all the good in our power, and to avoid all the mischief we can, is applicable to the exigencies of every state, and we may be easily reconciled to it on the present occasion. In some cases of difficult parturition it is not possible that the lives both of the mother and child should be preserved. Of the life or death of the mother, we can, under all circumstances, be assured; but of the life or death of the child there is often reason to doubt, when we are called upon to decide and to act. The destruction of the mother, or, which has by many been considered as synonymous, the cesarean operation, would not, in the generality of cases, which may bring the operation of which we are speaking under contemplation, contribute to the preservation of the child, that being already dead; but the treatment of the child as if it were actually dead, with as much certainty of success as is found in other operations, secures the

life of the parent. It then becomes our duty, and is agreeable to our reason, to pursue that conduct, which will give us the most probable chance of doing good; that is, of saving one life, when two lives cannot probably or possibly be saved.

I forbear to inquire into the comparative value of the lives of an adult and a child unborn, because that does not seem to me to be the present question; and the subject has been in that view well considered*. Nor does it seem necessary to our purpose to discuss another question, which has been lately agitated, whether a child unborn has any feeling, because the fact of their having feeling, of some kind, or in some degree, may be clearly proved by any one who will observe the effect of irritating the soles of the feet of a living child when these present, or the palm of the hand when that presents, the body and head being yet retained in the *uterus*. But there is an argument to be drawn from the circumstances which sometimes occur in cases of laborious parturition, which applies with greater force towards justifying this operation, in preference to any other which might prove more hazardous to the mother, than any abstract reasoning. In all difficult labours, properly so called; especially such as are occasioned by disproportion between the head of the child and a small or distorted *pelvis*, one of the first effects of long-continued and strong pains is the death of the child. The head of a dead child collapsing and admitting of pressure into a form more suitable to the dimensions of the *pelvis*, than a living one, will frequently be expelled through a space too small to allow that of a living child of the same size to pass. But after this change, which follows the death of the child, should the head remain too large, putrefaction advancing, the integuments of the head begin to decay, and the bones to loosen from each other. By the continuance of the action of the *uterus* upon the child the integuments of the head at length burst, and the bones being separated, the brain of the child may be evacuated through the opening. The bulk of the head thus lessened may be excluded by the force of the pains, and the body, impaired by an equal degree of putrefaction, may readily follow, and the labour terminate without the assistance of art. All these changes may be, and sometimes, to my own knowledge, have been gone through with perfect safety to the mother, without the interposition of art, so that the artificial opening of the head of a child is, in fact, no more than an imitation in one case of what happens spontaneously in another; and such imi-

* See Dr. Osborn's *Essay on Laborious Parturition*.

tation is the true ground, on which the whole practice of surgery has been founded. It may also be observed, that the resources of nature, in every thing which relates to parturition, are infinite, and constantly exerted for the preservation of both the parent and child ; yet when the two objects are incompatible, the life of the child is almost uniformly yielded to that of the parent.

From the number of signs of a dead child given by authors, and by the context of their writings, it appears to have been the practice, whenever the death of a child was ascertained, to use the means of extracting it ; or to have given medicines to excite and aid the constitution for expelling it, without any reason drawn from the present state of the mother, but to prevent remote and suspected danger. This practice corresponded with the theory of the ancients, that a living child was born by its own efforts, but a dead child, being destitute of all power, must be excluded or extracted by art. But no fact is more clearly proved than that of a dead child remaining in the *uterus*, inoffensively, for several weeks before the accession of labour, and being then expelled in a manner perfectly natural. No injurious absorption takes place, nor does the *uterus* suffer by being in contact with it. The certainty of the death of the child would not therefore, immediately, indicate the necessity of the operation we are considering* ; but the reasons for, and justification of it, must be deduced from the state of the mother ; and that state must be such as to prove her absolute inability to expel the child ; and the impossibility of extracting it by any of those means, which have been contrived for the purpose of delivering women, giving at the same time a chance for preserving the lives of children ; together with the uselessness and danger of delay. But as the signs of a dead child, if decisive, would on many occasions, have their influence on practice, and might at least induce the most cautious and prudent man to hasten the time of performing this operation, which he might otherwise defer ; and as the knowledge of these signs will lead to a more full investigation of the subject, it is proper to enumerate them, and to inquire at the same time how far each of them may be allowed to determine the fact which they are adduced to prove.

* *Si sub ipsis partus doloribus ac laboribus infans emoritur, nec tamen minus decenter, sed naturaliter compositus esse apprehenditur, non statim, quamdiu scilicet de morte non satis certus sumus, unci vel alia admovenda sunt instrumenta. Heister. Cap. CLIII.*

SECTION II.

ON THE SIGNS OF A DEAD CHILD.

1. *Recession of the Milk, and Flaccidity of the Breasts.*

SHOULD the child die when a woman is far advanced in her pregnancy, and before the commencement of labour, these signs are seldom wanting. But if they were to be offered as proofs of the death of a child destroyed by the severity of a labour, it would have been needful to have compared the state of the breasts at two specific times; first, on the accession of labour, when the child was living and they might be turgid; and, secondly, in the advanced state of labour, when the child was dead, and they might have become flaccid. But as it is not customary to inquire into the state of the breasts before some suspicion is entertained of the death of the child, and as those of no two women, under any circumstances, exactly resemble each other, and as the milk is often secreted irregularly at different periods of pregnancy, all indications taken from the state of the breasts, or the secretion and quantity of milk, must be uncertain, and any judgment founded upon such indications, extremely liable to error; granting, however, that in some situations, they do become common, or collateral proofs of the question we may wish to determine.

2 *Coldness of the Abdomen.*

When children die towards the conclusion of pregnancy, women not unfrequently complain of coldness of the *abdomen*, and, at the instant of their death, there is usually one violent shivering. But when women in labour speak of this coldness, there is not actually external coldness, but a sense of it felt by the patient. A supposition that a dead child is colder than a living one, is the principle which gives to this sign its chief importance. But whether a child has been dead for a short or a long time, it is generally found to be of the same degree of heat with the *uterus* in which it was contained, and it is even hotter than the *uterus* while it is in the act of putrefying. The principle being fallacious, the inferences must often mislead, and a

child is, not unfrequently, born living, though the mother, before her delivery, complained of this coldness; which may be produced by some contingent circumstance, as the great heat of the room when she is in a profuse perspiration, or the sudden admission of cold air under the bedclothes in winter. Little stress is to be placed on this sign alone, but, when accompanied with others, particularly a considerable diminution of size, it must increase our suspicions of the perilous state of the child.

3, *Mechanical weight of the Uterus.*

If a woman in labour, or in the latter end of pregnancy, should feel the *uterus* fall with a sense of increased or unresisted weight, when she turns from one side to the other, or changes her position, it is often surmised that the child is dead; the bulk of the child being diminished, and all that resiliency observed to exist in every living body being lost. But this sense or effect may often be explained in a more satisfactory manner from other causes, especially when a woman is in labour. Should the waters of the *ovum* be suddenly discharged, the *uterus* will contract till it comes into contact with the body of the child; but the integuments of the *abdomen*, not contracting with equal celerity, and the *uterus* wanting that support which they afforded when it was fully distended, must of course fall to which ever side the woman may turn. Should the waters be discharged slowly, or should the integuments of the *abdomen* contract speedily, or should the head of the child drop into the *pelvis* immediately after their discharge, there would not be this sense of unsupported weight, whether the child were living or dead; because in one case the *uterus* would be held firm by the general contraction, and in the other, the child would be prevented from that kind of motion by its confined position.

When a child dies in the latter part of pregnancy, the flaccidity and subsidence of the *abdomen* are considerable; but it is from a very great degree of these we are led to suspect either the death or wasting of the child, some subsidence being one of the natural changes which precede labours. From the appearance of infants born alive, it is often evident, that they are less than they were some weeks before they were born; and the manner in which these changes are made, frequently shews, whether they died suddenly, or declined gradually.

4. *Want of Motion of the Child.*

The kind and degree of motion which may be caused by the child varies in different women, and at different periods of pregnancy. By some the child is scarcely ever perceived, and with others it is scarcely ever at rest, but it is often quiet a few days before, and in the time of labour. By the motion of the child its living state is ascertained; but the want of motion does not prove that it is dead nor would it, for that reason, be justifiable to perform any operation, which might be injurious to it, if living,

Some pregnant women, even among those who have before had several children, have scarcely ever been able to perceive the motion of the child through the whole time of pregnancy, and then the regular increase of size is our best proof of its well doing. Others have asserted that they have felt the motion of the child, though the event has proved that they were not pregnant. Others have not doubted of the life of the child, though, after its birth, there were certain marks of its having been long dead. In long and very severe labours natural affection may be overcome by present suffering and distress, and women might conceal their knowledge of the motion of the child from the hope of a more speedy delivery, if they concluded, that the judgment of the attendant was guided by this circumstance. Every allowance must be made, and every consideration had for human nature, humbled by infirmities and misery. The fears and affection of friends will also warp their judgment; but our greatest tenderness and the propriety of our conduct will be shewn, not by a compliance with requests and solicitations, but by following the dictates of our own reason and judgment, for we are not to be governed or alarmed by unfounded apprehensions of danger, but by its actual existence.

5 *Fator in the Apartment of the Patient.*

The putrefaction of the child would be an indubitable mark of its death, and might create a very offensive smell in the apartment in which the patient was confined; but every putrid child does not yield an offensive smell, and such smell may be occasioned by several other circumstances. If a child should die in the *uterus* from external injury, or any internal cause, and become putrid before the membranes of the *ovum* were broken, it would have a peculiarity of smell, but not that *fator*

which every animal substance emits, while it is in the act of putrefying under the influence of the open air. The *fator* to which we now allude, can only appertain to a child which was living in the beginning of labour, and died in the course of it, after the discharge of the waters; and in such cases, when putrefaction does begin, it is commonly very rapid in its progress. The general smell of putridity in the apartment of a person in labour, is to be admitted with very great caution as a sign of a dead child; for if the room be small, or crowded with company, or long kept hot and uncleanly, or the common offices of life are performed in it, as is usually the case among people of the lower class, a similar effect would be produced as when the child is dead and become putrid.

6. *Fator and ill Appearance of the Discharges.*

The *fator* here meant is also supposed to arise from the putrefaction of the child, and the ill appearance to proceed from a mixture of *meconium*, sanious, or other matter which might be supposed to flow from a putrefying child, with the common uterine discharges. But the appearance of these discharges naturally varies in different women, according to their constitution, and to the qualities of the waters of the *ovum*, in the appearance of which there is a very great difference. They become altered likewise by contingent circumstances, as the casual retention of the discharge, the mixture of a small quantity of blood, or slight inflammation of the parts, which in some cases give a strong scent to them, hardly to be distinguished from putrid *fator*. With every appearance of the uterine discharges, children have been born living and healthy; and when they have been long dead, those have in many instances been so little changed, as not to raise suspicion of any harm having befallen the child, in the minds of very experienced men. The proposal of any operation which would be injurious to the child, if living, would not therefore be justifiable, merely on account of the smell or appearance of the discharges, without other collateral proofs of its death, or a conviction from other circumstances of the operation being absolutely necessary.

7. *Evacuation of the Meconium when the Head of the Child presents.*

Should a child present with the breech or inferior extremities, the evacuation of the *meconium*, which is an absurd name

given to the excrements first evacuated by the child after its birth, is one of the proofs of such presentation. But when the head presents, if the labour be very severe or tedious, the waters will be tinged of a greenish colour, or pure *meconium* may be forced away, and, with such appearances, the child is often supposed to be dead; from a presumption, that if it were living, the *sphincter* of the *anus* would act with power sufficient to prevent any discharge. But by experience it is fully and frequently proved, that a child may be born living, though the *meconium* should come away when the head presents; its evacuation proving no more than the weakness of the child, or the degree of compression it has undergone. The discharge of the *meconium* may also depend upon the quantity contained in the bowels, or some casual pressure upon the *abdomen* of the child. We may however, in general conclude, when the *meconium* does come away in a natural presentation, that the state of the child is not void of danger; and for many years I never saw a child, presenting with the head, born living, when the *meconium* had come away more than seven hours before its birth. But at length, I met with a case, in which the *meconium* was discharged for more than thirty hours, at the end of which time, though the woman was delivered with the *forceps*, the child was born healthy and strong; and since that time I have had many equally convincing proofs, that the coming away of the *meconium* is a very doubtful sign of the death or dangerous state of the infant, whatever may be the presentation.

8. *Edematose, emphysematose, or other peculiar Feel of the Head of the Child.*

In many cases in surgery, information may be gained, and the judgment assisted by what is called the *tactus eruditus*, or that faculty which enables us to perceive and discriminate by the touch, with greater accuracy than by any evident or describable marks. It has also been said, that we may decide in many doubtful cases, by the feel of the head, whether a child be living or dead. But as we know that in surgery, the most discerning and expert in this faculty are often mistaken, when they desert common evidences, so, opinions formed on such ground, would not authorize an operation to which they might be supposed to lead, in the question on which we are now speaking. For the integuments of the head of a child often become edematose to a considerable degree, from pressure in its

passage through the *pelvis*; and sometimes emphysematose from a continuance or increase of the same pressure, when the child may, in all other respects, be perfectly well. If the integuments be squeezed into a smooth, round form, this is said to be unfavourable; but when they are corrugated, the tumefaction, though equally great, is thought to be of less consequence; the former being supposed to prove the absolute separation of them from the *cranium*, and the latter, that their attachment remains; but this difference is in many cases accidental. The original connexion of the bones of the head is such as to allow of their being pressed close to, or over, each other with safety to the child; yet when this has been long dead, and their natural connexion destroyed, they may sometimes be perceived to be loose and distinct. The loose state of the bones of the *cranium* is frequently such as to leave no doubt of the death of the child, as well as the abrasion of the cuticle or the falling off of the hair; but proofs of things self-evident are not wanted in practice, but such as will guide us in doubtful cases. In very difficult labours, I have more than once seen a portion of the integuments of the head of the child slough away, and the bone laid bare, without destroying the child. Probably I may have before observed, that whenever children die in the *uterus*, the greater the degree of putrefaction in which they are expelled, according to the time during which they have been dead, the more favourable is the indication to the mother; shewing I suppose, that the health and vigour of her constitution in general, and of the *uterus* in particular, are not impaired. But if a child should remain dead in the *uterus*, for any length of time, without becoming putrid, this circumstance might be considered as a proof that the powers of action in the mother were reduced to a state of dangerous weakness; as food remaining unchanged in the stomach would be a proof of the debility of the part.

Many signs of a dead child have been mentioned by authors, under the denomination of equivocal, as the extreme languor, or livid paleness of the countenance of the mother, the offensive smell of her breath, and several others. But if it appears that those signs, which have been called certain, are in fact doubtful, it will follow, that very little reliance ought to be placed in those, which are acknowledged to be equivocal. If, however the propriety of performing this operation ought not to be decided even by the certain knowledge of the death of the child, but by the circumstances of the mother absolutely requiring it for her preservation; then, the consideration of the life

or death of the child becomes of less importance. Because if the operation, when really necessary for her safety, were not to be performed, the life of the child would not be preserved, and that of the parent would be inevitably lost.

SECTION III.

ON THE CAUSES OF THE DEATH OF THE CHILD.

THE proportion of children still-born to the number of births has not been accurately determined, nor is it easy to decide the question ; as it may probably vary in different countries and situations, and in different years. But it seems to be generally greater than from a transient view would be apprehended, and perhaps it is far greater in human beings than in animals. The death of a child in the *uterus* may be occasioned by various causes independent of the mother, as by local inflammation or other disease of some part of its own body, essentially necessary to life ; by some original imperfection in its structure, which may prevent its acquiring more than a certain size, or existing beyond a certain time ; by the smallness or morbid state of the *placenta*, hindering the proper communication between the child and the *uterus* ; by a partial or total separation of the *placenta*, or, by the rupture of some of the large vessels which run upon its surface : by the vessels of the *funis umbilicalis* becoming impervious ; by the circulation through them being obstructed by the casual tying of a knot ; by untoward pressure of the body of the child upon the *funis* ; or by this becoming dropical or otherwise diseased, and probably various other causes.

The child may also be destroyed by affections or diseases of the mother, as by the sudden and violent impression of fear, joy, or other tumultuous passion ; by the irregularity of the parent's life ; by fever ; by improper or unwholesome diet ; by any cause capable of depriving the child of a proper quantity of nutriment, or depraving the quality of that with which it may be supplied ; or by accidents which produce some positive injury upon the body of the child, through the integuments and parts with which it is invested and naturally defended. Some of these are beyond the power of art to prevent or remedy, though others might by proper care and management be

obviated or relieved ; but at present we want only to discover those causes of the death of a child, which may occur in the time of labour.

To the inconveniencies and danger, which may arise in the course of a labour from the disproportion between the size of the head of a child and the dimensions, of the *pelvis*, we must submit ; as no judgment or skill can do more than teach us to wait patiently for the effect to be derived from the efforts of the mother, and the accommodating construction of the head of the child. Though the degree of compression, which this may undergo in a very tedious or difficult labour, might be judged inconsistent with the safety of children, they will often, under such conditions, be born healthy and vigorous, and the parents recover more speedily and perfectly, after such labours, than after those which were natural and short. The same observation will also hold good of the resistance made by the soft parts to the passage of the child through the *pelvis*, unless their rigidity should proceed from local inflammation. But should the natural efforts be interrupted or subdued by fever, debility, or any other adventitious cause, or should there be local disease, the state of the patient would require the assistance of medicine or of art, according to the circumstances which might supervene. Yet it is in common observation, that far the greater number of those labours which have been considered as difficult, and which really were such towards the conclusion, were not in fact occasioned by the absolute state of the patient, but by interposition, and the desire of accelerating labours, which in their nature required a certain time for their completion. This interposition has chiefly consisted of two points of practice, both extremely reprehensible ; the artificial dilatation of the *os uteri*, and the premature rupture of the membranes. By such practice the order of the labour becomes disarranged, and there often follow occasions to exercise art, for the relief of those evils which were originally caused by the improper use of art, to the great hazard of the parent or child. So long therefore as labours proceed naturally, they may be proper objects of our observation, reason, and judgment, but cannot be considered as the objects of art. Yet when they are proved to be beyond the efforts of nature to accomplish, the assistance of art becomes justifiable because it is necessary, and we may be reconciled to the fate of the child, if the life of the mother cannot possibly be preserved by any means consistent with its safety ; but we are to be convinced of this necessity by the most substantial proofs, before we presume to decide upon an action so important both in a moral and scientific view.

SECTION IV.

ON THE INSTRUMENTS USED IN THIS OPERATION.

THE instruments with which this operation was anciently performed, do not appear to have been well calculated to answer the intention of the operator, effectually or safely. They consisted chiefly of hooks, single or double, blunt or sharp pointed, differing in form and length, which were fixed upon any part of the head with the view of extracting it forcibly. It being sometimes found impracticable to fix a hook firmly upon the head, other instruments were invented and used to make an opening in which a hook might be fixed, but without any intention of lessening the bulk of the head. All these instruments it would be useless and tiresome even to enumerate; but it is remarkable that *Mauriceau*, a man of great experience and real ability in his profession, should have complained of difficulties in this operation which he could not surmount, from the want of proper instruments.

Perhaps there is no operation in surgery, which admits of a more precise description or distinction; than this of lessening the head. It consists of three parts: perforating the cranium; evacuating the brain and *cerebellum*; extracting the head; and three instruments have been commonly used for these purposes. The first was the scissars originally used by *La Motte*, altered and improved by *Smellie*; the second was in the form of a large spoon with serrated edges; the third was a hook or crotchet, straight or curved, to be used singly, or in pairs, like the *forceps*.

Many years ago, *Savigny* the instrument-maker, at my request, prepared two instruments, which I supposed to be fully sufficient for this operation, the evacuation of the brain not requiring a separate instrument. The first was a *perforator* in the form of *Smellie's* scissars, the blade being slightly curved in the manner of the scissars used for extirpating the tonsils, but without any cutting edge, which is somewhat dangerous and altogether useless; the second was a crotchet with a little degree of curvature and a very small hook, if compared with those before used. The *perforator* measures about nine inches in length, and has a stop on each blade one inch and a quarter from the point. The crotchet, which has a wooden handle

and a flat stem, should, when properly curved, be of an equal length with the *perforator*. These instruments, which are now almost in general use, are found to be very convenient, and fully adequate to every purpose in the performance of this operation; and as the intention is well understood, and the instruments simplified, both the difficulty and danger of the operation are infinitely lessened.

SECTION V.

ON THE MANNER OF PERFORMING THE OPERATION.

MUCH consideration is required before we determine to perform this operation, and, according to my judgment, it ought never to be performed on the opinion of any single person, if that of two can be procured. But when we have decided upon the necessity of its being done, besides great circumspection in the manner of doing it, there is occasion for our being resolute and persevering in our attempts to accomplish it; even when the difficulties to be surmounted appear to be too great for any degree of skill, or any force we have the power of using. One common error formerly prevailed in this and many other operations founded on an opinion, that it was needful to perform it speedily; but it is now proved by experience, and generally acknowledged, that the more calmly and slowly we proceed, the less chance there will be of failing, or doing mischief. As the sole aim of this operation is to preserve the life of the mother, without regard to the child, whatever its state might be, it will be our duty to be extremely careful to guard against every accident which might prove injurious or hazardous to the mother. But, as by following the distinctions specified in the last section we shall be able to mark and explain all the circumstances of the operation as they occur, we will abide by those distinctions in describing the manner of performing it.

SECTION VI.

ON THE PERFORATION OF THE HEAD.

THE ease or difficulty attending this and every other part of the operation, will depend upon the distance the head may be from us ; whether, for instance, it be descended and locked in the *pelvis*, or be lying at the superior aperture ; and upon the degree of distortion of the *pelvis*, which may be only so much as just to prevent the passage of the head, or so great as to render the use of the instruments both troublesome and dangerous. Some inconvenience may also be produced by the *os uteri*, should it not be completely dilated ; but this may rather be esteemed for extraordinary care than as a cause of difficulty.

Without regard to the part of the head which we mean to perforate, but deciding upon that which is most obvious and easy of access, as the most proper, the left hand flattened is to be introduced into the *vagina*, and the fore finger of the same hand is to be directed upon that part of the head where we intend to fix the point of the instrument. The *perforator*, held in the right hand, is to be conducted with the convex part towards the palm of the left hand, and with the point kept close to the fore-finger, till it reaches the part where we have determined to perforate. The fore-finger of the left-hand is then to be passed round the point of the instrument, that we may be assured we have fixed it in the right place, and that none of the soft parts of the mother are in the way of being hurt. With the instrument held firmly in the right hand, we must then press through the integuments of the head ; and, the point being fixed upon the bones of the *cranium*, begin to perforate, by turning with a semirotatory motion the handle of the instrument. This motion of the instrument, care being taken to confine the point to the place where it was originally fixed, is to be continued till we judge the bone to be actually perforated ; and we are to try occasionally, by advancing the instrument, whether the bone be perforated or not. When the bone is perforated, the instrument being pressed forwards will penetrate the head, and go on till it reaches the stops formed upon the blades. Then, fixing the finger and thumb of the right hand in the bows of the handle, or pressing the thick part of the hand between the stems, or calling for the help of an assistant, we should separate the han-

dles of the instrument to such a distance as to make a slit or opening of sufficient length in the *cranium* ; judging of, and in some measure guiding, the effect produced upon the blades by the separation of the handles, and by the finger of the left hand retained in its primitive position. The handles being then closed, the instrument must be turned in a transverse direction, and they are again to be separated in the same cautious manner, by which means a crucial opening of proper size will be made in the *cranium*. This being completed, the *perforator* is to be closed, and withdrawn in the same cautious manner in which it was introduced.

In this part of the operation the principal things which demand our attention are, first, that the instrument be carefully introduced ; secondly, that we be not alarmed at the discharge which follows the perforation of the integuments of the head, as that is to be expected ; thirdly, that the point of the instrument does not slip while we are perforating ; and fourthly, that the crucial opening in the *cranium* be sufficiently large, to allow of the exclusion of its contents.

SECTION VII.

ON THE EVACUATION OF THE CONTENTS OF THE HEAD.

A VERY large opening of the *cranium* has been generally considered as necessary for the well performing of this operation ; but this is not absolutely required in any point of view, nor can it always be made with safety. It must, however, be sufficient for the purpose of suffering the contents of the head to pass through it and for the evacuation of these, it was before mentioned, that various instruments had been contrived. But these instruments, especially the serrated spoon, appear to be both unnecessary and dangerous ; unnecessary, because the texture of the *cerebellum* being broken down, their evacuation will follow of course, as the head is propelled or extracted ; dangerous, because an instrument with many sharp points could not be frequently introduced and withdrawn without hazard of being hitched on the soft parts of the mother. Any smooth instrument of a proper size and length, such as the handle of a silver spoon, or a blade of the *forceps*, will answer the purpose of breaking down and evacuating the contents of the head safely and effectually. But I have generally introduced the crotchet

into the opening in the *cranium* ; and, turning it round frequently, in various directions, especially near the basis of the skull, have completed this part of the operation without difficulty. With all the care which can be taken, it is not always possible to do this on the first attempt ; but, if in the course of the operation it should be found that the head does not readily collapse, because some part of its contents had escaped the action of the instrument, the same method may at any time be repeated, without delaying the operation.

SECTION VIII.

ON THE EXTRACTION OF THE HEAD.

It was formerly a rule of practice, whenever the head of the child was opened, that the efforts to extract it should immediately commence, and be continued till the purpose was accomplished. With all the cautions which have been given for ascertaining the necessity of the operation before it was performed, it was strongly inculcated, that we should be on our guard not to defer it till the strength of the patient was too much exhausted ; lest by such delay we should altogether lose the advantage that would result from the natural efforts, which might otherwise be made for the exclusion of the lessened head ; and when the child was extracted, lest the patient should be reduced to a state of the greatest danger from mere debility ; more especially if there should be a loss of much blood, before, or after the exclusion of the *placenta*. Our conduct, with regard to the extraction of the head, must then depend upon the state of the patient ; whether that state will permit us to wait for the advantages to be derived from the putrefaction and compression of the head from the natural pains, or whether the head should be speedily extracted by art. If, from the great distortion of the *pelvis*, we should have been convinced of the necessity of performing this operation in the beginning, or early part of a labour, the head when lessened may be left for many hours to undergo those changes which putrefaction occasions, to the diminution of its bulk by compression, to its gradual descent into the *pelvis*, when it may be readily extracted, or to the chance of its final expulsion without assistance, as the reason and nature of the case may indicate or require. Under such

circumstances the late Dr. *Christopher Kelly** informed me, and I believe the practice originated with him, that he had left the head of a child, after the evacuation of its contents, for more than twenty-four hours, without making any artificial attempts to extract it; and that the operation was, by this delay, rendered more safe, and infinitely more easy. The late Dr. *Mackenzie* also informed me, and many other persons, that he had in the latter part of his life followed this practice with success. But the matter has been more fully discussed, with great ingenuity, and as much precision as the question admits, by a late very sensible and judicious writer*, who in a case of which I was a witness, left the head of a child more than thirty-six hours after it had been lessened, and then extracted it; the woman recovering without any untoward symptom. Of the *pelvis* of this woman, who, I am informed, is now dead, we were never able to get the exact dimensions, as she removed from her usual habitation, and could not afterwards be traced.

When the head of the child has been lessened, the length of time during which the patient may therefore be trusted in expectation of favourable changes, must be left to the judgment

* *The papers of my worthy friend Dr. Kelly are in the hands of my son-in-law Mr. Croft, who found among them the following account of the individual case, probably, of which the doctor had informed me, which I transcribe in his own precise words.*

“*March 11, 1763. — has a pelvis extremely narrow, and, by the measure I took, do firmly believe the distance between the os pubis and projection of the sacrum is not more than two inches, therefore I knew it was in vain to hope to bring the child alive by any means whatever: therefore, for her safety, I opened the head freely, and emptied the cranium, in about sixteen hours after being first called to her, and then left it to settle into the pelvis twenty-four hours (as in the case of Mr. Ford’s patient) before I delivered her, which I did with tolerable ease, by means of the blunt hook only. She recovered as well as possible. This was her first child. She was so rickety when a child, as not to be able to walk till nine years of age, and is now very short. Her name is ———.*”

The pelvis of this woman came at length into my hands, and in some parts of the superior aperture does not measure more than one inch and a quarter, though on one side the space is equal to two inches, D.

* *Essay on Laborious Parturition, by W. Osborn, M. D.*

that may be formed of every individual case which may be the immediate object of practice. In some cases, from the precarious state of the mother, there will exist a necessity of extracting the head as speedily as we can with safety; yet the general principle to be established is, that the longer we have waited in any case, the more easily will the head be afterwards extracted. But the patient is to be carefully watched that we do not wait too long, lest unfavourable symptoms should come on, and the end for which the operation was performed be ultimately defeated.

Sooner, or later then, according to the state of the mother, it will be necessary that we should begin to make our efforts to extract the head of the child; and taking care, in the first place, to remove cautiously any loosened or sharp pieces of bone, I have been accustomed to avoid using the crotchet, or any kind of instrument, till I have tried what advantage was to be gained with my fingers. With this view, introducing the fore-finger of either hand, armed with my glove, or some such contrivance, into the opening in the head, and then bending it in the shape of a hook, I have pulled with all the force it enabled me to exert, repeating my attempts at intervals when the natural efforts of the mother returned.

Should the head of the child be so high in, or above, the superior aperture of the *pelvis*, or this be so much distorted as not to admit of my giving this kind of assistance, or should it be unequal to the purpose, I carefully introduce the crotchet, guided by my left hand, into the opening in the head; and, fixing the point of the hook as far from the edge of the bone as its curvature will allow, I begin to pull moderately by the handle held in my right hand, guiding at the same time the hook of the crotchet with the fingers of the left, if it should happen to tear away the bone, or slip.

If on trial the crotchet be found firmly fixed, but the head be too much impacted in the *pelvis* to be brought down with the force first used; that is, supposing the force required to extract the head be equal to 10, and the force which can be exerted by the crotchet not to exceed 5; no other purpose can be answered by striving too earnestly with the force which cannot be made to exceed 5, except tearing away the piece of bone in which the crotchet may be fixed, which does not facilitate the operation. We are to be satisfied with the steady exertion of the force 5, which being continued, will at length be found sufficient for our purpose, the resistance gradually diminishing, and the force 5 remaining. In the repetition of our attempts to

extract the head, which must be made at intervals, should the bone in which the instrument was fixed, be loosened and come away, wholly or in part, the crotchet must be again introduced and fixed in another place and the same method of proceeding followed; remembering also when we extract, to pull with some variation in the direction, but always in the line of the cavity of the *pelvis*. In almost every case of difficulty the principal obstacle or cause of the difficulty is at one particular part of the *pelvis*, and when the head has passed that part there is no farther occasion for using much force; and we are afterwards to proceed very circumspectly, that there may be no laceration of, or injury done to the parts of the mother, internal or external. The principle I wish to impress on the minds of those who may be embarrassed with difficulties of this kind is, that time is equivalent to force, and that no advantage will be obtained by pulling away small pieces of bone except such as were loose and likely in their passage to injure the soft parts of the mother, or by acting hastily or violently. On the contrary, when the instrument is once firmly fixed in a part of a bone which affords a good hold, I have been cautious not to tear it away by pulling rashly, considering that as something like breaking the instrument with which I was performing the operation. Where the resistance has been very great, after making my first efforts with all the force and skill I could safely exert without success, leaving the crotchet fixed, I have desisted for an hour or longer, and then renewed my attempts.

In a case of very great difficulty it is however possible, that all the bones of the *cranium* might be brought away successively, and nothing of the head remain but the basis of the scull, with the integuments. In such a case it has happened, quite unexpectedly, that I have succeeded in bringing down the remainder of the head, merely by grasping the integuments firmly in a mass, or even in distinct parts, and pulling by them in a proper direction. But, if these should be found insufficient, the crotchet is to be introduced again, and fixed upon the basis of the scull on any part where we can get a firm hold, and this assuming a more convenient direction will be readily brought down. I have not found, in cases of this kind, that I have acted from a preference for fixing the instrument in this or that part, or in this or that manner; but giving myself time to reflect, the exigence of the case has dictated what I ought to do, so that I am not solicitous about any particular method. Some have thought that it was of great importance to fix the crotchet on the outside of the head, and others have insisted on the pro-

priety and superior advantage of fixing it on the inside ; but I am persuaded that such things are of little consequence, and that in the course of a difficult operation it may be found necessary and useful to fix it in either way.

If the disproportion between the cavity of the *pelvis* and the head of the child be very great, we may allow it to be possible, that all the bones of the *cranium*, together with the basis of the skull, may be brought away, yet the body of the child may remain above the superior aperture of the *pelvis*, with absolute inaction of the *uterus*. This circumstance may require different methods of treatment. If the space between the projecting bones of the *pelvis* would permit the flattened hand to be passed into the *uterus*, it might be most expedient to turn the child and deliver by the feet, which, thus situate, I have more than once done. But, if the distortion of the *pelvis* will not allow the hand to pass into the *uterus*, or if there be reason to apprehend mischief to the *uterus*, from the jagged or loosened pieces of bone, the crotchet must be again introduced, and fixed upon the chest of the child, where it may probably meet with some part that will bear a sufficient degree of force for extracting it. Should this not be the case, the crotchet must be repeatedly tried, by which the contents of the *thorax* and *abdomen* may be evacuated, and the general bulk of the child's body very much lessened. Then, trying to fix the hook of the instrument on some part of the spine, or bringing down the arms, we shall at length succeed and extract the body of the child, whole or in parts, though we may have been frequently baffled. In an operation difficult as this now described, disagreeable as it may appear, and really is, having only occasion to attend to the extraction of the child, in any manner, without doing mischief to the mother, the mind of the operator may be at ease, and he will then avail himself of every advantage which may offer towards answering his purpose. On the whole, I have never known a case attended with so much difficulty, that it could not be surmounted by steady and slow proceeding ; and the operator, after all his difficulties, if he have acted cautiously, may be repaid by seeing his patient recover, as well, or better, than after the most easy labour.

SECTION IX.

ON THE SUBSEQUENT TREATMENT.

WHEN a child has been extracted in the manner before described, the *placenta* will commonly be expelled in a natural way ; but should any difficulty arise, this must be managed according to the rules which will be given in the chapter on Hemorrhages.

Women in general recover well after this operation, provided it was not delayed till some irreparable injury was already done to the parts of the mother, and was performed with care. Besides the treatment which may be proper for all woman in child-bed, it will be incumbent upon us to be particularly careful in these cases that the urine be voided ; and, if the patient should not be able to do it by her own efforts, that it be drawn off with the catheter, within a short time after her delivery, The use of the catheter is also to be continued, twice in the course of twenty-four-hours, till she may become able to expel the urine ; lest there should be inflammation on any part of the bladder or *meatus urinarius*, and a slough be cast off, which, unless it were merely a small portion of the *meatus*, might be followed by an involuntary discharge of urine ever afterwards ; which I consider as one of the most deplorable accidents in the practice of midwifery.

While I am correcting these papers, a case of this kind has unfortunately occurred, and with circumstances that no knowledge or caution could have foreseen or prevented. This patient, after a very hard labour of a dead child, voided her urine without trouble of any kind, for ten days after her delivery. She then complained of some uneasiness after every evacuation, but no difficulty in voiding it. Yet on the fourteenth day, a small slough was thrown off from the bladder. I mention this case, because I have always suspected the sloughing to be occasioned by the want of due attention to the urine, or a prudent use of the catheter ; and there can be no doubt but that negligence in these two points has generally been the cause of such accidents.

SECTION X.

ON THE PROPRIETY OF BRINGING ON PREMATURE LABOUR, AND THE ADVANTAGES TO BE DERIVED FROM IT.

WE have before alluded to this operation as a method of preserving the lives of children, without adding to the danger of women; if in any case the *pelvis* were so much distorted, or so small, as absolutely to prevent the passage of the head of a full grown child, and yet not so far reduced in its dimensions, as to prevent the head of a child of a much less size from passing through it. Melancholy are the reflections when a woman has a *pelvis* very much distorted (and such women have usually a wonderful aptitude to conceive) that there should be no chance, or very little, of preserving the lives of her children; and yet, in the course of practice, I have in several instances been called to the same women, in five or six successive labours, merely to give a sanction to an operation, by which the children were to be destroyed. It is to the credit of the profession, that every method, by which the lives of parents and children might be preserved, has been devised and tried; and, though frequent occasions for using some of these methods cannot possibly occur in any one person's practice, it is right that all should be acquainted with what has been proposed and done in every case, with or without success.

A great number of instances have occurred to my own observation, of women so formed, that it was not possible for them to bring forth a living child at the termination of nine months, who have been blessed with living children, by the accidental coming on of labour when they were only seven months advanced in their pregnancy. But the first account of any artificial method of bringing on premature labour was given to me by Dr. C. Kelly. He informed me, that about the year 1756, there was a consultation of the most eminent men in London at that time, to consider of the moral rectitude of, and advantages which might be expected from, this practice, which met with their general approbation. The first case in which it was deemed necessary and proper fell under the care of the late Dr. Macalay, and it terminated successfully*. Dr.

* The patient was the wife of a linen-draper in the Strand.

Kelly informed me that he himself had practised it, and, among other instances, mentioned that the operation had been performed three times upon the same woman, and twice the children had been born living. The thing has often been the subject of conversation, and proposed by writers, but some have doubted the morality of the practice; and the circumstances which may render the operation needful and proper have not been stated with any degree of precision.

With regard to the morality of the practice, the principle being commendable (that of making an attempt to preserve the life of a child which must otherwise be lost), and nothing being done in the operation which can be injurious to the mother, but, on the contrary, a probability of lessening her sufferings; I apprehend, if there be a reasonable prospect of success, no argument can be adduced against it, which will not apply with equal force against inoculation, against medicine in general, and, in fact against the interposition of human reason and faculties in all the affairs of life. Such an argument would lead us back to the absurd doctrine of predestination, if, with justifiable intentions, and without producing any comparative present evil, we may not use our endeavours to extricate our fellow-creatures from evils which threaten them, or under which they may be actually oppressed.

If the morality be justified, we are next to consider the safety and utility of the practice.

As to its safety, having reasoned upon the structure of the parts concerned in the operation, and having carefully attended to all the circumstances which have occurred when it had been performed in more than twelve cases, in which I have either performed it, or it has been done by my advice and persuasion, I have not known one untoward or hazardous accident that could be imputed to it; and in the greater number of these cases the children have been born living. Many instances of this operation being performed successfully, have, since my first proposal of it, been recorded by others. I therefore feel authorized to say, as far as my reason or experience enables me to judge, that the operation of bringing on premature labour, in the cases to which this discourse has any reference, is perfectly safe to the person on whom it may be performed.

But respecting the utility of the operation, the statement first made of the intention or purpose with which it ought to be done, that is, to try whether the head of a small child will not pass through a *pelvis* too much narrowed in its dimensions to allow one of a common size to pass, will shew, that the objects

of the operation are circumscribed within certain limits. Should the cavity of the *pelvis* be of its natural size, this operation is out of the question, and never can be required on that account. If the cavity of the *pelvis*, though reduced in its dimensions, be such as to permit the head of a full grown child to be squeezed through it by the force of strong and long continued pains, this operation is not required, and ought not to be performed. If the *pelvis* be so far reduced in its dimensions as not to allow the head of a child of such a size as to give hope of its living, to pass through it, the operation cannot be attended with success. It is in those cases only in which there is a reduction of the dimensions of the *pelvis* to a certain degree, and not beyond that degree, that this operation ought to be proposed, or can succeed.

It would be highly satisfactory, if I were able, to state with precision the exact dimensions of the cavity of the *pelvis* of the person, on whom it might be needful to perform this operation, and on whom it might be performed with success. But, as all the instruments, contrived for measuring the *pelvis* in the living woman, too imperfectly answer this purpose, to enable us by them to form a guide of practice; and as the head of a child before it is born can never be accurately measured, and of course the relation between them must be unknown; the determination must be left to opinion, or to former proofs: and those who are experienced will not commit any great mistake in their conjectures, even if they have no other than this probable evidence. Under circumstances and in situations just preventing the successful use of the *vectis* or *forceps*, and just compelling us to the fatal measure of lessening the head of the child, it may become a duty to propose, on a future occasion, the bringing on premature labour; at seven months, or any later time, according to our sense of the disproportion existing between the head of a child and the cavity of any particular *pelvis*. It can hardly be doubted, but that the casual events of practice first inspired the notion of this method in the mind of some person, who, adverting to the fortunate termination of premature labours coming on spontaneously, or of very small children, in cases of distortion of the *pelvis*, endeavoured to imitate by art what not unfrequently happens naturally. It is also to be considered, that in a child born prematurely, the bulk of the head is not only much less than at the full time, but the component parts of the head are more loosely connected and far more pliable, and of course its volume is more readily adapted to the space through which it is to pass.

I cannot deny myself the pleasure of relating the following case, which occurred very lately.

A lady of rank, who had been married many years, was soon after her marriage delivered of a living child, in the beginning of the eighth month of her pregnancy. She had afterwards four children at the fulltime, all of which were, after very difficult labours, born dead. She applied, in her next pregnancy, to Dr. Savage, whom I met in consultation. By some accounts she had received, she was prepared for this operation, to which she submitted with great resolution. The membranes were accordingly ruptured, and the waters discharged, early in the eighth month of her pregnancy. On the following day she had a rigor succeeded by heat and other symptoms of fever, which very much alarmed us for the event. On the third day, however, the pains of labour came on, and she was after a short time delivered, to the great comfort and satisfaction of herself and friends, of a small but healthy child, which is at this time nearly of the same size it would have been, had it been born at the full period of uterogestation. In a subsequent pregnancy, the same method was pursued, but whether the child was of a larger size than before, whether there was any mistake in the reckoning, or whether the child fell into any untoward position, I could not discover, but it was still-born, though the labour did not continue longer than six hours.

There is another situation in which I have proposed, and tried with success, the method of bringing on premature labour. Some women, who readily conceive, proceed regularly in their pregnancy till they approach the full period, when, without any apparently adequate cause, they have been repeatedly seized with rigor, and the child has instantly died, though it may not have been expelled for some weeks afterwards. In two cases of this kind I have proposed to bring on premature labour, when I was certain the child was living, and have succeeded in preserving the children without hazard to the mothers. There is always something of doubt in these cases, whether the child might not have been preserved without the operation; but as such cases often come under consideration, and as I am disclosing all that my experience has taught me, it seemed necessary to mention this circumstance,

I may be allowed to conclude this subject, without entering into a detail of the manner in which premature labour may be brought on; because no person qualified to decide on the propriety of this operation can be ignorant of the manner of performing it. I must however take notice, that when the

membranes of the *ovum* are punctured or ruptured, some caution is required to avoid injuring the head of the child, which may lie close to them, and after the discharge of the waters, it is necessary to observe, that the time when the action of the *uterus* may come on will be very different; this happening in some instances in twelve hours, and in others not for twelve or fifteen days. During this interval we have only to wait patiently for the event, and when the pains come on, the labour, if natural, is to be suffered to proceed without interruption; or, if irregular, such assistance is to be given, as the peculiarity of the case may require. It is scarcely necessary to mention, that when we are considering the propriety of this operation, it ought not to be performed when the patient labours under any hazardous disease; and that if complaints should afterwards arise, our endeavors must be exerted to remove them before the accession of labour.

SECTION XI.

ON THE SECTION OF THE SYMPHYSIS OF THE OSSA PUBIS.

It was before observed, that an opinion of the gradual and spontaneous separation of the *symphysis* of the *ossa pubis* previously to the commencement of labour had generally prevailed*; though some had denied both the fact itself, and the advantages that were supposed to accrue from the separation, if it were actually made. With a strong persuasion or conviction however of those advantages at the time of parturition, some rude and evidently dangerous attempts were formerly made with very awkward but powerful instruments, to promote or increase the separation beyond its common degree; but the practice, probably never frequent, had for many years fallen into total disuse, and was almost forgotten. Latterly this idea has been resumed, and among others, *Camper*, a celebrated anatomist and professor at *Groningen*, in order to try the effect of the separation, and discover its consequences, had, in living animals, divided the *symphysis*, without much apparent injury, either at the time of its being divided, or at any future time. But in the year 1777 *M. Sigault*, a surgeon at *Paris*, first performed this operation on the human subject, in the time of labour, the patient recovering, and the life of the child being preserved; but it is not clear from the context, that the operation was, in that case absolutely necessary. Some credit might have been due to *M. Sigault*

* See Vol. I. Chap. i. Sect. 3.

for the spirit of enterprize which suggested the operation, and for his resolution in performing it ; but the applause given to him by many of the faculty at *Paris* (though, if I mistake not, the Royal Academy refused to give any testimony of their approbation) and by the nation at large, was beyond all measure extravagant, a medal was struck to perpetuate the fact, and there could scarcely have been greater exultation and triumph, had he invented a method by which the whole human race should in future have been universally freed from the pains and dangers of parturition. The influence of vanity was at least as strongly marked in these proceedings as the dictates of humanity, and far more than the encouragement of science ; so that the steps taken to aggrandize the merits of the operation, then supported only by a single fact, and the reputation of the surgeon who performed it, were too hasty and too enthusiastic, not to raise a suspicion of error or deceit in the estimate of the operation, or in the account given of it. But the conduct of the French extended its influence on the Continent, where the operation was several times performed with various success.

Immediately after the accounts of the operation were brought into this country, wishing, as a matter of duty, to understand the ground of the subject, I had a conference with the late Mr. *John Hunter*; in which we considered its first principle, its safety ; and after the most serious consideration it was agreed, that if the utility could be proved, there appeared from the structure of the parts, or from the injury they were likely to sustain by the mere section of the *symphysis*, no sufficient objection against performing it. Of its real utility it was however impossible to decide, before many experiments had been made on the dead body, to ascertain the degree of enlargement of the capacity of the *pelvis*, well formed or distorted, which could be thereby obtained. Such experiments were soon made, and their result published by the late Dr. *William Hunter*, and these proved on the whole, that in extreme degrees of distortion of the *pelvis*, the advantage to be gained was wholly insufficient to allow the head of a child to pass without lessening its bulk, and in small degrees of distortion, that the operation was unnecessary, such cases admitting of relief by less desperate methods. They proved moreover, that irreparable injury would be done by attempts to increase the common advantages gained by the section of the *symphysis*, by straining or taring asunder the ligaments which connect the *ossa innominata* to the *sacrum*, and to the soft parts contained in the *pelvis*, particularly to the bladder. For the reasons advanced by Dr. *Hunter*, the

operation was never (excepting in one unhappy case) performed in this country, and so perfectly were the minds of men satisfied of its impropriety and insufficiency, that I do not believe the section of the *symphysis* ever came into contemplation in any one case of difficult parturition, with any of the gentlemen who practise midwifery in this city. But as accounts of the operation were frequently brought from the Continent, and as active measures were pursued for supporting the celebrity with which it had been first brought into notice, Dr. *William Osborn* examined all the cases then published, stated with precision the little advantages gained, the injuries occasioned, and the general result of the operation, and proved both by facts and arguments the cruelty and futility of it, in a very sensible essay first written professedly on the subject.

Here the matter might for ever have rested, but in writing on the practice of midwifery, as well as any other art, it seems necessary to record not only what has been proposed and done with success, but the trials that have been made of things proposed, though unsuccessful and on what circumstances the want of success depended; otherwise there might be at different times a repetition of the same trials and of the same misfortunes. Perfectly convinced though I am of the impropriety of this operation, and hoping that no attempts will ever be again made to bring it into practice, it seemed necessary to give this short account of it, and I cannot refrain from making the following observations.

It is proved in the first place, that some enlargement of the capacity of the *pelvis* is actually obtained by dividing the *symphysis* of the *os pubis*.

Secondly, That the evils, which have followed this operation, have been very much occasioned by its being performed unskilfully, or by injudicious endeavors to increase that enlargement of the capacity of the *pelvis* beyond the degree, which naturally follows the division of the *symphysis*.

Thirdly, That many women who have undergone this operation have recovered; though of those who recovered, many suffered very serious complaints for a long time, or for the remainder of their lives.

Fourthly, That some children were born living when this operation was performed.

We may therefore presume to say, that if a case could be so precisely marked, that there should only be a deficiency of just so much space as would be supplied by the simple division of the *symphysis*, the operation might in that particular case be considered.

We may also say, that this operation is not so certainly fatal to those women on whom it may be performed, as the Cæsarian operation ; nor so certainly destructive of children as that of lessening the head.

We may then be allowed to suppose a case and such a one is more than possible, in which a person of very high rank, the life of whose child might be of the greatest public importance, could not be delivered, without the destruction of the child, or her child be preserved but by the Cæsarian operation at the expense or great hazard of her life ; and that she through human frailty might refuse to submit to the Cæsarian operation, yet the great interests and policy of the nation might forbid the destruction of the child. Of course both the mother and child would be inevitably lost. Should such a case occur, which, as I said before, is more than possible, then the section of the *symphysis* of the *ossa pubis* might be proposed and performed, as it would in some measure meet both their interests ; being less horrid to the woman the Cæsarian operation, and instead of adding to the danger, give some chance of preserving the life of the child.

But, from the statement of this case, or any thing before advanced, I hope it will not be concluded, that I mean to insinuate a wish, or to advance an argument, in favour of this operation, in the cases for which it was originally proposed, or any other which can be imagined.

CHAPTER XIII.

SECTION I.

ON THE CESARIAN OPERATION.

THIS operation is to be performed by making an incision first through the integuments of the *abdomen*, and then into the *uterus*, for the purpose of extracting a child therein contained. In cases of extra-uterine children, an incision, for the purpose of extracting a child contained in the cavity of the *abdomen*, under various circumstances, has been called the *Cesarian* operation; but in the importance and consequence of these two operations there is an evident and very great difference.

It has been supposed by some writers, that a name was given to this operation from a circumstance common to it and every other in surgery in which a knife was used (*a cæso matris utero*); by others, that it had its name from the extraordinary courage of the person on whom, or by whom, it was performed; but it was more generally explained by the imagined qualities and rank of the persons, whose lives are said to have been preserved by it. These, and their descendants, according to *Pliny*, were called *Cæsars*, as those born with the feet foremost were called *Agrippæ*; or when there were twins, and only one was born living, *Vopisci*, and when they were left-handed *Scævola*. It seems not to have been thought respectful, that men, who in the course of their lives proved extraordinary, should have been presumed even to come into the world in a common way*. But it is well known, that the name of *Cæsar* was not conferred on that great man, or the family who bore it, from the manner of his birth, but was derived from quite another source†. Nor do any of the very ancient writers in

* *Auspiciatus, enecta parente, gignuntur, sicut Scipio Africanus prior natus, primusque Cæsarum a cæso matris utero dictus.* *Plin. Histor. Nat. Lib. vii. cap. ix.*

† *The mother of Cæsar, according to Suetonius, was living at the time of her son's expedition into Britain, so that she must have survived the operation, had it been performed upon her.*

medicine take notice of this operation, and we cannot suspect they were so negligent as to have omitted the description of it, or so ignorant as to be unacquainted with it, when in all probability, had it been performed, they would have been the very persons consulted and employed to perform it.

*Pliny**, who lived in the time *Vespasian*, is the first author, as far as I know, who mentions this operation; but he speaks of it with reference to those who lived before his time, and his account does not give much satisfaction. *Rouffet†*, who was a strong advocate for the operation, wrote professedly on the subject in the year 1581. But the records of this operation have been imperfectly preserved even in modern times. For, from the context of the cases recorded, it appears that some have been misrepresented; that some are fictitious and were alleged to answer other purposes, as was the supposed one of lady *Jane Seymour*, to stamp a character of greater cruelty, than even he deserved, on *Henry the Eighth‡*; and that others are related with a change of circumstances, so as to appear different, though they were in fact the same. From a detestation of the apparent cruelty of this operation, from a doubt of its necessity, or of the advantages to be derived from it, from the destructive event which was to be expected, or from some other cause, it was never performed, or even proposed, or hardly spoken of, in this country, till within these few years. But at present we

* *Plin loco citato.*

† *Bauhin, in the appendix to Rouffet, dated 2588, gives the following case: Eliz. Aleispachen had this operation performed upon her by her husband, who was a gelder of cattle at Siergenhausen in Germany, in the beginning of the sixteenth century. She had several children born afterwards in the natural way.*

Paré and Guillemeau wrote against the operation.

M. Simon wrote two papers on the subject in the first volume of the Royal Academy.

Heister and many others have written on the subject; but Weideman of Duffendrop, in his Thesis, has given an account of all the cases of this operation, which had been recorded before his time, and the result of them.

‡ *It appears from the best authority, that the queen died on the twelfth day after her delivery, no such operation having been performed upon her. See Rapin, vol. i. p. 817, note 6.*

have well authenticated accounts of more than ten cases in which the operation has been performed, under the direction of, and by, men of unexceptionable abilities; and these may be esteemed sufficient to enable us to form a judgment of the benefits to be derived from the operation, as well as of the manner in which it ought to be performed, and of its constant or probable consequences.

SECTION II.

By the first writers on this subject many circumstances are recited, which were supposed to render this operation necessary, some respecting the parent, others the child. Of the first kind were extreme smallness or distortion of the *pelvis*; the straitness or closure of the natural passages, from *cicatrices*, adhesion, or any other cause; the rigidity of the parts from old age, or their imperfection from youth; almost every cause of a difficult labour, when extreme in its degree, has been mentioned as a possible reason for proposing or performing this operation. Those which respected the child, not only related to its comparative size, but to its position also; and on this occasion twins, and even monsters, which there was no wish to preserve, have been mentioned. But whatever was the existing cause, it appears that there must have been a full conviction on the mind of the person who proposed this operation, of the impossibility of delivering the patient by any other means. Some writers have indeed spoken of this operation, not with a view to its absolute necessity, but its elligibility, or as deserving preference to other methods of delivery which might be practicable. Such writers have not met with general approbation, but their influence has been too great; for in the histories of the cases recorded, we find in several of them some circumstance, which proves that the operation was not necessary, or that the grounds on which it ought to be performed were not well understood. The ideal glory of the operation has perhaps had its influence in *France*, where it has certainly been often proposed, and sometimes performed unnecessarily, and some other parts of the *Continent*. No other principle but that of necessity can certainly be admitted as a justification of this operation; that is, whenever it is proposed, there shall be no other way or method, by which the life, either of the mother or child, can possibly be preserved; and the impossibility shall be confirmed, not by the opinion of one, but as many compe-

tent judges as can be procured. If such satisfaction could be given, I should then consider this operation justified by every principle of religion and the laws of civil society, upon as good and decisive evidence as any other operation, which we never hesitate to perform, because it submits to the general principle of practice ; by giving us a chance of preserving a life, which must otherwise be inevitably lost.

SECTION III.

THREE general situations have been stated in which it has been supposed that the Cæsarean operation might be necessary*.

1. When the parent was dead, and the child living.
2. When the child was dead, and the parent living.
3. When both the parent and child were living.

With respect to the first situation, when the parent is dead, and the child living, there cannot be any debate ; because, without giving pain, or incurring any other inconvenience, an attempt is made by this operation to preserve the life of a child, which, if it be not performed, must soon and inevitably perish.

With respect to the second situation, as in almost every case in which the operation has been performed in this country, the parent has died, but the lives of many of the children have been preserved, the operation holds forth, as its principal advantage, which is a very important one, the hope of preserving the life of the child ; the chance of preserving the parent being much lessened, at least not improved, by an operation so full of danger. It will therefore, I think, be generally acknowledged, that the operation ought scarcely ever to be performed upon a living mother, when there is proof, or good reason for believing, that the child is dead.

The Third is the statement attended with any difficulty, and being the only case which, strictly speaking, comprehends, in its true sense, the Cæsarian operation, it might lead to a comparative estimation between the life of the child and that of the parent. But the common sense of mankind, being agreed in the general principles adopted and pursued throughout this work, of its ever being our duty, in the first place, to preserve the lives of both the parent and child ; in the second, to preserve the life of the parent ; and in the third, that of the child, which have been on various occasions inculcated and applied, will point out the general line of conduct we ought to follow, according to the exigence of every case which may occur in practice.

* See Bonet. Sepulchr, Anatomic.

Without regard to the state of the child, this operation has also been proposed for our consideration under circumstances which relate to the mother alone.

1. When she was living.
2. When she was dead.

Some have been of opinion, that this operation ought never to be performed on the living subject. Impressed, perhaps, with the dread of the operation, they did not distinguish between the necessity and eligibility, and therefore wished to abolish it altogether. But if it were to be performed only when the patient was dead, more particularly if we were to wait for her death, as the only proper time of performing it, it would always be fruitless. For I do not find any instance of a living child extracted by this operation after the death of the mother, unless the child escaped by the same stroke as that which proved fatal to the mother, of which the accounts seem to be almost fabulous, or merely accidental. But as, in cases of women dying in convulsions, hemorrhages, rupture of the *uterus*, or other rapid diseases, at different periods of pregnancy, or of a labour, it is possible for a living child to be extracted after the death of the mother, by speedily performing this operation; and as no harm can possibly result from the operation, supposing ourselves disappointed, no reasonable objections can be made to our performing it under such circumstances. In some countries the laws forbid any woman who may have died during pregnancy, to be interred before the child shall have been taken away. A prohibition to bury the living with the dead is the spirit of such laws.

SECTION IV.

If it be admitted, that necessity alone can justify the Cæsarian operation, we are next to inquire into the causes and proofs of such necessity.

Many of the causes which have been specified by writers, as producing a necessity of performing this operation, are certainly unequal to so great an effect. The size of a child however large, unless the *pelvis* be at the same time very much distorted; nor any untoward position of the child; nor twins; nor monsters; nor the closing or straitness of the soft parts, can ever compel us to the necessity of performing this operation; because we know from reason and experience, that difficulties arising from such causes must admit of relief by less desperate means. It may be asserted in general terms, that there is only

one cause which can justify our proposing or performing this operation on the living subject, and that is, such an extreme degree of distortion of the *pelvis* as renders the extraction of the child, in its present state, when diminished in its bulk, or even reduced into pieces, absolutely impracticable; in other words, when the situation is such, that the woman would in all probability die, if this operation were not performed. But it is also true, if any other cause could be proved to exist, which produced the same impracticability, then the operation would be equally requisite and justifiable*.

To make a precise statement of that degree of distortion or consequent diminution of the cavity of the *pelvis* which might require this operation, is not perhaps possible in the living subject. The natural space of the cavity of a well formed *pelvis*, from the *ossa pubis* to the *sacrum*, is about four inches and a half, and in some subjects rather more; and the heads of children at the time of birth bear a general relative proportion to this space. But living children of the full size have been born, frequently, by the natural efforts, when the space was presumed to be less than four inches; and if the children were small, when it did not exceed three inches: and we may judge that the head of a child is capable of being reduced by compression one third of its natural bulk, without destruction of its parts, or any permanent injury. But should the capacity of the *pelvis* be reduced under three inches, we have not much reason to expect a living child, of its full growth, to pass through it, either naturally, or by the assistance of art; though the head of one that is dead, especially if it be putrefied, or one much below the common size, may be pressed through the *pelvis* of about those dimensions, even without artificial assistance. Should the capacity of a *pelvis* not exceed, according to our judgment, two inches and a half, then the head of a child, unless the contents be evacuated, cannot pass or be extracted through it. But if the cavity be so far closed, that it should in any part very little exceed one inch, of which examples have sometimes occurred, we might then presume that the head of a child, though it could be reduced to the least possible size, could not be extracted through it; and then the necessity and propriety of performing the Cæsarian operation would be allowed, whatever aversion we might have to it, especially if we had reason to think that the child was living.

* See the Fourth Order of Difficult Labours, Sect. iii. in this volume.

These general positions every person engaged in practice will bear in his mind, in cases of difficulty arising from distortion of the *pelvis*. But he must also recollect, that the remaining space of the cavity of the *pelvis*, in cases of distortion, will be differently estimated by different persons, and cannot be ascertained with precision by any one, during the life of the patient. He will also remember, that the kinds of distortion are as various as the degrees, and that the cavity, though much diminished in one part, may be far less altered in another; and that even one side of the *pelvis* may measure two inches, when the other is scarcely equal to one, which consideration may make a change in our judgment of the kind of operation required, widely different, as well as in the operation itself. It should also be remembered, that the size of children at the time of birth, and the firmness of the bones, together with the compactness of their union with each other, are very different, and might add to, or lessen, the difficulty of a birth, whether natural or artificial. After a mature consideration of the whole matter, I am however of opinion, that no rule of sufficient authority to guide us in any particular case can be formed from such calculations only, and that our conduct is not to be governed wholly by them; but by the reflections of common sense working in a reasonable mind, stored with the knowledge of such calculations, and of many other collateral circumstances relating to the mother or child, which it is impossible to enumerate or describe, so as to render them applicable in any particular case. Besides the positive distortion of the *pelvis*, there is in some crooked people such a twist or projection of the last lumbar *vertebra* over the superior aperture, as to increase, or constitute an obstacle of the passage of the head, as insurmountable as any degree of distortion existing in the bones of the *pelvis*. Of this the case of the woman on whom the operation was lately performed at *Manchester* is an example, which fully justified the operation.

I cannot however relinquish the subject without mentioning another statement of this question, which has often employed my mind, especially when the subject has been actually passing before me. Suppose, for instance, a woman married, who was so unfortunately framed, that she could not possibly bear a living child. The first time of her being in labour, no reasonable person could hesitate to afford relief at the expense of her child; even a second and a third trial might be justifiable to ascertain the fact of the impossibility. But it might be doubted in morals, whether children should be begotten under such circumstances, or whether, after a solemn determination that she can-

not bear a living child, a woman be entitled to have a number of children destroyed for the purpose of saving her life; or whether, after many trials, she ought not to submit to the Cæsarian operation, as the means of preserving the child at the risk of her own life. This thing ought to be considered. Moreover, when it has been ascertained, that women could not possibly bear living children, naturally, or by any assistance which art can afford, and one great end of marriage has been frustrated, some have determined on a voluntary separation from their husbands, from a sense of the moral turpitude of conceiving children without the chance of bringing them living into the world. But the law of the land has afforded no remedy for the case, though, as this fact sometimes admits of unquestionable proof, it would not be difficult to adjust terms of separation between a husband and wife thus circumstanced, so cautiously that they should not be abused, yet without the imputation of criminality to either party; and many evils might be thereby prevented.

I take this opportunity of making another observation on this subject, which affords but gloomy reflections. Formerly the cases in which the Cæsarian operation could come to be considered, were almost universally confined to cities, or very large towns, where the customs and manners of life readily occasioned, with every other kind of decrepitude, distortions of the *pelvis* and all its consequences. But within these few years, from the general dissemination of manufactures, especially that of cotton, over many parts of the country, these evils have become much more frequent; and as the children employed in them are obliged to stand, or are confined to one posture for many hours together, before their bones have acquired sufficient stability to support them, many have become deformed. To boys it may be a great evil and mortification to have bandy legs, yet this does not prevent their becoming fathers; but girls under the same circumstances must often be precluded from being mothers; nor can they go through the process of parturition without infinite suffering and danger. It therefore deserves consideration, both as it is of great political importance, and as a most interesting case of humanity, whether some means cannot be contrived, by which such misfortunes may be prevented.

SECTION V.

IN almost every case in which the Cæsarian operation has been performed in this country, the patients have died. It may be of use to inquire, whether their death were occasioned by any disease, with which they were afflicted before the time of labour; or were the consequence of the state to which they were reduced from the occurrences of labour, before the operation was performed; or it were the inevitable consequence of the operation. In cases of death occasioned by wounds, the following order in which the danger is produced may be observed: first, from convulsions, or immediate loss of blood; secondly, from inflammation; thirdly, from gangrene; fourthly, from excessive or long continued suppuration, under which the patient becomes hectic. Though almost all the patients, on whom this operation has been performed, died, their death happened at different periods; but not one died, either while the operation was performing, or immediately after it. No convulsions were brought on by the incisions; nor does it appear, that any of them sunk through the loss of blood accompanying or succeeding the operation. Some died within twelve, others at the end of twenty-four hours, and a few died on the third day after the operation. If we may judge of the cause of the patient's death by the time of her dying, it might be said, that the death of those who failed within twenty-four hours, was probably owing, not to the operation alone, but to the violence of this, combined with that of previous disease; but when they survived twenty-four or forty-eight hours, then their death might be attributed to the succeeding inflammation, in a body predisposed to disease. If we had the liberty of selecting a patient on whom to try the merits of this operation, we certainly should not choose one who was either very much distorted, or who had the *mollities ossium*, or who was evidently under the influence of some dangerous disease, or who had even been several days in labour; because the event must very much depend upon her state at the time when the operation was performed.

It is not my intention by this kind of investigation, to lessen the general aversion to this operation when it can be avoided; but I believe we cannot fall into error by conforming to such conclusions as these. Every woman, for whom the Cæsarian operation can be proposed to be performed, will probably die,

and should any one survive, her recovery might rather be considered as an escape, than as a recovery to be expected, though there is always a probable chance of saving the life of a child. But as such an escape may happen in any case, in which the operation might be performed, we may and ought to esteem every case which can come before us, as the individual case in which a happy event is to be expected. These conclusions will lead us to the principle of necessity as the sole justification of this operation, and urge us, when we do perform it, and as far as it may be in our power, to select the most eligible time; and from every motive to exert all our judgment and skill for the service of the patient, as if we were certain she would survive. This operation can seldom be required, and will, of course, never be performed on the opinion or judgment of any one person, unless in some case of great and urgent necessity; and a concurrence of opinions will afford the best security against its being performed unnecessarily; and if it were to be presumed, by a subsequent measurement of the *pelvis*, and a new consideration of all the circumstances, that it ever had been performed without such necessity, that would prove only that the operation had been abused, and not serve as a valid argument against its use when such necessity really existed.

SECTION VI.

HAVING never performed the Cæsarian operation, nor seen it performed, I offer the description of the case related in the fourth volume of the *Medical Observations and Inquiries*, as the best example which has been recorded. The operation was performed by Mr. *Thomson*, one of the surgeons of the *London Hospital*.*

"A table being prepared, the patient was placed upon it, lying on her back, her head being supported by pillows, and her legs hanging down. The belly appeared prominent chiefly

* *It is remarkable, that the oldest physician or surgeon in London could not recollect a case of this operation, or had heard it spoken of by their predecessors, yet that two cases, in the same street, should have occurred to one gentleman, within a very short space of time.*

For a more full and accurate account of all the circumstances relative to this operation, see a work lately published by Dr. *Hull*, an eminent physician at *Manchester*.

on the right side, the protuberance of the *uterus* extending but about two or three fingers breadth on the left of the *linea alba*. There was no difficulty therefore to determine where the incision was to be made.

“ Accordingly, about a hand’s breadth from the navel on the right side, I began the incision in a longitudinal direction, and continued it about six inches in length, the middle of which was nearly opposite to the navel ; the skin and adipose membrane being cut through on the outer edge of the *rectus* muscle. I carefully made an incision through the tendinous expansion of the abdominal muscles and the *peritonæum*, sufficient to introduce the forefinger of my left hand, when with a curved knife conducted on my finger, an opening was made into the cavity of the *abdomen*, and the *uterus* exposed.

“ The *uterus* appearing very solid to the touch, it was apprehended by some gentlemen, that the *placenta* might perhaps adhere to that part of the *uterus* which lay bare, and which might considerably obstruct the removal of the child or endanger an hemorrhage. With precaution, therefore, an aperture was made in the centre of the *uterus* sufficient to admit my finger, with which conducting the curved knife, I dilated the wound in the *uterus*, upwards and downwards, to the full extent of the outward wound.

“ The *placenta*, which actually adhered to this part of the *uterus*, easily gave way, and receded as my finger advanced in making the opening.

“ The *placenta*, and membranes immediately began to protrude. Dr. Ford at this juncture slipping his hand into the *uterus*, while the sides were kept asunder, brought forth the child by the feet, and immediately afterwards the *placenta* and membranes were extracted with the greatest ease. Dr. Ford took upon himself the management of the child and separation of the umbilical chord, and in a few minutes the child cried strongly.

“ The *uterus* being disburthened of its contents, and contracting amazingly fast, the *omentum* and bowels began to protrude ; Mr. John Hunter was so obliging as to assist me in retaining them within the belly, whilst I cleansed away the grumous blood (which was small in quantity) and made the *gastroraphy* or future of the belly.

“ I made four futures at nearly equal distances from each other, and about one inch and half from the edge of the lips of the wound.

“ The ligatures being double, pieces of linen spread with common plaster, and rolled up in the form of bolsters, or compresses, were applied between them, after the manner of the quilled future, and the wound was thereby brought into and retained in close contact ; and lint and a common pledget being applied, finished the operation.” This woman died about five hours after the operation.

CHAPTER XIV.

CLASS THIRD.

PRETERNATURAL LABOURS.

TWO ORDERS.

ORDER FIRST.

Presentation of the Breech, or Inferior Extremities.

ORDER SECOND.

Presentation of the Shoulder, or Superior Extremities.

SECTION I.

THE technical terms which are used to specify all the other classes of labours, relate to some circumstance in which the mother is wholly or partly concerned. But the term *preternatural* applies merely to the position of the child; and this kind of labour may occur in a woman in perfect health, when all the changes incidental to the state of parturition are made in the most favourable manner, and in whom there is the best possible formation. In short, there may be no deviation or irregularity of any kind, excepting only that the head of the child does not present. Should the presentation of another part be combined with hemorrhage, or any other circumstance of dangerous importance, either to the mother or child, the title of *preternatural* would be generally lost, and the labour referred to some other class.

The presentation of children at the time of birth may be of three kinds: first, with the head; secondly with the breech, or inferior extremities; thirdly, with the shoulder, or superior extremities. With the first of these the labour, as far as relates to the position of the child, is called natural; but with the two

latter, preternatural. Preternatural labours have been subdivided, by systematic writers, into a much greater number and variety; but as all distinctions are to be made and regarded according to their utility in practice, and as no possible advantage can be derived from their multiplication, but on the contrary much confusion, it will be found expedient to abide by these distinctions only. For though there may be a difference in one respect or other in every labour of this kind, and of course a necessity for some change in our conduct, yet notice cannot possibly be taken of every alteration, and these distinctions will be found sufficient for all the general purposes of practice.

Great pains have been taken to discover the causes of the preternatural presentation of children, and with the best intention; that of pointing out the errors and irregularities by which they were supposed to be produced, in order to prevent them. On this part of our subject, though there have been many different opinions, I think it has been generally presumed, that preternatural presentations happen more frequently to women in the lower ranks of life, than to those in a more affluent condition: the accidents and exertions, to which the former are chiefly liable, being considered as the causes. Before we consent to this inference, it would however be necessary to examine into the truth of the assertion. I believe it has never been satisfactorily proved, that preternatural presentations are really more common in the lower than in the higher ranks of life; the number of the former being, almost beyond any comparison, greater than those of the latter. No station of life is exempt from these presentations, though they rarely occur in any, especially those of the second order; and it is wonderful, that those women who have had such accidents, at different periods of utero-gestation, as would be deemed most likely to produce them, have escaped them. But though preternatural presentations seldom occur, when they are dreaded and expected, it is remarkable that some women are peculiarly subject to them; not once only, which might be considered as the effect of some accident, but exactly to the same presentation, whether of the superior or inferior extremities, in several successive or alternate labours. It seems doubtful therefore whether we ought not to exclude accidents as the common causes of these presentations, and search for the real cause in some more intricate circumstance; such as the manner after which the *ovum* may pass out of the *ovarium* into the *uterus*; some peculiarity in the form of the cavity of the *uterus*, or *abdomen*; in the quantity of the waters of the *ovum* at some certain time of pregnancy;

in the circumvolution of the *funis* round the haunches or lower part of the back of the child ; or perhaps in the insertion of the *funis* into the *abdomen* of the child, which is not in all cases confined to one precise part, but admits of considerable variety.

SECTION II.

ON THE SIGNS OF PRETERNATURAL PRESENTATIONS.

SEVERAL presumptive signs of the preternatural presentation of children have been mentioned ; such as an unequal distention of the *abdomen* during pregnancy ; some peculiarity in the motion of the child ; the sudden rising of the child, when the woman is in a recumbant position, so as to affect her stomach, or to incommode her breathing ; the slow progress of the first stage of a labour ; the early rupture of the membranes ; or the elongated form which the membranes containing the waters assume, while the *os uteri* is dilating. But these symptoms and appearances will be found very uncertain ; nor can we confide in any mark or indication, until we are able to feel and distinguish the part which really presents. It will often be in our power, before the membranes are broken, to discover that the presentation of the child is preternatural ; and sometimes, though not constantly, to say what the presenting part is. But when the membranes are broken, a small share of skill and circumspection will enable us to determine what that part is ; especially if we have accustomed ourselves to handle the limbs of new-born children. By its roundness and firmness, the head may be distinguished from any other part ; the breech may be known by the cleft between the buttocks, by the parts of generation, and by the discharge of the *meconium* ; though the last circumstance does not always happen even when the breech presents, till the labour is far advanced, and sometimes occurs likewise in presentations of the head. The foot may be known by the heel and the want of a thumb ; and the hand by its flatness, by the thumb and the length of the fingers. In some cases I have found the hands and the feet lying together ; but this cannot create much embarrassment to an intelligent practitioner ; though there is reason to believe that an error or mistake in judging a superior to be an inferior extremity, has sometimes been productive of mischief. I do not mention the marks by which the back, belly,

or sides might be distinguished, because these properly speaking, never constitute the presenting part; that is, though they may sometimes be felt, they never advance foremost into the *pelvis* in the commencement, at least, of a labour.

SECTION III.

ON THE MANAGEMENT OF THE FIRST ORDER OF PRETERNATURAL LABOURS.

IN the first order of preternatural labours may be included, the presentation of the breech, of a hip, of the knees, and of one or both legs.

When a labour is so far advanced that the *os uteri* is fully dilated, if no part of the child can be felt, it will be prudent to watch carefully when the membranes break, as there is a chance that the presentation may be of such a kind as may require the child to be immediately turned. But if no part of the child can be felt, by a common examination, after the membranes are broken, it will be justifiable to ascertain the presentation by the introduction of the hand. Should the head or inferior extremities, be found to present, the hand may be withdrawn, and we may suffer the labour to proceed without any further interposition; but if it should be that kind of presentation which requires the child to be turned, we shall have an opportunity of performing the operation, before there is any contraction of the *uterus*, sufficient to obstruct the delivery.

In the first order of preternatural labours, two very different methods of practice have been recommended. By the favourers of the first method, we have been directed, as soon as the presentation was discovered, whatever might be the state of the labour, to dilate the parts, then to pass the hand into the *uterus*, and to bring down the feet of the child. Or if these were originally in the *vagina*, to grasp them and extract the child with all possible expedition, making the labour wholly artificial, without waiting for the natural expansion of the parts, or for the efforts of the constitution. Would it not argue a want of humanity, say they, to leave the woman for many hours, perhaps a whole day, or even a longer time, in pain and anxiety, when we have the power of extracting the child in a very short space of time, by which the violence of the pain would be lessened, or its duration, at least, very much shortened? Others, on the contrary, have considered this practice as founded on a vulgar

and pernicious error, which makes no distinction between the slowness and danger of a labour. These have considered the presentation of the breech and inferior extremities as generally safe; and have taught us, that such cases ought to be, and with security may, be left to the efforts of the constitution, no kind of assistance being required, in the first stage of the labour; the mother at least, certainly not suffering more than in a presentation of the head, and the chance of preserving the life of the child, being by this proceeding, much better. Of the superior advantage of these two methods, it is only possible to judge by the general event of cases of this kind. If this should prove, which I believe is scarcely to be doubted, that less injury is done to the mother, and that there is a better chance of saving the life of the child, by suffering it to be expelled, than by artificial delivery, there can be no hesitation to which of the methods preference should be given; for the charge of want of humanity cannot be properly laid against a proceeding, which most frequently terminates happily for both.

From the manner of expressing the directions for the introduction of the hand, for the purpose of bringing down the feet, in presentations of the breech, or inferior extremities, we might conclude that it was always to be done with much ease. But on trial it is often found impossible, without the exertion of very great force; and when this is done, or if the feet were originally in the *vagina*, though the first part of the extraction might be easy, we should in the progress find an increasing difficulty, which would bring the life of the child into great hazard. The thighs would advance more slowly than the legs, and the breech than the thighs; there would be some delay with the body, then with the shoulders, and lastly, when the arms were brought down, with the head. These little difficulties and embarrassments, separately considered, may not be of much consequence, but collectively they occasion a compression of the *funis*, continuing long enough to bring the life of the child into greater danger, if not to destroy it; and this can only be prevented by a hurry in the extraction of the child, which may lacerate or do much injury to the parts of the mother. If, on the contrary, we suffer the breech, especially with the legs turned upwards, to be expelled by the natural pains, the distention of the parts thereby occasioned is so ample, that the body and head follow immediately, or are readily extracted. In cases of the presentation of the breech or inferior extremities, it is therefore now established as a general rule with men of the first

abilities and reputation, to suffer the breech to be expelled by the pains, and then to give such assistance as the exigencies of the case may require.

In every labour, in the progress of which we cannot feel the head of the child presenting, or do feel any other part, the membranes being unbroken, we must be particularly careful on no account to break them prematurely, that is, before the *os uteri* is fully dilated; because, whatever the presentation may be, the child is in no danger, till the waters are discharged; and a natural opening or expansion of the parts is always preferable to an artificial dilatation, however carefully made. But when the membranes break spontaneously before the *os uteri* is dilated, and we can discover the presentation of the breech or inferior extremities, it is proper to leave the dilatation to be completed by the natural efforts, though it will be effected slowly and more awkwardly, than if it was done by the volume of the membranes containing the waters, or by the head of the child. The presentation of the breech is sometimes so untoward that the *scrotum* and *penis* of the child intervene, and are the parts which are pressed upon the *os uteri* during its dilatation. In consequence of this pressure, which is in some cases unavoidable, those parts become prodigiously tumefied, and when the child is born, appear in a gangrenous state. In a few instances I have known a portion of the skin of the *scrotum* or *prepuce* slough away, but by the assiduous use of fomentations and cataplasms, farther mischief has always been prevented.

Though it may be proper, and is perfectly agreeable to the most respectable modern practice, to leave the child to be expelled by the pains, when the breech or inferior extremities present, unless the circumstances of the mother should require more speedy assistance: yet this resignation of the labour is only to be understood as proper, till the breech is expelled through the external parts, giving time for their dilatation, and guarding them with as much care as when the head presents. For after that time, as there is great danger of the child being destroyed by the compression of the *funis*, though perhaps of no long continuance, the labour must be accelerated by the practitioner, but with skill and judgment. That compression is also to be lessened, or any other injury prevented, by drawing the *funis* somewhat lower down, in such a manner that it may never be on the full stretch. In some cases, however, after the expulsion of the breech, the continuance of the pulsation in the *funis* very satisfactorily proves, that no compression of importance has taken place; the child of course being in no danger, there is no occasion to hasten the delivery.

When the breech or inferior extremities have passed through the external parts, great attention is to be given also to the position which the child bears with regard to the mother. Whatever that might be, the child would be extracted with equal ease till we came to the head; but if the face were turned towards the *pubes* of the mother, the head could not then be brought away, or its position conveniently changed, without much additional difficulty. As soon therefore as the breech is expelled, if the back of the child be not turned towards the *abdomen* of the mother, it will be necessary, that the practitioner, while he is extracting, should give such an *inclination* to the body, that when it is wholly extracted, the hind part of the head of the child may be turned towards the *pubes*, though not with a sudden motion or violence, lest the child should be thereby injured or destroyed. The directions given on this occasion are, that we should make the turn beyond the mere reduction of the back of the child to the *pubes*; and then revert it to a certain degree, by what may be supposed equivalent to a quarter turn. But such rules being very complex, are more apt to create confusion than to be of use, and are not founded on practical observation, but on an erroneous opinion that the head of the child could be extracted only or most commodiously, when the face of the child was turned toward the *os sacrum* of the mother. Whereas it is now well known, that the head of the child will pass through the *pelvis*, with one ear to the *pubes* and the other to the *sacrum*, or in different degrees of diagonal direction regarding the cavity, and that it is not found to proceed exactly alike in any two labours.

When the child is brought down as low as the shoulders, it has been esteemed by some as a very injudicious practice, to bring down the arms of the child; these being turned along the head, preventing, in their opinion, that contraction of the *os uteri*, round the neck of the child, which would be an impediment to its complete deliverance. Others have considered this step as absolutely necessary in all cases, the arms, according to them, occupying a portion of that space, which should be filled up by the head only. If the extraction of the head with the arms turned up, be on trial found tolerably easy, there is clearly no occasion to bring them down; but if the head should remain fixed in such a manner as to resist the force which we think can be safely or prudently exerted, then the arms ought to be brought down; but very circumspectly, lest they should be fractured or dislocated, or come along with a flirt, or so

sudden a motion as to endanger the laceration of the *perinæum*. Nor is there afterwards found to have been any reason for apprehending inconvenience from the spasmodic contraction of the *cervix* or *os uteri* round the neck of the child; at least it is not produced by this cause so commonly as by hurrying the first part of the delivery.

When the arms are brought down, should there be much difficulty in the extraction of the head, it will be of great use to pass the fore-finger of the left hand into the mouth of the child, and to press down the jaw towards the breast, (but not to pull by it) in order to change the position of the head, which may be easily done, and the extraction be thereby much facilitated. But of this difficulty we shall speak more fully when we consider the inconveniencies produced in this kind of labour, by the distortion of the *pelvis*.

In the extraction of the child, the body is converted into a lever or instrument for that purpose, and this will act in different cases, or different periods of the same case, with greater advantage, by changing the direction in which it is used. Accordingly in some cases, greater progress is made by acting alternately from side to side, and in others from the *pubes* to the *sacrum*, or in the opposite direction; and that way is to be pursued, in which we obtain the greatest advantage with the least violence. When the head is passing through the external parts, these may be supported with the fingers or palm of the left hand spread over the *perinæum*, while we are extracting with the right. As the head advances, the body must be turned more and more towards the *pubes*, and we must finish the operation very deliberately, or the parts will be lacerated; an evil rendered sometimes by precipitation and imprudent management, of almost as much importance as the loss of the child or mother, occasioning, at least, great misery and distress through the future part of the patient's life.

Though children presenting with the breech are commonly expelled by the efforts of the parent, it must sometimes happen that these fail to produce their proper effect, and the assistance of art is required. But assistance is not to be given till, by the failure of the efforts, it is proved to be absolutely necessary; that is, when having given full scope and due time to the efforts, they are proved to be unequal to the expulsion of the child. Whenever artificial assistance is given in these cases, it ought to be perfectly consistent with the safety of the mother, and if possible, with that of the child, which must be considered and treated as if we were certain it was, and would be born, living.

When therefore we are satisfied and convinced that the mother is unable to expel her child presenting with the breech, if the inferior extremities cannot be readily brought down, it will be proper, by hooking one or more fingers in the groin, to try whether we cannot give such an addition to the force of the pains, as may be sufficient to extract without injuring it ; that is, either by hurting the neck, or joint of the thigh bone, or by separating the bones of which the *pelvis* is then composed. Should this force, though continued for some time, be proved unequal to the purpose, it will be found expedient to pass a garter, a piece of tape or ribband, over one or both thighs, one of which is usually pressed before the other, as the case will allow ; and then taking both the ends of the ligature in the same hand, we shall have the opportunity of exerting great power, should it be required, with less detriment to the mother or child than by any other means, with much convenience at the same time to ourselves, and generally with success. But if the breech should be so high, that the feet cannot be brought down, nor the ligature passed, or its power be insufficient, of which I do not recollect an instance, and the necessity of delivering the mother should be urgent, then a blunt hook or the crotchet must be fixed over the thigh or in the groin of the child, and we must manage as in other cases of extreme difficulty and danger ; as the circumstances will allow, but perhaps without following any general rule, and without regard to the child.

It has been said, that children presenting with the breech are generally born alive, and some writers have even considered the presentation of the inferior extremities as natural, and preferable to that of the head ; because assistance could be more readily given when it was required. It is true that the children will usually be born alive, if they be small, or of a common size, and the true dimensions, of the *pelvis* be unimpaired ; or if the presentation occur to those, who have before had children, the parts yielding kindly and with facility according to the progress of the labour, and this be not by any cause retarded or interrupted. But if it should be a first labour, and the children large, or somewhat beyond the common size, and the labour tardy, or require much assistance from art, they will be more frequently born dead, in consequence of some casual but destructive pressure of the *funis*, before the breech is expelled, or afterward ; and with regard to representation, that which is most common is certainly, for that reason, to be esteemed natural.

In all cases, in which the child is expelled or extracted by the breech, or inferior extremities, the *placenta* is usually managed without difficulty or danger, and it is generally, though not always, excluded more easily, and in a shorter time than after a natural birth.

SECTION IV.

ON THE DISTINCTIONS OF THE SECOND ORDER OF PRETERNATURAL LABOURS.

In the second order of preternatural labours, the presentation of the shoulder, or one or both arms, may be included; and whichever of these is the presenting part, there is a necessity of turning the child, and delivering by the feet. In the management of presentations of this kind, there is always less difficulty if both arms present, than if there should be but one arm; it will therefore be necessary, to speak only of the presentation of a single arm.

In ancient times it was the custom, in every kind of labour, except those in which the head originally presented, to endeavour to return the part presenting, and to bring down the head; and if this were found impracticable, directions were given to bring the child away by the feet, or in any manner its situation would allow, or the exigencies of the case might require. But we learn from *Aetius*, who lived probably about the fifth century, that *Philomenes*, whose writings, except those preserved by *Aetius*, are now lost, discovered a method of turning and delivering children by the feet, in all unnatural presentations; and this method, with some alterations and improvements in the operation, has been practised ever since his time, and considered as the only one, by which the child presenting preternaturally could be extracted, and the life of the mother preserved. But many years ago it was my good fortune to discover, that in some of the worst kinds of preternatural labours, those in which the assistance of art is sometimes found to be insufficient and often unsafe, the powers of the constitution, if not impeded in their operation, are capable of expelling the child, with perfect safety to the mother, and without any additional danger to the child. Of the manner in which this delivery is accomplished by the natural pains, we shall speak in its proper place.

Though the necessity for turning children and delivering by the feet, in this second order of preternatural labours, be universally acknowledged, yet the circumstances of the women suffering them are exceedingly different. With the view of preventing or lessening the embarrassment of the practitioner, it is requisite, therefore, to make several distinctions, and we will say, that it may be necessary to turn the child.

First, When the *os uteri* being fully dilated, and the membranes unbroken, a superior extremity is felt through them; or immediately upon the rupture of the membranes and the discharge of the waters, before there is any return of the pains, or any contraction of the *uterus* round the body of the child.

Secondly, When the membranes break in the beginning of labour, the *os uteri* being very little dilated, perhaps scarcely in a sufficient degree to allow a hand or an arm of the child to pass through it, and but just enough to discover the kind of presentation.

Thirdly, When the *os uteri* is fully dilated, the membranes having been long broken, and the *uterus* strongly contracted round the body of the child, which is closely fixed at the superior aperture of the *pelvis*.

Fourthly, When under any of these circumstances, there is a great disproportion between the size of the child and the dimensions of the *pelvis*.

Under each of these distinctions, a variety of other objects may require the attention of the practitioner, but of every one of these it is impossible to take notice in the description of any stated case, as no two labours ever were in all points exactly similar.

In the *practice* of every art, some advantages must remain beyond the power of any doctrine to teach or describe, all rules applying to general, and practice to particular Cases. These advantages can only be obtained by the cultivation of our own minds, by experience, and by the acquisition of that dexterity, which frequent exercise must give to our hands.

SECTION V.

It is proper in the first place, to speak of the method of turning children in those cases, which come under the first distinction, the management of them being more easy and simple, as there is only one object which demands our care, that is, to change the position of the child.

Whenever there is a necessity of turning the child, the patient is to be placed in the same situation as in a natural birth, upon her left side, with her knees drawn up, across the bed, and as near to the edge of it as possible. There have been many different directions and opinions respecting the advantages of particular situations, especially that of turning the patient upon her knees. But as our aim, in the choice or preference of these, is merely to obtain the free and most convenient use of our own hands, the position of the child remaining the same, however the woman may be placed, the common situation will generally be found most convenient. Yet as that situation which suits one practitioner may be awkward to another, and as in the course of the operation changes may be expedient, every practitioner must make them, when they appear necessary to himself. To many it is more convenient to turn with the left hand, than with the right; and from the common position of the child, the former is often more commodious; but every person will, of course, use that with which he can act with most dexterity and advantage.

Though in the case we are now supposing the *os uteri* may be fully dilated, it is possible, that the *os externum* may be in a rigid and contracted state. For the purpose of dilating this, it will then be necessary with the fingers of the right hand, reduced into a conical form, to act with a semirotatory motion, and with some degree of pressure upon the sides, and towards the *perineum*. The artificial dilatation of all parts should be slowly made, and in imitation of the manner in which they are naturally dilated; and we are not to be satisfied with such a degree of dilatation, as will barely admit the hand into the *vagina*, because the contraction round the wrist would, in some cases, be a hinderance in the subsequent parts of the operation.

When the hand is passed through the *os externum*, it must be conducted slowly to the *os uteri*, which we presume to be fully or sufficiently dilated.

If the membranes be unbroken, the hand may be conducted into the *uterus*, and they will be easily ruptured by grasping them firmly, or by perforating them with a finger. The hand must then be carried very deliberately along the sides, thighs, and legs of the child, till we come to the feet. If both the feet should be lying together, we must grasp them in our hand; but if they be at a distance from each other, we may commonly deliver with one foot without much additional difficulty; though as in some particular positions we cannot always turn the child, if it be large, by one foot, it is better to make it a general rule to bring down both feet together, when they are in our power.

Before we begin to extract, we must examine the limbs we hold, and be assured we do not mistake a hand for a foot. The feet, being held firmly in the hand, must then be brought with a waving motion slowly into the *pelvis*. While we are withdrawing the hand, the waters of the *ovum* flow away, and the *uterus* being emptied by the evacuation of the waters, and the extraction of the inferior extremities, we must wait till it has contracted, and on the accession of a pain the feet must be brought lower, till they are at length cleared through the *os externum*. The operation may then, in one sense, be said to be completed, that is, what was originally a presentation of the arm, is now become that of the feet, which considered as primary, might have been left to the efforts of the constitution in the manner before described. But as no person who had undergone the operation of turning a child, with the expectation of a speedy delivery, would have patience to wait for the expulsion of the child by the natural pains, it is incumbent upon us to finish the delivery, though there is no occasion for hurry; and violence would be equally unnecessary and improper.

In the first place then, observing the direction of the feet, and knowing if the toes of the child be towards the *abdomen* of the mother, that this position would be unfavourable when the head was to be extracted, we must gradually turn the body of the child during its extraction, in such a manner that the back of the child may be placed towards the *abdomen* of the mother, before the head is brought into the *pelvis*. It was before observed, that this turn of the child has been described with useless intricacy, and in a manner which can only serve to confuse the practitioner, who will reap all the advantage to be gained by any kind of turn, if he remember in general, that if the back of the child be toward the *abdomen* of the mother, the head will pass more commodiously than in any other direction. The opinion of the necessity of changing the position of the child at this time has been so strongly inculcated, and so eagerly pursued, that I have more than once seen it attempted with such a degree of force, as must have destroyed, or done very great injury to the child, had it been living; the operation being evidently more dangerous, than the evil it was intended to remove. Nor is this the only case in midwifery, in which the means, recommended for the purpose of preserving the life of the child, are utterly inconsistent with its safety.

When the heels or back part of the child are turned toward the *pubes*, the feet wrapped up in a cloth are to be held firmly about the ancles, when the pains come on, we must extract in

a straight direction, or from side to side, or from the *pubes* to the *sacrum*; taking care that we do not by violence, or by too large a sweep, run the risque of hurting the child, or of lacerating the external parts of the mother. In the interval between the pains we must rest, and in this manner proceed, assisting the efforts of the mother only at the time of her making them, and not rendering the delivery wholly artificial. When the breech of the child is arrived at and begins to distend the external parts, we must proceed yet more slowly, giving time for their dilatation, supporting and favouring any part which may be immoderately distended, and guiding the child in a proper direction, by turning it towards the *pubes* as it advances. The breech being expelled, the *funis* soon appears, and a small portion of it must be drawn forth to prevent its being upon the stretch. Then wrapping a cloth over the body of the child, which must be held as close to the mother as it conveniently can, and calling for her voluntary exertions, the child is to be speedily extracted in the manner already described*.

When both the arms are brought down, if that be necessary, it will be of service to suffer the body of the child to rest upon the left arm of the operator, his hand being spread under the breast, with a finger turned back over each shoulder. His right hand is to be laid in a similar manner over the shoulders of the child, and these positions will give him great advantage in the extraction. But if the head should not descend, the operator with his thumbs conducted into the *vagina* may press the head from the *pubes* to the *sacrum*; or pass the fore-finger of his left hand into the mouth of the child, and extract as was before advised, being still careful of the external parts, when the head is passing through them.

Proper attention must be immediately paid to the child, and of the management of the *placenta* we are to speak hereafter.

SECTION VI.

IN the second distinction it was supposed, that together with the presentation of a superior extremity, there was at the time of the rupture of the membranes, very little dilatation of the *os uteri*, and some degree of contraction of the *uterus* round the body of the child.

* When the life of a child was endangered in this situation, Dr. Pugh advised the introduction of an air pipe into its mouth, but this I have never used.

The directions generally given on these occasions are, that as soon as the presentation is ascertained, the operator should sit down and dilate the *os uteri* sufficiently to allow the introduction of the hand, which should then be passed with care and expedition into the *uterus*, and the child turned. But some practitioners have judged it more proper, to wait till the *os uteri* was dilated naturally, before any attempt is made to introduce the hand, and turn the child. As in every case of the presentation of the superior extremities, there is a necessity of turning the child, the sooner the hand can be passed for that purpose, the more safe and easy in general will the operation be, as there must of course be less contraction of the *uterus* round the body of the child. But as there is some hazard of doing mischief by every artificial dilatation of the *os uteri*, I believe it is better to wait for the natural dilatation; at least every attempt to dilate by art should be made with great caution, and only during the interval between the pains. Yet we ought not to wait in these cases, till there is a complete and absolute dilatation of the *os uteri*; but always to consider it as sufficiently dilated, when we presume it will readily admit the hand, and then the child should be turned without delay.

If the external parts be rigid and contracted, they must be dilated, but without violence, in the manner before directed; and the hand, being passed into the *vagina*, must then be conducted into the *uterus*, on that side of the *pelvis* where it can be done with most convenience; because that will lead most readily to the feet of the child. It is generally better to conduct the hand between the body of the child and the *pubes*, than between it and the *sacrum*, because in these presentations the feet lie most commonly towards the *abdomen* of the mother. In every case which comes under the present distinction, there is some degree of contraction of the *uterus* round the body of the child, though trifling when compared with what occurs in the cases to be described under the next section. If therefore we understand and are able to perform the operation of turning the child, in the easiest and most difficult cases, we shall certainly be competent to the management of all the intermediate ones; there being in these no new rules, which we are required to follow, but merely an accommodation of rules already known to the exigencies of any individual case.

SECTION VII.

UNDER the third distinction, we are to presume, that together with the presentation of a superior extremity, there is the worst possible situation of the child in all other respects ; that is, an exceedingly close contraction of the *uterus* round the body of the child, the membranes having been long broken, and the waters discharged ; to which may perhaps be added very strong pains.

In this case, supposing the difficulty of turning the child as great as it possibly can be, it will follow, that there is no occasion for hurry or violence, as we can lose nothing by taking time to deliberate. Before we proceed to the operation of turning, it will be therefore proper to repeat our examination, when we have considered the case, in order to prevent any error in the first decision we have made upon the subject, and to ascertain the precise position of the child ; and to reflect also, whether by some previous management it may not be in our power, to lessen the impediments to the operation, and the general evils of the patient's state. In either of these views there are only two objects, which can engage our attention ; the wrong position of the child, and the strong contraction of the *uterus* round its body. The first of these, in the account given of the cases which came under the first distinction, was stated to be of little consequence ; that is to be manageable without difficulty, and to be commonly void of danger either to the mother or child. The principal inconvenience will then be produced by the contraction of the *uterus*, which it must be our duty to remove or lessen, before we attempt to perform the operation of turning the child.

The contraction of the *uterus*, under these circumstances, may be of three kinds. There is, first, the continued or permanent contraction, in consequence of the waters having been long drained off, and which to a certain degree takes place in all cases, when there has been but little or no pain. This may in fact be considered as the exercise of that inherent disposition in the *uterus*, by which its efforts are made to recover its primitive size and situation, when any cause of distention is removed. There is, secondly, the occasional or extraordinary contraction of the *uterus*, by which whatever is contained in its cavity

is ultimately to be expelled, which returns at intervals, and is so constantly attended with pain, that the terms pain and action are used synonymously. Thirdly, there is an irregular action of the whole or some part of the *uterus*, which is sometimes unfavourable to the expulsion of its contents, which produces effects according to its peculiarity, and this is called spasmodic; a general term, not wrested from its common meaning, but appropriated to every kind of morbid, irregular, or excessive action. Now the difficulty and the danger, which attend the operation of turning a child, proceed either from the extraordinary or irregular action of the *uterus*; and in order to avoid these, as much as possible, it will be proper to establish it as a general rule, never to attempt the operation of turning the child, while the patient has very strong pains.

The consternation of friends, and the sufferings of the patient, must necessarily raise a suspicion in her mind, that there is something unusual and dreadful in her case, and the solicitude thence arising will increase the unavoidable inconveniencies of her situation. The prudent and steady conduct of the practitioner will, on such occasions, very much contribute to remove the fears of her attendants, and to give a composure to the mind of the patient, which will be productive of the most happy effects. If she should be much heated, it will be also proper to take away some blood, and to direct an emollient clyster, for the purpose of emptying the *rectum*, and of softening and soothing the parts, which are in a very irritable state. Even the time employed in these matters will give an opportunity for quieting the violent agitation of the patient's mind.

We are not at present in the possession or knowledge of any specific medicine, upon which we can depend, for suppressing or moderating the action of the *uterus*, when exerted unfavourably, or at any improper time. Almost the only medicine we ever think of having recourse to on such occasions, is *opium*; and this, given in two or three times the usual quantity, will in many cases of this kind answer our expectations; though sometimes, when given in a common dose, it has a contrary effect, and excites the *uterus* to stronger action. If the opiate should fail to quiet the pains, and to compose the patient, we must wait till the *uterus* is wearied, or ceases to act of its own accord. But if the opiate should produce the effect for which it was given, it will be in about twenty minutes after its exhibition, when we are to consider the calm or disposition to sleep, as affording us the most favourable opportunity for turning the child.

Throughout the operation it is necessary to bear in our minds the distinctions made between the different kinds of action of the *uterus*. The hand must be introduced with sufficient force to overcome the continued or permanent contraction of the *uterus*, or the operation could never be performed; and the same may be observed of the irregular or spasmodic action, but with perseverance rather than violence. But if we* were to attempt to overcome the extraordinary action, either the hand would be cramped, and we should be unable to finish the operation; or if we had power sufficient to overcome the contraction of the *uterus*, there would be the greatest hazard of its being ruptured: the deduction is therefore plain, that we ought not to attempt to introduce the hand, while the *uterus* is in extraordinary action.

By the examination of the child's hand which presents, we shall be able to distinguish whether it be the right or the left; and, which is of more consequence, by its position, to which part of the *uterus* the feet of the child are directed. For unless the arm or body be unnaturally twisted, the palm of the hand is always turned towards the inferior extremities or fore parts of the child.

It is in no case necessary, or in any wise serviceable, to separate the arm of the child, previous to the introduction of the hand of the operator. In some cases to which I have been called, in which the arm had been separated at the shoulder, I have found a great inconvenience, there being much difficulty in distinguishing between the lacerated skin of the child, and the parts appertaining to the mother. The presenting arm is never an impediment of any consequence in the operation, and therefore ought not to be regarded, or on any account removed.

It sometimes happens, that the introduction of our hand is absolutely prevented by the shoulder of the child, jammed at the superior aperture of the *pelvis*. It will then be necessary, to pass the forefinger and thumb of the right hand in the form of a crutch, into the armpit of the child, pushing the shoulder towards the head and towards the *fundus* of the *uterus*, at the

* *Qui enim urgentibus doloribus, manus intus dare, vel fatum dirigere, vel aliquod membrum replicare audent, ut evenire potest, ut uterus rumpatur, meliorque subita morte rapiatur, cujus partus post obitum in ventre reperiri solet.*

same time firmly and steadily maintaining the advantage we gain as we proceed, till we have raised the body sufficiently, to allow the admission of the hand into the *uterus*.

When we begin to make our attempts to introduce the hand into the *uterus*, though the patient might be in a composed state, the irritation thereby occasioned will disturb her, and the extraordinary action of the *uterus* be brought on, which will be indicated by the consequent pain. During the continuance of this action and pain, we must not proceed in our attempt, but wait till they cease, laying our hand flattened in such a manner, that no injury may be done by our efforts, or by the action of the *uterus* itself, upon any inequalities of the knuckles. When the action of the *uterus* ceases, our attempts to introduce our hand must be renewed, and steadily continued, till that action returns, when we must again rest. Thus proceeding, that is, alternately resting and acting, we shall, by repeated and sometimes long continued efforts, at length safely accomplish the purpose of conducting the hand so far into the *uterus*, that we shall be able to lay hold of the feet of the child. In some cases our attempts to introduce the hand are very discouraging, as we are sensible of little or no progress; but the hurry or violence are never to be increased on account of the greatness of the difficulty. We must persevere, and be persuaded, that prudent attempts will not be fruitless, though they immediately fail to answer our expectations; as each apparently unprofitable attempt contributes at least to the efficacy of a succeeding one.

The strongest contraction of the *uterus* is sometimes at the *cervix*, and when this is passed, ample room is afforded for the discovery of the feet towards the *fundus*, without much trouble. But the contraction is very irregular, being in some cases in the centre, or uniform throughout; whilst in others, the *uterus* is drawn into lines, as if a cord had been passed round it externally with great strength, so as even to be painful to the hand. In some cases the *uterus* is also contracted into a globular, and in others into a longitudinal form. These different contractions render some difference in our conduct necessary, but if we have a true general idea of the various kinds of contractions, as before described, the little increase or peculiarity of difficulty will be readily managed. In a globular contraction of the *uterus*, when our hand has passed beyond the *cervix*, there will be no trouble in coming at the feet, and the child will be turned very easily; but in the longitudinal contraction, the feet being at a great distance, there is more difficulty, though hit

is not always necessary to go up to the *fundus*, for when we come to the knees, these being cautiously bent, the legs and feet will be brought down together.

In whatever way we lay hold of the feet, we must examine them before we begin to extract; for though one arm be in the *vagina*, the other may be high up in the *uterus*, and mistaken for a leg. We must also remember, that it is necessary to extract slowly: for if we should attempt to hurry the operation, the feet may slip out of our hand, and immediately recede to the *fundus* of the *uterus*, or to the part from which they were brought, and lay us under the necessity of returning with the hand, to bring them down again. When we have laid hold of the feet, if we proceed slowly, the child commonly turns without much difficulty. But when the feet are brought into the *pelvis*, if the turning of the child be not perfected, it will be of great use to fix the noose of a garter or ribband round one or both ancles, which may be conveniently done by forming it upon our wrist, and then sliding it with the fingers of the left hand, over the right hand containing the foot or feet, without quitting our hold of them; and dexterity in forming and fixing this noose may be of great use in the subsequent parts of the operation. When the noose is fixed and drawn tight round one or both the ancles, we may pull by both the ends of it with either of our hands, at the same time grasping the feet and extracting with the other hand, till they are brought through the external orifice. Should there be much difficulty in the operation, after the feet are brought low into the *vagina*, we may conclude, that it is occasioned by the body of the child being fixed across the superior aperture of the *pelvis*. To remove this impediment, it will be necessary to take the two ends of the noose into our right hand, and passing the finger and thumb of the left in the form of a crutch, in the armpit of the child, as before described, we must extract with our right hand, and at the same time raise the body of the child with the left, till the child is disengaged, and there is sufficient room for the entrance of the hips into the *pelvis*. There will then be no further difficulty, and we must deliver as was directed under the First Order of Preternatural Labours.

SECTION VIII.

IN presentations of the superior extremities, when the waters have been long discharged, and the shoulder of the child is jammed at the superior aperture of the *pelvis*, it was said to be expedient and necessary, to pass the finger and thumb in the form

of a crutch, into the armpit of the child, in order to raise the body towards its head, and towards the *fundus* of the *uterus*; till it was sufficiently moved out of our way to allow of the introduction of the hand into the *uterus*. But in some cases, when we are first called, the shoulder is so far advanced into the *pelvis*, and the action of the *uterus* is at the same time so strong, that it is impossible to raise or move the child, which is so strongly impelled by the pains, as to overcome all the force we are able to exert. This impossibility of turning the child has, to the apprehension of all writers and practitioners, left the woman without any hope of relief. But in a case of this kind, which occurred to me about twelve years ago, I was so fortunate as to observe, though it was not in my power to pass my hand into the *uterus* to turn the child, that by the mere effect of the action of the *uterus*, an evolution took place, and the child was expelled by the breech.

Of the first testimonies* that prove the possibility of this evolution, which I have called spontaneous†, the public has long been in possession. The cases in which it has happened are now become so numerous, and supported not only by many examples in my own practice, but established by such unexceptionable authority, in the practice of others, that there is no longer any room to doubt of the possibility of its happening, more than there is of the most acknowledged fact in midwifery. As to the manner in which this evolution takes place, I presume, that after the long continued action of the *uterus*, the body of the child is brought into such a compacted state, as to receive the full force of every returning action. The body in its doubled state, being too large to pass through the *pelvis*, and the *uterus* pressing upon its inferior extremities, which are the only parts capable of being moved, they are forced gradually lower, mak-

* See the *London Medical journal*, Vol. V. for 1785; and the *Journal de Médecine de Paris*, our *Avril et Septem bre*, 1785, and many cases published since that time.

† I used the word *spontaneous*, though to some it appeared objectionable, but I could not fix upon one better suited to explain my meaning. I only intended by it to say, that the series of effects terminating in an evolution of the child were wholly independent of the practitioner; but not that this was procured from any impulse or exertion in the body moved. In the sense in which I use the term *spontaneous*, it seems to be proper according to its common use in medical, though perhaps not strictly in mechanical language.

ing room as they are pressed down for the reception of some other part into the cavity of the *uterus* which they have evacuated, till the body turning as it were upon its own axis, the breech of the child is expelled, as in an original presentation of that part. Nor has there been any thing uncommon in the size or form of the *pelvis* of those women, to whom this case has happened, nor have the children been small, or softened by putrefaction, because one or more children have been in this way born alive*. I believe, on the contrary, that a child of a common size, living, or but lately dead, in such a state as to possess some degree of resiliency, is the best calculated for the expulsion in this manner. Premature or very small children have often been expelled in a doubled state, whatever might be the original presentation, when the *pelvis* was well formed, or rather more capacious than ordinary.

Yet the knowledge of this fact, however unquestionably proved, does not free us from the necessity and propriety of turning children presenting with the superior extremities, in every case in which that operation can be performed with safety to the mother, or give us a better chance of saving the child. Under such circumstances the instructions given by former writers, and the observations we have before made, must still be considered as proper to guide our conduct. But when we are called to a patient with a preternatural labour, in which there is no room to hope for the preservation of the child, or in which we are assured of its death, or when the operation of turning cannot be performed without violence and some danger to the mother; then the knowledge of the probability of a spontaneous evolution will set our minds at ease, and disengage us from the consideration of making any hasty attempts to perform a hazardous operation, from which no possible good can be derived, except that of extracting a dead child, and which at all events might be effected by a method far more safe to the mother.

The time required for the spontaneous evolution of the child, and the facility with which it may be made, will depend upon a variety of circumstances, but chiefly upon the size of the child, the aptitude of its position, the dimension of the *pelvis*, and the power exerted by the *uterus*. If the child be very large, or much below the common size, the slower I believe will be

* Dr. Garthshore, Consulting Physician of the British Lying-in-Hospital, informed me of a case of this kind, in which the child was born living; and Mr. Martineau, an eminent surgeon at Norwich informed me of another.

evolution, nor can it be made, at all without a strong action of the *uterus*. It is possible therefore, when we have conducted ourselves on the ground of expectation that the evolution would be made, that the pains may fall off, or be unequal to the effect, and we may be disappointed. It might then be apprehended, that the difficulty of extracting the child would be infinitely increased. But though the evolution was not perfected, I have not found this consequence; for the child, though not expelled, has been brought into such a state, that I could afterwards pass my hand with ease, and bring down its feet, though in an attempt to do this in the beginning of the labour I had been foiled. In one case, in which the evolution did not take place, I could not bring down the inferior extremities, but I had no difficulty in fixing an instrument upon the curved part of the body of the child, or in bringing it away with entire safety to the mother. It was before presumed, that the child was dead; and the sole object was, to free the mother from her danger, and with her safety, no appearances of the child, however disagreeable, are to be put in competition. In cases of this kind another mode of practice has been recommended, that of separating the head from the body, with a blunt hook, or other convenient safe instrument; but as I have never practised this method, I give the description of it in a note*.

In the course of my conversation and correspondence with medical friends, I have been informed of several instances of women, who have died undelivered, their children presenting with the arm, because the practitioners were not able, by art or by force, to pass the hand into the *uterus*, to turn the child, and deliver by the feet, and it was not spontaneously turned. These cases have been mentioned to me as objections to the idea

* *Hoorneus sæpe laudatus ad huc peculiarem novum, eumq; breviorum modum, fætum mortuum cum brachio arctissimi in vagina uteri hærente, invenit atque descripsit: qui in eo consistit, ut quando ad pedes pervenire nequit, collum, utpote quod in fætibus valde adhuc tenerum est, vel scalpello a reliquo trunco resecat, vel unco idoneo quam cautissimè auferat: hoc enim factò vel sponte mox prorumpit ex utero fætus, vel tamen, dum brachium propendens attrahitur, quod medico tunc loco habentæ inservit, quam facillimè excutitur: caput vero deinde seorsim mox vel manu, vel aliis propositis artificijs, si manus parum esset, ejiciendum.*

Heister. Cap. cliij. sect. ix.

of a spontaneous evolution, but, I apprehend, without reason. The evolution is supposed to be the consequence of the strong and long-continued action of the *uterus*, uninterrupted. Now the first part of the operation of turning a child by art, consists almost wholly in resisting this evolution; and if the attempts were persevered in, would be an absolute bar to its taking place.

To give a full explanation of my opinion, I should say, that a woman in a state of nature, with her child presenting in any manner, would not die undelivered, if no assistance were afforded to her. But if an equally healthful woman lived in a country somewhat civilized, in which the art of midwifery was in an imperfect state, much would be thought requisite to be done, and violence supplying the place of knowledge and skill, she might perish from the ungainly and rude exercise of art, rather than from the necessity of her case; for by the attempt of art the natural efforts would, in these cases, be defeated. In the most perfect state of society, all just and true knowledge being founded upon observation of the proceedings of Nature, and all sound practice upon the imitation, the practitioner would return to the primitive state; that is, he would do nothing, unless it was absolutely necessary for him to act, and then he would act in imitation of Nature. From a retrospective view of the practice of midwifery in all former times, and in all countries, every intelligent person sees, and is ready to acknowledge, that there has been too officious an interposition, and too great a readiness to give assistance in various ways, for the relief of many difficulties attending parturition, which are not only fully proved to require no assistance, but which are also now allowed to be surmounted in a safer and more effectual way by the resources of the constitution. This should certainly put us upon our guard against hasty determinations, upon what is possible or otherwise, in any case; or upon the use of any means, which may be destructive to the child, or injurious to the mother*.

* *In America and Africa the native women, whom we may presume to be healthy, very seldom die in labour, or in consequence of it. Properly speaking, they have no midwives. The same may be observed of the women in Lapland, and other northern countries. Yet the African women, when transplanted to the West-India colonies, not unfrequently die. They are attended by ignorant midwives. In the East-Indies, the midwives of the country are ignorant and daring, interfering perpetually, and often in the most outrageous manner, with the women in labour, many of whom die, or suffer grievous*

Now I am speaking of the spontaneous evolution in presentations of the arm, it will not be amiss to observe, that several other changes of the position of the child take place, at the time of birth, particularly the following, of which I have seen more than one instance. Having been called to women in the beginning of labour, and finding by an examination, that the head of the child presented, I have left them for several hours, till the first changes were naturally made. When I have examined them on my return, I have found the arm of the child presenting, the head being departed out of my reach. I do not know, that any practical advantage is to be obtained by the knowledge of these cases; but it is remarkable, that the accident has always happened to women, who were deformed. Such cases however should be recorded, and it is possible, that, some time or other, the knowledge of them may be of use. It may lead to an explanation of one cause at least of preternatural labours.

SECTION IX.

To the preternatural presentation of the child, and the circumstances before mentioned, there may be added a distortion of the *pelvis*. As there is no occasion to repeat the management, which the other circumstances may require, we may confine our attention to the peculiar difficulties produced by the distortion. Some disadvantage may arise from this cause in the extraction of any part of the child, but it will be trifling, if compared with that which attends the extraction of the head; we may therefore be allowed to suppose, that the whole of the child is born, except the head, which cannot be brought away in the usual manner, or by the means before advised. The force, with which we endeavour to bring down the head of the child, must then be gradually increased, till we are convinced, that a greater degree is inconsistent with the safety of the child.

complaints for the remainder of their lives. In England the practice of midwifery is extremely reasonable, and it is a rare thing for women to die in labour, or in consequence of it, unless when there is some dangerous epidemic disease. In France, the practice of midwifery is more artificial, and there is, both in that and other countries on the continent, a very reprehensible fondness for instruments and operations; we may therefore conclude, that the abuse of art produces more and greater evils, than are occasioned by all the imperfections of nature.

The wish to extract the head of the child speedily, is founded on the apprehension, justly entertained, that in this position the life of the child is in the most imminent danger, from the compression of the *funis*. A vigorous pulsation in the *funis* proves, even at this time, that the child is not in any danger, and of course gives us an opportunity of acting with deliberation. But should the pulsation, which was at first lively and strong, gradually decline, and then altogether cease, the head must be speedily extracted, or the child will be inevitably lost, there being no other way of removing the compression, or of preserving its life.

The extraction of the head may then be attempted with two views, either, to save the life of the child, or merely to free the mother from any danger, which might arise from its detention. When the first is our aim, the force with which we extract must be moderate, and consistent with the safety of the child; it must be exerted in a proper direction with regard to the *pelvis*; it must be uniform and commanded; and if there be any pains, it must accompany them. Should the head descend in ever so small a degree, we must not act precipitately, and increase the force in order to finish the delivery suddenly; but we must proceed with circumspection, or we shall add to the danger which the child is already in, and run the risque of doing injury to the mother; though when the head begins to advance, there is seldom much difficulty, the cause usually existing at one particular part of the *pelvis*. It has been said, that children have been sometimes born alive, when the strongest efforts, and those continued for many hours, have been made to extract the head detained in this position. But I have not been so fortunate as to meet with any such instances, a short space of time having generally been sufficient to frustrate my hopes, and convince me that the child was dead. Though when the head has been detained a considerable time, a few cases have terminated more favourably than I could have expected and I have been agreeably surpris'd with the discovery of some faint signs of life, which, by the assiduous and careful use of the common means, have been improved, and the life of the child at length perfectly recovered.

But when we have abandoned all hope of preserving the child, and have no other view but simply that of extracting the head, we must be particularly cautious, that through our conduct the mother does not suffer either any immediate injury, or that any foundation of mischief be laid, which may shew itself at some future time. When we have in vain exerted all the force

which we think reasonable and proper, and which, in some cases, must be more than any circumstance would be thought to require, it will be expedient to rest, for the purpose of gaining all the advantage to be obtained by the compression of the head. On this account, the mother will actually suffer no more inconvenience, than would have been produced if the head had originally presented, and been locked in the *pelvis*. After waiting some time, we must renew our attempts to extract, and thus proceed, alternately resting, and acting with efficacy and resolution, and if the hold we may have of the body or extremities of the child does not suit, a silk handkerchief or other band may be passed round its neck, and this will be found a very handy and convenient instrument.

The great impediment to the extraction of the head of the child exists in the disproportion between it and the *pelvis*. Another of no little consequence may be produced by the dislocation of the neck, or the laceration of the skin, either of which would lead to the separation of the body from the head; an accident one would wish to avoid, as it would lay us under the necessity of using some awkward instrument, instead of the body of the child. Either of these inconveniencies is readily occasioned by the impatience or despair of the practitioner, who is apt to twist the neck while he is extracting, or to pull with a sudden motion, instead of the uniform one before recommended.

In these cases of extreme difficulty, it will always be of service, and often succeed when other means fail, if we conduct our thumbs between the head of the child and the *pubes*, and press the head forcibly towards the hollow of the *sacrum*. It would also be of service if we were able to pass the finger into the mouth of the child, to change the position of the head; but in the worst cases this is impracticable, the head being obstructed so high, that the mouth of the child is beyond our reach. When these means are not in our power, or fail to answer our purpose, it will be necessary to leave the head a yet longer time, that it may undergo a greater degree of compression and accommodation to the *pelvis*, and then to renew our attempts to extract it.

It must be a very great disproportion between the head of the child and the *pelvis*, which is able to withstand this method of proceeding, if we persevere in it with prudence and steadiness; because the integuments of the head will burst, or the bones be bent inwards in an extraordinary degree, or even broken. Sometimes, however, a hemorrhage comes on,

or the situation of the mother will not allow us to take so much time, or proceed so slowly, as is generally proposed, and we are compelled to the use of such means, as promise a more speedy completion of the delivery. Different kinds of *forceps* have been advised for this purpose, but no instrument of the sort ought to be used on such occasions, because the child is dead; and it would be impossible but that the mother must by their use undergo the chance of mischief, without any equivalent advantage. It then only remains that we should lessen the head of the child, and the operation may be as easily performed in this, as in the natural presentation of the head. In the description of this operation it was said, that it clearly divided itself into three parts: 1. perforation; 2. evacuation of the brain; and 3. extraction of the head. It will not be possible to make the perforation in the usual place, but we must take that which offers itself most conveniently. We may recollect that there is a small fontanell behind each ear in the head of a *fetus*, which is a convenient place for the purpose; or it may be done at the basis of the *cranium* through the mouth; or in short, in any part where we can fix and command the use of the perforator, except perhaps the occipital bone, where we may cut the ligaments which join the neck to the head, and when we expected to extract, we should leave the head behind. When the perforation is made according to the rules before mentioned, and the brain evacuated, the head may be readily extracted, either by pulling by the body of the child, or by inserting a crotchet in the opening made by the operator as in other cases. But it will be scarcely believed, how seldom this operation is necessary under these circumstances, if we have not been in a hurry, but have acted with prudence. Nor have I ever known any ill consequences follow the compression which the soft parts undergo, between the head of the child, and the sides of the *pelvis*, if proper attention were afterwards paid to the state of the bladder and *rectum*.

SECTION X.

THOUGH with cautious management the head of the child is seldom separated from the neck, and though with indiscretion it could not often be produced, yet the possibility of the accident, when there is great disproportion between the dimensions of the head and those of the *pelvis*, especially in the case of a child some time dead, makes it necessary for us to be prepared for manag-

ing the case if it should occur. It has moreover been surmised, that under peculiar circumstances it might be eligible to separate the head from the body, with the expectation of extracting it with more ease* ; but this, however just in theory will not, I believe, give us any advantage in practice, especially in cases of distortion of the *pelvis* ; at least so the accident seems to have proved, when it has unavoidably happened.

When the head of the child has been left behind, the case has been considered as frightful, and, which is true, exceedingly troublesome to manage, because the *pelvis* might be expected to be very small in proportion to the size of the head, except in the case of a putrid child ; and because it could not without great difficulty be fixed in such a manner, as to be conveniently subjected to the action of the instruments, which it may be necessary to use. Of these there has certainly been contrived a sufficient number for the purpose of almost every case. It is nevertheless evident to every practical man, that the greater part of them were the conceits of ingenious men in their closets, and either could not be applied, or if applied, could not be of any service in a case of real perplexity.

The chief obstacle to the extraction of the head, must arise from the disproportion between it and the cavity of the *pelvis* ; and this disproportion can only be removed by lessening the bulk of the head. If this were fixed firmly in the *pelvis*, there would be no difficulty in making the perforation, or in any part of the operation, than in a case in which the head originally presented ; but should the head be disengaged, and lying loose at the superior aperture of the *pelvis*, it would not make due resistance to the point of the perforator, which would be apt to slide, we should be foiled in our attempt, and incur the hazard of injuring the mother. To avoid these inconveniences and mischief, external pressure must be made either by the hands of an assistant, or with a napkin pressed round the *abdomen* with sufficient firmness to keep the head steadily fixed, and this being done, the operation of perforating and lessening the bulk of the head may be performed without any chance of failure or mischief. In the very few cases of this kind to which I have been called, the difficulty has not except in one instance, by any means been equal to what I expected from the representation of different writers. It is a case to be prevented or avoided, if possible ; but when it does occur, there is neither that danger in the case, nor that difficulty in the operation, which

* See note, page 137.

ought to terrify a practitioner who has common resolution, and who gives himself time for a little reflection. It is however said, that in some instances every attempt to extract the head has been in vain, and the patients have been resigned to their fate; of which there is one instance in *Mauriceau*, another in *Chapman*, and some other writers. Yet even in some of these cases, though the patients have most frequently died, after a certain time, the action of the *uterus* has come on, and at length expelled the head; in one case, if I be not mistaken, so late as the twentieth day after the accident had happened. The degree of distention of the *uterus*, occasioned by the mere head of a child, would not indeed be so great, as to make us apprehend any fatal consequences on that account; and if the *uterus* be in a healthy state, a substance of that bulk and kind might be managed, either by common putrefaction, reducing its size and dividing it into portions, or it might by repeated efforts be expelled, especially if the *pelvis* were of any reasonable size. Should the head of the child be retained, it is probable, that the *placenta* would also remain, and the two circumstances combined would add to the danger of each, so that the head never ought to be left, if it can possibly be extracted by any means not absolutely injurious to the patient.

CHAPTER XV.

CLASS FOURTH.

ANOMALOUS, OR COMPLEX LABOURS.

FOUR ORDERS.

ORDER FIRST.

Labours attended with Hemorrhage.

ORDER SECOND.

Labours attended with Convulsions.

ORDER THIRD.

Labours with two or more Children.

ORDER FOURTH.

Labours in which there is a descent of the Funis Umbilicalis before any part of the child.

SECTION I.

ORDER FIRST.

Labours attended with Hemorrhage.

IT is necessary to premise, that no practical advantage can be derived from the arrangement of these labours into one class. This is merely of use for the convenience of doctrine, and to prevent multiplication of classes; for there is not the least resemblance between the different orders of anomalous or complex labours, which do not therefore admit of any general definition or character.

Uterine hemorrhages, from different causes, very frequently occur in practice, and always require great attention; but those, which we are about to consider in this place, are such as depend upon the states of pregnancy and parturition. These have ever been esteemed as constituting a very important part of the practice of midwifery, on account of the immediate and great danger with which they are often attended; and because the safety of the patient, in these cases, more frequently depends upon the judgment and skill of those under whose care she is placed, than in almost any other circumstances. The subject therefore demands to be treated with the utmost circumspection; and though much industry hath been employed upon it, there is reason to believe, that the knowledge of many things, of which we are at present ignorant, is wanting for the perfection of the rules of practice. The knowledge however, which we do possess, it is incumbent upon us to place in the most advantageous point of view, that it may be converted to use; that we may be enabled to do what reason and experience dictate to be necessary and proper; that we may determine upon the time most suitable for acting; and be warned moreover against relying on such things as are useless, or doing what is hurtful.

The word hemorrhage does not apply with propriety to all discharges of blood from the *uterus*, some of these being natural or salutary. The menstruous discharge is natural, but if it should be excessive in quantity, too frequent or irregular in its returns, or prolonged beyond its usual time, it might be called hemorrhage. Every discharge of blood which occurs during pregnancy, however small, may be called a hemorrhage, because it is not natural at that time. The same observation may be made of those discharges, which happen between the birth of the child, and the expulsion of the *placenta*; and these are often profuse, and not unfrequently dangerous. But the discharges, which happen after the expulsion of the *placenta*, cannot be called hemorrhages, unless they are excessive in their degree; because some loss of blood is that time necessary and natural. We may then say, that all effusions of blood, which are inordinate in quantity, or irregular in the time of their appearance, may be denominated hemorrhages; and these, which are the objects of our present consideration, may be divided into four kinds.

1. Those which occur in early pregnancy, or in abortions.
2. Those which occur in advanced pregnancy, or at the full period of utero-gestation.
3. Those which happen between the birth of the child and the expulsion of the *placenta*.
4. Those which follow the expulsion of the *placenta*.

Under one or other of these distinctions will be included every kind of hemorrhage, which depends upon pregnancy or parturition; and this arrangement will not only convey a clear idea of the subject, but be of use also in practice. Yet it is necessary to observe, that there may be a combination of the three last kinds, or any two of them in the same patient; but whether they be separate or combined, the modes of treatment may be accommodated to each case with equal propriety and advantage, as far as it may be reducible to the general denomination.

Greater accuracy is nevertheless required in the description of what is meant by early or advanced pregnancy, or we may entertain different notions of, and use different terms for, the same thing. Perhaps no precise line can be drawn for this purpose, as contingent circumstances may cause a variation in different women; yet the best, which the nature of the subject admits, is probably to be taken from time. We will then say that all expulsions of the *fœtus*, before the termination of the sixth month of pregnancy, may be called abortions*; but all expulsions in the last three months shall be considered as labours, premature or regular. There is a practical reason for this distinction. Before the termination of the sixth month, these cases, generally speaking, neither require nor allow of manual assistance, but in the last three months, they admit of manual assistance, if it be required, though not with equal ease; for the longer the time which is wanting to complete the period of utero-gestation, the greater the difficulty will be which attends any operation, that it may be necessary to perform. It is also to be observed, that expulsions of the *fœtus* sometimes happen so critically, as to render it an extremely difficult thing to decide, to which of the distinctions they ought to be preferred; and in these, if we knew any method of treatment between that enjoined for abortions, and at the full period, such for instance as puncturing or breaking the membranes containing the waters of the *ovum*, that would be most eligible. But on this, as well as many other occasions, there is room to observe, that whenever doctrinal distinction has been made, no absolute rule can be formed for the conduct of the practitioner, in every individual case which may occur, or in

* *Fœtus præmatura ejectione*.—Linnæus.

Sanguinis ex utero gravido profluvium, cum fœtu immaturo vel mola subsequenti.—Vogel.

Partus morbosus et symptomaticus. Fœtus ejiicitur potius quam paritur.—Harv.

every possible situation in which a patient may be placed ; but he knowing in general what ought to be done, and what ought to be avoided, must ever be at liberty to exercise his own judgment in the application.

SECTION II.

It would be curious, and might be of some utility in practice, to ascertain whether women, on account of their menstruation, or their erect position, or the structure of the *ovum*, or the process by which this is connected to the *uterus*, or from any other cause, are naturally more liable to abortions than animals ; or whether frequent abortion in women may not be considered as an attributive, either of habits superinduced by modes of education or of living, or of accidents which might be avoided. There is great room to lament their frequent occurrence in the more civilized, perhaps luxurious scenes of life, and in those constitutions that are extremely delicate, and which are indeed hardly found equal to the continuance of the human race. Yet in those situations which might be presumed to be most unfavourable to the sex, among the lowest ranks of life, abortions, except from violent external accidents, very rarely happen ; so that there is good reason for believing, that women in a state of nature would not be more liable to abortion than other creatures. According to the opinions nevertheless of many systematic writers on this subject, every action in common life has been assigned as the cause of abortion : yet this is rarely the case ; and in general that, about which the patient was employed, when the first symptom appeared, is fixed upon as the particular cause, though probably she was before in such a state, that abortion was inevitable. But if this opinion were just, then the event ought rather to be imputed to some previous indisposition, or the excess of some actions, forgotten perhaps when abortion actually takes place, than to the exercise of the body on common occasions. Yet greater practical benefit will be obtained, if we seek for the causes of abortion in the general infirmity of the constitution, or in some particular state of the *uterus*, or its appendages, than by imputing it to these accidents. As far as the constitution may be altered, by the reduction of the general strength, by excessive irritability, by plethora or febrile disposition, so as to be unable to perform its functions, or to perform them with ease, propriety, and regularity, we may esteem every cause capable of

producing such a state, as a primary cause of abortion. It does not, however, often happen, that simple weakness is a cause of abortion; for women who prove with child, in very weak and reduced states of the body, particularly in consumptions, in which there is a great aptitude to conceive, have, of all women, the least disposition to miscarry; yet a state more feeble and more irritable could with difficulty be pointed out. But the weakness and irritability then are of a particular kind, not arising from, connected with, or influencing the *uterus*, which proceeds in the performance of its functions, as regularly as if the whole constitution was in a state of perfect health. We may hence conclude, that either weakness or irritability in general is seldom a cause of abortion; but some weakness or imperfection originating in, or affecting the *uterus* or its appendages; or a peculiar kind of irritability, thence proceeding, distinguishable enough in the female character, by a careful observer, which creates impatience of mind and restlessness of body; in which every occurrence is the parent ungrounded fear and solicitude, and every office is performed with hurry and vexation. As an abundance of acrimonious, or some other humour, or some quality of the body, may transfer this state to the mind, so the mind often reverberates this state to the body, the continuance of which will often prevent, or impede the regular performance of any process. It is therefore often found of as much importance, to give composure and steadiness to the mind of a patient, by leading her to hope and cheerful expectation, by soothing and comfortable conversation, as it is to administer medicines to the body.

With respect to the state of the *uterus*, the opinion originally entertained and still pursued, as far as can be collected from the medicines usually prescribed, was, that it failed to perform its office on account of its excessive lubricity, as if the *ovum*, before loosely attached, slipped out of the *uterus*; but this idea will not bear examination, being supported neither by the reason of the thing, nor by the occurrences of practice. It is remarkable, that women, who are in the habit of miscarrying, go on in a very promising way to a certain time, and then miscarry, not once, but for a number of times, in spite of all the methods which can be contrived, and all the medicines which can be given; so that besides the force of habit, there is sometimes reason to suspect, that the *uterus* is incapable of distending beyond such a size, before it assumes its disposition to act, and that it cannot be quieted till it has excluded the *ovum*. What I am about to say will not, I hope, be construed as giv-

ing a licence to an irregularity of conduct, which may often be justly assigned as the immediate cause of abortion; or lead to the negligent use of those means which are likely to prevent it. But from the examination of many *ova*, after their expulsion, it has appeared, that their longer retention could not have produced any advantage, the *fatus* being decayed, or having ceased to grow long before it was expelled. Or the *ovum*, has been in such a state, as to have become wholly unfit for the purpose which it was designed to answer; so that if we could believe there was a general intelligence existing in every part of the body, we should say, it was concluded in council, this *ovum* can never come to perfection, and the sooner it is expelled the better. Nevertheless, in some cases, the *ovum*, though extinguished, if the expression may be allowed, will remain inoffensive in the *uterus* to the period of legitimate pregnancy.

Conception probably depends upon the perfect state of one or both *ovaria*, and will therefore sometimes take place, when the *uterus* is considerably diseased. But the progress depends upon the state of the *uterus*, and chiefly upon that of the *fundus*; for I have known several instances of women, who had both excrescences and induration about the *os uteri*, who have conceived and gone on to their full time without any material inconvenience.

The imperfections observable in *ova* are of different kinds, and found occasionally in every part, and there is usually a consent between the *fatus* and shell of the *ovum*, as the placenta part and the membranes may be called, but not always. For examples have occurred, in which the *fatus* has died before the termination of the third month, yet the shell being healthy has increased to a certain size, has remained till the expiration of the ninth month, and then been expelled, according to the genius and constitution of the *uterus*, though frequently it has been found to have undergone great changes, as, for instance, in many cases of hydatids. But if the shell becomes diseased, then the *fatus* being deprived of its nourishment is of course destroyed, and both are expelled, as any other extraneous body would be, though not immediately on the accession of the mischief. There is reason to believe, that the part of the *ovum* most commonly diseased is not that which passes from the *ovarium*, but that production of the *uterus*, which is prepared for the reception of the *ovum* after its passage from the *ovarium*, and which may be called the connecting membrane of the *ovum*. When that process, by which the two membranes are cemented, goes on without interruption, I believe the connec-

tion is completed between the sixth and tenth week from the time of conception. But when an abortion is about to happen, there is usually between this and the outer membrane of the *ovum* an effusion of blood, which insinuates itself through the cellular membrane of the *placenta*, and between the membranes, giving externally to the whole *ovum* a tumid and unequal appearance, often not unlike a lump of coagulated blood, for which it has been frequently mistaken. It is probable, that either the connecting membrane is imperfectly formed, or there is some difficulty, and a failure in the completion of the union between it and the *ovum*; according to this opinion the causes of abortions are generally to be sought for in the female only, contrary to what I formerly suspected.

SECTION III.

ALL the means which can be advised with any prospect of success, in the treatment of abortions, whether the cause consist in the constitution or in the *uterus*, may be considered as preventative or curative. In either of these views we must chiefly recur to the constitution; as in the first case, it is the great object of our attention; and in the second, as the principal chance of producing any salutary change in the *uterus* is through the medium of the constitution, on the improvement of which our success must ultimately depend. Should a separation of the husband from his wife's bed be thought necessary, it must be chiefly so about the period above mentioned, unless when there have been frequent miscarriages at any other precise time, as that would always require particular attention.

As women with different constitutions and different states of health are subject to abortion, every mode of treatment must be accommodated to the constitution of each patient, and to the disease of which there may be any indication. In plethoric and febrile habits it may be proper, to take away a small quantity of blood, soon after the suppression of the menstruous discharge, and occasionally afterwards; to enjoin a spare, or even a vegetable diet, and to give cooling medicines; in some habits, in which the *uterus* may be supposed unwilling to distend beyond a certain degree, or where the degree of irritability is extreme, to prescribe opiates in small quantities often repeated; and sometimes tepid bathing. In debilitated and languid constitutions, a strengthening diet must be allowed, and wine, especially claret, in a larger quantity than ordinary, at such times as the

patient may be more sensible of depression, or the want of support. Every kind of medicine, which promises to give vigour and energy, will also be proper, as the cortex cinchonæ in any convenient form, and preparations of iron in the officinal or extemporaneous forms, or mineral waters in small quantities. The shower bath, dashing cold water upon the loins, the cold bath, sea-bathing especially, are pretty constantly recommended for the general purpose of improving the health, not only in those who have a disposition to abortion, but in those also who are accustomed to bring forth dead children, or who are prone to hemorrhages at the time of delivery; and experience has shewn, that they may, in many cases, be continued through the whole time of pregnancy with safety and advantage. For the great purpose of establishing permanent strength in those, who have had long continued ill health, or who are in a habit of meeting with these untoward accidents, nothing seems better calculated, or is found to be more useful, than travelling; not taking a hasty journey, but wandering about by easy stages, for many months, by which the evils, that appertain to the too refined scenes of civilized life, are done away, the mind becomes soothed and composed, and the corporal advantages of a natural state are in some measure, acquired.

When the health cannot be confirmed, so as to enable the constitution to bear the common exigencies of life it has been thought advisable to remove patients from them, by confining them occasionally to their house, to a floor, or a single room; even to a horizontal position, throughout pregnancy; at least till the period when they were accustomed to miscarry is past, and the injunctions in this respect must accord with the debilitated or irritable state of the patient. Some instances of advantage from this method I have known, particularly in the early part of pregnancy. But if we were to consider abortions as originally proceeding from weakness, or too great a degree of irritability, confinement to a room, or any treatment by which both those evils are likely to be encreased, seems a strange method of preventing mischief; and from what I have seen of the general issue of such strict practice, much cannot be said in its favour, the event being usually deferred, but not hindered. In the management of some cases of this kind, I have thought myself entitled to credit, but I must also acknowledge, that I have been frequently disappointed, yet from some general improvement of the health, or for some reason, not obvious or easy to discover, the patient, wearied with the fruitless attempts of art, and deserting all rules, has another time escaped the abortion, which I had before in vain attempted to prevent.

With respect to that state of the *uterus* itself, which may be considered as the cause of abortion, should there have been any indication from the discharges being irregular or profuse, if they be of the sanguineous kind; from their quality or degree, if of that kind which passes under the general name of weakness; it is first to be determined, whether they be symptoms indicating a certain state of general health, or any morbid disposition of the *uterus*. Should they even be of the latter kind, it is in general only by application to, and improvement of, the constitution at large, that we have the power of making any material alteration in the state of the *uterus*. Something may however be done by local applications of various kinds, especially by injections, but their activity must not be such as to make too quick an alteration, by suppressing suddenly any kind of discharge, to which the part itself, or the constitution, may have been long accustomed. For it must be observed, that disagreeable as these discharges are, their sudden suppression by the use of powerful astringents, often occasions very serious or dangerous diseases; and such discharges seem to be really of secondary use. That is, if we suppose a certain state of the *uterus*, the discharge may be absolutely necessary for its relief, while it remains in such a state, and the state is to be changed previous to the suppression of the discharge; else, instead of removing, we shall add to the existing disease, or produce one of a different and worse kind. In such states of the *uterus* as dispose to abortion, I have seldom dared to advise any more active application than the Bath or Buxton Waters, which may be injected into the *vagina*, in the interval between the two periods of menstruation, or even for a longer time. I say into the *vagina*, because I do not approve of daily or frequent attempts to introduce any instrument within the *os uteri*, on this account, or for the relief of any disease. It must however be mentioned, that some have assured me, they have advised the use of astringent injections, even those composed of *zincum vitriolatum*, and other medicines of that class, not only for the cure of weakening discharges, but with much advantage also in pregnancy, when there was a propensity to abortion.

SECTION IV.

THE circumstances attending abortions, and the symptoms by which they are threatened or accompanied, are very unlike in different patients, as are indeed all the effects arising from

uterine disturbance. But there is generally pain in the back, *abdomen*, and inferior extremities, with a sense of weight and weakness in the region of the *uterus*, frequent micturition, and a tenesmus; but the most certain sign of an abortion is a discharge of blood, which proves that some part of the *ovum* is already loosened from the *uterus*.

When such discharge happens during pregnancy, especially at an early period, it has been a received opinion, that abortion was inevitable, because it was presumed, that the separation which it proved could not be repaired. It must be allowed, that under such circumstances there is always too much reason, to apprehend an abortion: yet experience has fully shewn, that women, who have had not one, but repeated discharges, and sometimes to a profuse degree, with considerable and regular pains, have gone to their full time, without any imperfection in the child, or any detriment to the mother; the pain ceasing, and the loosened part, by some operation beyond human skill, having been cemented and re-united to the *uterus*, which I presume may take place in ten or twelve days after the cessation of the discharge. There seems to be just so much chance of preventing an abortion, when there has been a discharge of blood, as to make it worth while to use the common means for that purpose, and to keep the patient cool and composed, which must in such cases be the general aim, by means suited to her constitution and any peculiarity in her situation.

There is an almost endless variety in the manner, in which abortion happens. Some women abort with sharp and long continued pains; others, with little or no pain, the *ovum* gliding out of the *uterus* almost imperceptibly; some with a profuse and alarming hemorrhage, others with very little discharge. In some, the *ovum* has been soon and perfectly expelled; in others, after a long time, first the child, then the *placenta*, whole, or in small portions, or part of it dissolved. But whatever other pain or trouble may attend, the hemorrhage is the only immediately alarming symptom; I say immediately, because every practitioner must be convinced, that either abortions occasion local diseases, or the time of abortion is an era, from which we may date the commencement of some dangerous diseases of the *uterus*, or its appendages. It has also been imagined, that the safety of the patient very much depended upon the complete and speedy expulsion of the *placenta*; and when it was retained, very active deobstruent medicines, as they were called, were supposed to be necessary and strenuously given for the purpose of expelling it, lest it should become putrid, and

some of the putrefied parts be absorbed into the constitution. I believe the whole of this supposition is groundless, having seen many instances of its being expelled in a very putrid state at different periods of pregnancy, when the patient was in perfect health; and when the patient had a disease, the putridity of the *placenta* clearly seemed the consequence, not the cause, of the disease. At all events, much less mischief may be expected from the retention of a putrid *placenta*, than from attempts to force it away by the medicines usually given, or by manual assistance.

The degree of hemorrhage in abortions is not always in proportion to the period of pregnancy, but it depends upon the difficulty with which the *ovum* may be expelled; sometimes upon the cause, and often upon some peculiarity in the constitution, as happens in the menstruous discharge.

A notion of there being something mysterious in uterine hemorrhages, different from those from any other part of the body, has been entertained, and supposed to occasion the necessity of a peculiar treatment. But it is now agreed, that the general principles, which guide us in the treatment of hemorrhages from any other part of the body, are with equal propriety applicable to those from the *uterus*. We must however recollect, that in uterine hemorrhages, depending on pregnancy, there is an additional circumstance, which we are ever to bear in mind; that they are ultimately to be suppressed by the action of the *uterus*, contracting its cavity into a less compass, of course lessening the dimensions of the vessels, and expelling whatever may be contained in its cavity; and in this view, uterine hemorrhages do certainly differ from those of any other part of the body.

Hemorrhages of all kinds are moderated, or wholly stayed, by the formation of *coagula* at the orifices of the open vessels; or by the contraction of the coats of the vessels themselves, by which their orifices are lessened or closed. The latter of these effects being stronger and more active in arteries than in veins, may be a reason for the common observation, that hemorrhages from arteries, thou in an equal degree, are less dangerous than those from veins, in which the power of contraction is wanting. It has been proved by physiologists, that both these effects, that is, the formation of *coagula*, and the contraction of the vessels, are favoured when the blood circulates most slowly, as in fainting; not to mention, that the quantity of blood lost in a given time will depend upon the rapidity or slowness of the circulation, as well as upon the size of the vessel opened. But in a

state of faintness, which speedily follows all profuse hemorrhages, the three effects are produced at the same time, the blood circulates more slowly, *coagula* are sooner formed, and the vessels do contract more efficaciously. During faintness, the advantage arising from the contraction of the *uterus* is likewise obtained; for this acts, or makes its efforts to act, in sleep, during faintness, and sometimes even after death. Fainting may then be considered as a remedy provided by nature for averting the immediate danger of all hemorrhages, and to prevent their return. Cordials or stimulants should not therefore be given to those who are faint from hemorrhages, till by the duration of the faintness we conclude there has been sufficient time to produce those effects, which would prevent a renewal of the hemorrhage, or lessen its danger if it should return; and then they are to be given liberally, and repeated as often as the circumstances may require.

The *materia medica* abounds with articles under the class of astringents, many of which are given indiscriminately in hemorrhages and profuse discharges of every kind; nor does much distinction seem to have been made between those, which were found useful in hemorrhages as applications, and those which were given internally. It has rather been concluded, that what was found useful as an external application, would of course be profitable if given internally. It is however clear, that astringent medicines, properly so called, can have no immediate power of stopping hemorrhages from the *uterus*, or any other part of the body, excepting the intestinal canal; but that every medicine, which slackens the circulation of the blood, becomes eventually an astringent. If the patient therefore be plethoric or heated, it may be proper to bleed in an incipient abortion accompanied with an hemorrhage; though if she be reduced to a state of great weakness, that operation would be useless and improper. The saline draughts with nitre, or nitre alone; or acids mineral or vegetable, may be given as frequently and in as large a quantity as the stomach can bear. Even the nausea, which these and other medicines sometimes produce, has, by no forced construction, been considered as an artificial imitation of faintness, and found serviceable, and medicines have been given expressly for this purpose; the safest perhaps, and not least effectual, of which is *ipecacuanha*, in small quantities, often repeated, so as to keep up a perpetual nausea. Oil of *turpentine* and the *cerussa acetata* in proper doses have been recommended, and certainly are very powerful medicines in hemorrhages, but they seem better suited to those which are habitual

or of long continuance, than to those which are instantly profuse, and dangerous. When the discharge is profuse, cloths wet in cold vinegar may be applied to the *abdomen* and loins, and changed when they grow warm. In *Italy* and other hot countries, and sometimes in this, it is a custom to sprinkle ice crushed into small pieces over the body of the patient, who must also be exposed to and suffered to breathe the cold air. On the same principle clysters of cold water have been advised. In short, every application and medicine, actually or potentially cold, the coldest water, even ice itself, if it can be procured, may be given and repeated with probable advantage, when the exigency of these cases requires very powerful assistance.

Injections of cold or astringent fluids into the *vagina* have been recommended, as being of great service for the suppression of uterine hemorrhages. If we attempt to throw up the injections when the blood is flowing in full torrent, they will be immediately rejected; and if they be used with the view of preventing a return of the hemorrhage, which has already ceased, it is rather to be expected, by washing away the *coagula* formed and applied to the orifices of the vessels, that they would occasion it. The principal good, that can be derived from them, probably is by their action upon the internal parts as a cold application, and in this view ice has been introduced into the *vagina*. Less objection may perhaps be made, and equal or rather greater advantage will attend the introduction of lint, or any soft substance, moistened with spirit of wine or any astringent liquor into the *vagina*, which may serve the purpose of forming *coagula*, and applying them to the orifices of the opened vessels. But I have generally been satisfied with the application of a cloth wet with cold vinegar to the external parts, with so firm a pressure, that the stream of blood should be instantly retarded or stopped. This might have been originally done instinctively, to remove the immediate dread of the hemorrhage, and to give me a little time to reflect and determine how I should proceed; but being persuaded that this is of real utility, it is a custom with me to do it, in the first instance, in every alarming or dangerous hemorrhage.

Opiates have been generally recommended as of principal efficacy for the prevention of abortions, and in all cases of uterine hemorrhage; but I seldom use them in the latter situation, unless with a view of moderating any unusual degree of pain, or of quieting some tumult which preceded, attended, or followed the accident, and then in moderate doses repeated accord-

ing to the urgency of the case ; having reasoned myself into an opinion that they do not, in these cases, deserve the high commendation which has been given them. Some pain is unavoidable and necessary, for the exclusion of the *ovum* out of the cavity of the *uterus*, whenever we have given up the hope of preventing abortion. The degree of pain proves the degree of action raised for the purpose, and we should consider how far by lessening the pain we may lessen the action, and by lessening that action, by which the *ovum* would be expelled, whether we contribute to the suppression or continuance of the hemorrhage, or to the more regular conduct of the abortion.

It was said, that no manual assistance was required in the management of abortions, and no rule can be more generally true ; yet there are some exceptions. When, for instance, a woman who is miscarrying, with a considerable, or an apparently dangerous hemorrhage, is so far advanced in her pregnancy, that it may be difficult to decide whether we should deem it an abortion or a premature labour ; it may not be safe to rely upon the use of those means which were advised for hemorrhages in general, and yet the operation of delivering would be extremely difficult and hazardous. We may then determine upon an intermediate method, which is to break the membranes. By the discharge of the waters of the *ovum*, which necessarily follows, the distention of the *uterus* is lessened, of course the size of the open blood vessels, by which the discharge had been made, is diminished, and the hemorrhage is abated or suppressed. In consequence also of the discharge of the waters, the *uterus* acquires a disposition to act, and an ability to act with more energy, and the whole business is sooner completed. At a more early period of pregnancy, when the hemorrhage is profuse, liable to return, or of long continuance, on examination *per vaginam*, not otherwise thought necessary, the *ovum* will sometimes be found hanging in the *os uteri*, half or more of it voided out of the cavity of the *uterus*, yet enough remaining to keep up the hemorrhage. Then, by a little motion or slight impulse in different directions, it will sometimes be cleared of the *os uteri*, and drop into the *vagina*. But great caution is to be used in this operation, for if it be done with violence, it may occasion an increase of the hemorrhage, or be a cause of future mischief.

In abortions, dreadful and alarming as they sometimes are, it is a great comfort to know, that they are almost universally void of danger, either from the hemorrhage, or any other account. It is perhaps impossible to explain it, but the fact is undoubt-

edly true, that an equal loss of blood, and with apparently equal effects, should, in abortions, if properly managed, and the patient be in good health when they take place, not occasion any danger; and yet at the full period of uterogestation be so dangerous, that one considers the patient who recovers as having a lucky escape. It is wonderful also to observe, how some women recover from the debility occasioned by hemorrhages in abortions; and how long a time is often required for their recovery after the same circumstance in advanced pregnancy. But though I reckon there is little or no danger from mere abortion, yet when the accident is in consequence of acute diseases, there is often extreme danger; for women abort because they are already in great danger, and this is aggravated by the abortion. Without a more accurate distinction we may still form an erroneous prognostic. It has been said, for example, that women who miscarry, or are delivered at the time of their having the small-pox, universally die. Now if a pregnant woman should, at any period of pregnancy, expel her child in the commencement of that disease, perhaps from the violence of the eruptive fever, she may not only escape the danger, but go through the disease with as much regularity, as if she had not miscarried. But if that period of the disease be passed without abortion, and the patient should go on to the time of the crisis, and then miscarry, the general prognostic will be too true; at least the death of the patient has followed in every case of this kind which I have seen. But since the first publication of these observations I have been informed of two cases of early abortion, which have proved fatal. the first, the patient became paralytic immediately after the hemorrhage; but the death of the second, though she was only in the seventh week of her pregnancy, seemed to be occasioned merely by the hemorrhage, or more probably by a convulsion.

SECTION V.

UNDER this head will be included all the hemorrhages which occur in the three last months of pregnancy, because from the danger with which they are attended, they require, and from the situation of the patient, they allow of a similar treatment when required, though not with equal facility. These hemorrhages are occasioned, 1st. by the attachment of the *placenta* over the *os uteri*; and this is discovered by our being able to feel in a common examination only a fleshy substance, without any part of the membranes: 2d. by a separation of a part, or of the

whole *placenta*, which had been attached to any other part of the *uterus*, and this is known by our being able to distinguish the membranes without any fleshy substance. This separation may be caused either by the approach of labour, dilating the *os uteri*, and of course separating, in proportion to the degree of dilatation, the *placenta*; or by accidental violence, or by some morbid affection of the *uterus* or *placenta*, and it sometimes happens without our being able to assign any cause, equal to the suddenness and violence of the effect produced.

Hemorrhages arising from the first cause have been considered, and generally are more dangerous than those from the second; but these have nevertheless sometimes proved fatal. Hence in the estimate of the danger of uterine hemorrhages at the time of labour, it is necessary not only to discover the cause, and to regard the quantity of blood lost, but, above all other considerations, to attend to the effect produced, which is infinitely greater in one constitution than in another, and varies in all. If any individual patient therefore be brought into a state of danger by the loss of blood, great or small, it seems incumbent upon us to put in practice all the means in our power for the removal of the danger. For any judgment formed upon the quantity of blood really or apparently discharged, will be liable to great errors, as concealment or accident may deceive us; not to mention that cases sometimes occur, in which there may be a greater quantity of blood lost, than can be known, either by its being locked up in the *uterus* beyond the child, when the membranes are broken, or by being effused into the *ovum*, when that has an appearance of being whole. This observation, of the necessity of judging principally by the effect of the loss of blood, deserves the most serious reflection, because, the *time when* we are to execute what reason dictates, or experience authorizes us to do, will chiefly depend upon it. It is also of great importance to recollect, that those hemorrhages are far more dangerous, in which an equal quantity of blood is lost suddenly, or in a short space of time, than if it flows away slowly. The immediate injury to the constitution is greater in the former case, the vessels requiring some time to enable them to be accommodated to the quantity of blood remaining in them, in order to carry on the circulation. A great and sudden loss of blood also creates a suspicion that the return of the hemorrhage is to be much dreaded, because if it should be equally profuse with that which has already happened, it may occasion the death of the patient, before we have time to put in practice, or reap the advantage, of what we suppose to be the only method of removing the danger.

In hemorrhages the danger is indicated by the weakness and quickness of the pulse, or by its becoming and continuing imperceptible; by a general paleness and coldness of the body, and by a ghastly countenance; by inquietude, or by continual faintings; by a high and laborious respiration, and by convulsions. The two last are usually mortal symptoms; yet when patients are reduced to a certain state of weakness, they are liable to hysteric affections resembling convulsions, that are equally alarming, but by no means so dangerous.

When patients have suffered much from loss of blood, they will often have a sudden and violent fit of vomiting; and sometimes under circumstances of such extreme debility, that I have shrunk with apprehension, lest they should have been destroyed by a return or increase of the hemorrhage, which I concluded was inevitable after so violent an effort. But there is no reason for this apprehension; for though the vomiting may be considered as a proof of the injury which the constitution had suffered by the hemorrhage, yet the action of vomiting contributes to its suppression, and to the immediate relief of the patient; perhaps by some revulsion, and certainly by exciting a more vigorous action of the remaining powers of the constitution, as is proved by the amendment of the pulse, and of all other appearances immediately after the vomiting.

A tolerably just opinion may be formed of the danger of uterine hemorrhages, in advanced pregnancy, by the pain with which they are attended. An equal hemorrhage without pain, is always more dangerous than if the pain be regular and acute, and the danger is lessened as the pain increases. In the most dangerous hemorrhages, there is no pain whatever, or none of consequence, and patients have often died, or been brought into the most imminent danger, that is, into situations from which it was scarcely possible for them to recover, whilst the practitioner was waiting for the accession of the pains of labour. The reason was before mentioned. The pain proves the degree of the action of the *uterus*, and the action of the *uterus* proves that the powers of the constitution are not exhausted. In very bad cases there is before delivery an effort in the *uterus* to act, just sufficient to cause a renewal of the hemorrhage; but immediately upon the discharge of a gush of blood, the effort, together with the little pain attending, ceases; and in this manner patients would sometimes proceed to the moment of their death, unless they were relieved by art.

SECTION VI.

THOSE hemorrhages, which are occasioned by the attachment of the *placenta* over the *os uteri*, are first to be considered, because they are attended with the greatest danger, and because some part of their treatment will apply in the other cases to be described.

Though the *placenta* be attached over the *os uteri*, the woman usually goes through the early part of her pregnancy without any inconvenience, or any symptom, at least which denotes that circumstance. But when the *cervix* of the *uterus* is distended to a certain degree, or when the changes previous to labour come on, there must be a hemorrhage, because such distention, or change, will necessarily separate a part of the *placenta*. This hemorrhage is often, but not always, in proportion to the space of the *placenta* attached over the *os uteri*, or to the quantity separated, for women have sometimes been in as great danger when the mere edge of the *placenta* was fixed upon the *os uteri*, as if the middle had been placed over it.

When hemorrhages from this cause once come on, though all women without proper assistance would not die, they are never free from possible danger, till they are delivered. As there is a very doubtful chance of the accomplishment of the delivery by the pains of labour, and as experience has fully proved the insufficiency of all other methods, intended to suppress the hemorrhage, and how little reliance ought to be placed on them, though they are always to be tried; it is a practice, established by high and multiplied authority, and sanctioned by success, to deliver women by art, in all cases of dangerous hemorrhage, without confiding in the resources of the constitution*. This practice is no longer a matter of partial opinion, on the propriety of which we may think ourselves at liberty to debate; it has for near two centuries met the consent and approbation of every practitioner of judgment and reputation, in this and many other countries.

There is much comfort in knowing and possessing a remedy, to which we can recur, with a more than equal chance of success, in any case of great and imminent danger. But though it should be allowed, that the artificial delivery of the patient, in every case of dangerous hemorrhage, in advanced pregnancy, is expedient and necessary for the preservation of the life of the

* See Mauriceau, and almost every succeeding writer.

patient; and though the practitioner, who should neglect it, would be very reprehensible; yet the necessity, presuming it to arise solely from the loss of blood, or that expediency, which constitutes the authority for the operation, and which is now clear and distinct to another, may not appear to me. Besides, should the necessity be acknowledged, and the practice approved, there may be much dispute and difference of opinion about the *time when* the operation ought to be performed.

It would be of great advantage in practice, if some mark were discovered, or some symptom observed, which would indicate the precise time when women with hemorrhages of this kind ought to be delivered. But though we do not at present know any such mark or symptom, and the determination of the time is to be made by the judgment of each individual practitioner, we may be permitted to state what we do know in the most convincing point of view.

Admitting then, in the first place, that women having uterine hemorrhages from this cause, in advanced pregnancy, are not in safety till they are delivered; that the natural efforts are generally unequal to the expulsion of the child; that the hemorrhage can only be staid by the evacuation of the contents of the *uterus*, giving an opportunity to the vessels to contract and to close; that these salutary effects may be produced as certainly by an artificial extraction, as by a natural expulsion of the child; and if it be moreover true, that the operation, though performed before it is absolutely necessary, is not attended with danger, if it be performed in a proper manner, and with due care; but that if the operation be delayed beyond the proper time, it will not answer the purpose for which it is recommended; we may from these premises conclude, that a woman under the circumstance of dangerous hemorrhage ought to be delivered by art, if the natural efforts be unequal to the expulsion of the child; that it is better to deliver too soon, than to delay the delivery a moment too long; and that in every case of doubt, it is a proof of wisdom to decide, and determine upon speedy delivery.

If however we were certain that the *placenta* was attached over the *os uteri*, it would seldom be necessary to deliver women on the first appearance of the hemorrhage; yet that will be sufficient to awaken our apprehensions, and set us upon our guard. Nor does it often happen that a second or even a third discharge obliges us to proceed to deliver immediately: because each return may not be in such a quantity, as by its violence or continuance to endanger the life of the patient, or very

much to reduce her strength ; and such an interval may pass between the returns, as to give time and opportunity for repairing the mischief done by one loss of blood, before the return of another. Nor is delivery by art necessary, or usually proper, when the hemorrhage is abating. There are cases however, in which the quantity of blood lost, the suddenness of the discharge, and the effect produced, are such with one hemorrhage, as to make it evidently unsafe to trust a return ; and whenever the countenance, and other appearances, indicate, that the constitution is much impaired, by repeated, though not profuse discharges, the strength is undermined, and danger creeps on certainly, though insiduously. For we may presume, that every constitution is capable of bearing the loss of a certain quantity of blood, without the instantaneous hazard of life, and this will depend upon the general state of the body. Now the body may be reduced to such a state, that there is barely a sufficient quantity of blood, or of powers, to carry on the business of life, upon a very nice balance ; and of course the additional loss of a small quantity may altogether destroy the power of living, and the patient die of the hemorrhage, though the quantity of blood which shall immediately precede her death may be small ; but unfortunately she was able to bear the loss of none. We should therefore, though careful not to act rashly and unadvisedly, not only be on our guard against the effect of rapid and profuse discharges, but against those which are productive of as much danger, on account of their returns, though less in degree at any one time ; we should ever call to mind the possible evil of delay, and recollect that there is little danger in a premature delivery, if the operation be performed with prudence.

Those who are young in practice, or of timid and anxious dispositions, often suffer much solicitude from the apprehension of danger, when it does not exist in these cases, which, for many reasons, I consider as highly proper for a consultation, when it can be procured.

In some cases, in which it has been presumed to be necessary to deliver the patient on account of the hemorrhage, the parts have been in such a state, that the operation could not, it was thought, be performed with safety. Whenever the case demands the operation, on account of the danger of the hemorrhage, the state of the parts will always allow it to be performed with safety, though not with equal facility ; and though it may often be necessary to determine speedily upon the propriety of the operation, this should never be performed rashly, but always

with the utmost deliberation and slowness, even though it might admit of haste. For in hemorrhages a woman may perish from two errors in practice; from delaying the operation too long, and from the rude, violent, or improper manner, in which it may be performed.

Sufficient notice hath been taken of the danger of precipitating, as well as that of delaying the delivery, in cases of hemorrhage. With respect to the operation, the first part, that is, as far as relates to the position of the patient, the introduction of the hand, and the dilatation of the *os uteri*, has been already described under preternatural presentations. When the *os uteri* is with great caution sufficiently dilated, to allow of the ready admission of the hand, and we come to the *placenta* attached over it, it is of no consequence whether we begin to separate this till we come to an edge, and go up on the outside of the membranes, which may be ruptured at pleasure or whether we perforate the substance of the *placenta*, and conduct the hand directly into the *ovum*, though by the latter method there is rather more danger of losing the child. In either case, without regard to the position of the child, we must proceed to and lay hold of its feet, carefully distinguishing that they are the feet, before we begin to extract them. Immediately on our beginning to withdraw the hand, which should be done with a slow waving motion, the waters of the *ovum* flow away; and while they are flowing, we must withdraw the hand, grasping the feet of the child, till by slow degrees these are brought into the *vagina*. We are afterwards to wait till the *uterus* contracts, and then gently bring the feet through the external parts. It is not improbable but we may then have the power of finishing the operation very speedily; but though the child were extracted, if the *uterus* did not act, and, as it were, follow the child, as there would be a chance of the hemorrhage returning, the child should be withdrawn according to the degree of the contraction of the *uterus*, which will be known either by the application of the hand to the *abdomen*, or by the pain. Nor is there any occasion at this time for hurrying the delivery, as the hemorrhage usually ceases as soon as the child is turned, in consequence of the compression made upon the orifices of the vessels, by the inferior parts of the child, as well as by the contraction of the *uterus*. If the labour-pains be at all efficient at this time, it would be proper to leave the breech of the child to be expelled by them; but if they be not sufficiently strong for this purpose, assistance must be given, gently extracting by the feet only during the continuance of a pain, not with force sufficient to bring

it away, but with the view of aiding the feeble power exerted by the pains, imitating also the pains in the manner of extracting. When the breech of the child has passed through the external parts, the delivery must be hastened, as there is then danger of the child being destroyed by the pressure upon the *funis*. Yet under such circumstances there is often a better chance of preserving the child, by leaving it to be wholly, or in a great measure expelled, than by extracting it with violence, as hath been before observed.

When the child is born, if the operation were slowly performed, there is not usually any continuance or return of the hemorrhage, unless from the blood previously discharged, and locked up behind the body of the child; but if the hemorrhage should return, the case must be managed, as will be recommended, when we speak of a hemorrhage with a retained *placenta*. If there be no hemorrhage, and the *placenta* be retained, we must be particularly cautious not to hurry it away; but in these cases it is commonly expelled with great ease, and we have less occasion to be solicitous, because from the part where it was originally attached, it more readily admits of assistance if required.

Should nothing uncommon happen in the delivery, children will often be born alive, in cases of hemorrhage, which were extremely dangerous to the mother; and there have been many instances in which the delivery being too long delayed, a living child has been extracted, after her death. In all cases of danger, these in particular, the safety of the parent, and the preservation of the child, are events which give inexpressible satisfaction, and adorn the reputation of the practitioner.

SECTION VII.

It was before observed, that those hemorrhages which are occasioned by the separation of a portion or of the whole *placenta*, originally attached to any part of the *uterus*, except the *os uteri*, were not generally so dangerous as those last described. But if the separation be extensive and sudden, they will be equally alarming, the real danger may be as great, and the same method of proceeding, that is, speedy delivery by art, may, though not so generally, be required. The separation may be occasioned by great violence from external accidents in the latter parts of pregnancy; or in some intense fit of fainting or of laughter; and sometimes the whole or a very large part of

the *placenta* will be separated suddenly, without any accident or symptom which could give warning or apprehension, that such an event was to be dreaded. The separation of the *placenta* may then happen previously to the commencement, and it is not surprising that it should sometimes occur during any period, or stage, of labour.

When sudden and violent discharges of blood happen to women with child, in advanced pregnancy, from external accidents, if the patient be kept in a cool and composed state, the discharge may cease, and without any return, the patient may go on to her full time, and be delivered by her natural pains, as if no such accident had happened; though the child will often be stillborn. Sometimes however the hemorrhage will return, or it may commence in any stage of a labour, and our conduct must be regulated by the degree and probable consequences of it, and by the state of the labour when it was first discovered.

If any considerable hemorrhage should come on in the beginning of a labour, or previous to it, and if the treatment must in any measure depend upon the cause, it is necessary in the first place that we should decide whether the *placenta* be attached over the *os uteri*, or be casually separated. Before there is some degree of dilatation of the *os uteri*, be the discharge ever so profuse, and it may even at this time be excessive, I do not know that it is always possible to tell with certainty whether the *placenta* present or not. It may indeed be conjectured, that the *placenta* is there attached, by the cushion-like feel of the *cervix* and lower parts of the *uterus*; and when the *os uteri* is somewhat dilated, instead of the membranes, the fleshy substance of the *placenta* may be distinguished. Yet every practitioner knows how very different the state of these parts is in the beginning of labour, and how difficult it must be to distinguish between a firm *coagulum* of blood and the *placenta*; not to mention that so small part of the *placenta* may be attached over the *os uteri*, that unless we could pass the finger completely round the circle, which is sometimes almost impossible, it could not be discovered. Taking therefore into consideration all the varieties occasioned by either of the causes of hemorrhage, and knowing that neither the performance of the operation, nor the event, is materially different, whatever may be the cause, provided the discharge and its effect are equal, we must be careful, that we are not deceived by attempts to make too nice distinctions*.

* See an *Essay on this subject* written by Mr. Rigby, an able and experienced surgeon at Norwich.

From a casual or spontaneous separation of the *placenta*, not attached over the *os uteri*, a hemorrhage may happen in the beginning of labour, when the *os uteri*, for example, is not in any degree dilated; or when it is dilated to a third or half its extent, or any other degree. If the discharge should be so great as to require some present measures for the relief of the patient, the methods before advised must be put in practice, and the common assistance for promoting the dilatation must be given, till we can feel distinctly the membranes of the *ovum*, which are to be ruptured. By the discharge of the waters the distention of the *uterus* will be lessened, the size of the blood vessels of course diminished, and the hemorrhage in general immediately removed or very much abated. By the suppression or abatement of the hemorrhage, the action of the *uterus* will be rendered stronger, and the delivery often completed in a short space of time without farther assistance, especially if the patient have before had children.

In every case of dangerous or considerable hemorrhage, when we can distinguish the membranes, it therefore seems to be right and justifiable to puncture or rupture them, and to discharge the waters.

But if the hemorrhage should come on in the second stage of the labour, that is, after the full dilatation of the *os uteri*, and the rupture of the membranes, when the child's head has entered and in part descended into the *pelvis*; if the discharge be of sufficient importance either to prevent the action of the *uterus*, or to bring the life of the patient into hazard, by its violence or continuance; then the assistance given must depend upon the progress which the labour has made, and the situation of the child, whether it shall be turned, as in preternatural presentations, or delivered with the *forceps* or *vedis*; or when neither of these is practicable, and the exigency of the case justifies the operation, by lessening the head of the child; that is, the life of the parent must at all events, if possible, be preserved; but such cases are rare, and always require accuracy of judgment, and the greatest circumspection.

Hemorrhages of this kind are also sometimes combined with preternatural presentations of the child. Then little more will be required, than what may be necessary on account of the presentation, except that it be sooner decided, and more speedily performed; remembering ever, that all operations in midwifery are intended to remove, lessen or prevent natural or adventitious danger, and not to add to that which before existed.

This method of proceeding, that of accelerating the labour by breaking the membranes, recommended in this kind of hemorrhage, seldom fails to answer the intention of moderating or suppressing the discharge, and of promoting the labour in such a manner, as to remove the danger. The only inconvenience to be apprehended is, that if the hemorrhage should continue in such a degree, as to occasion the necessity of artificial delivery, the operation would be rendered more difficult on account of the previous discharge of the waters. But in reply to this objection it may be observed, that if the *uterus* should contract round the body of the child, with so much force as to prevent the introduction of the hand to turn the child with facility, that it will probably be expelled without any farther assistance, if we wait patiently for the return of the pains, which we may safely do when the hemorrhage is stayed, or very much abated. But if in common cases there be not sufficient force exerted by the *uterus* for the expulsion of the child, then there will be no great difficulty in passing the hand into the *uterus*. It must however be acknowledged, that this is sometimes amongst the cases, for which no precise rule can be laid down, and in which the practitioner must act according to his own estimate of the danger and difficulty.

SECTION VIII.

It is often a mortifying reflection, whilst we are conducting a patient through a labour rendered uncommonly tedious by the inactivity or irregular action of *uterus*, that we can foresee after the birth of the child an unfavourable separation of the *placenta*, which cannot be prevented. All that art has dictated to be done in this case is, to suffer the body of the child to be wholly expelled by the action of the *uterus*, after the head is born; or in some cases rather to retard its final expulsion, than to use any force or hurry in extracting it, by which proceeding the lower parts of the cavity of the *uterus* will be restrained from closing before the *fundus* assumes its proper share of action. Yet no method, nor any dexterity will be sufficient in all cases to prevent, after the birth of the child, a troublesome, and sometimes a dangerous hemorrhage; the proper management of which often requires as acute an intelligence, and as determined a conduct, as any circumstance which relates to the birth of the child. As the powers of the *uterus* or of the con-

stitution are sometimes not exerted, or fail to answer the purpose, and as no woman can be properly or safely left till the *placenta* is excluded, it is necessary to consider this subject in a full and explicit manner.

From a review of what has been said on the management of the *placenta* by *Hippocrates*, or in the writings contained in his works, it does not appear to have been the general custom, to divide the *funis* before the *placenta* was expelled; that if this were retained beyond the common time, no means, or but very gentle ones, were used for the purpose of bringing it away; and in cases of its retention, it was usual to introduce medicated substances into the *vagina*, and to give hysteric medicines for the purpose of favouring its expulsion, which might happen on the fourth or fifth day, when it was in a putrid state. The introduction of the hand into the *uterus* for the purpose of bringing away a retained *placenta*, had not been advised or come into consideration, and such cases would probably very seldom occur. Whether this practice were gradually altered, or another hastily assumed, it is impossible to say; but it is extraordinary, that *Celsus**, without expecting or relying upon the natural efforts made to eject the *placenta*, of which he seems indeed to have had an imperfect knowledge, should have directed the practitioner to introduce his hand into the *uterus*, immediately after the birth of the child, to bring the *placenta* away, together with any *coagula*, which might have been formed in the cavity of the *uterus*. These two contrary methods have, in different times and countries, been adopted and recommended by succeeding writers; but unfortunately, the practice of *Celsus*

* *Medicus deinde sinistra manu, leniter trohere umbilicum ita, ne abrumpat, dextraque eum sequi usque ad eas, quas secundas vocant, quod velamentum infantis intus fuit: hisque ultimis apprehensis, venulas membranulasque omnes, eadem ratione manu diducere a vulva, totumque illud extrahere, et, si quid intus præterea concreti sanguinis remanet.*

Celsus, Lib. vii. Chap. xxix.

I may be permitted to observe, that many of the popular opinions, on medical subjects, are now the same in this country, as those entertained by the Roman writers. It is probable, that they were first introduced by those physicians and surgeons who attended the Roman army in Britain, and not acquired by the study of their writings.

prevailed more univerſally. The Arabians, though fond of the ſtudy of medicine, ſeem rather to have preſerved, than improved or extended the learning which they gained when they plundered the eaſtern part of the Roman Empire. But in the fifteenth century, which may be conſidered as the era of the revival of learning, *Paré* publiſhed, among many valuable works, obſervations on the practice of Midwifery, under the title, of the Generation of Man. *Paré**, who had an underſtanding to ſee, and to profit by the errors of others, ſeems deſirous of avoiding all extremes; for with an injunction not to leave the *placenta* behind, he recommends, in ſtrong and repeated terms, the neceſſity of extreme caution, not to uſe violence, leſt we would invert, or do other injury to the *uterus*; and there is no doubt, but the opinion of ſo eminent a man muſt have had its influence upon the practice and writings of others, particularly of thoſe of his own country. In the latter end of the laſt, and the beginning of this century, *Ruyſch* was in high reputation as an anatomift at *Amſterdam*, and he was empowered by the magiſtrates to inſpect and regulate the practice of midwifery throughout that city. *Ruyſch* had great induſtry and abilities; and his purſuits in anatomy, and his office, as preſident of the Obſtrictic College, leading him to the knowledge of many bad conſequences, which followed the common method of managing the *placenta*, particularly the inverſion of the *uterus*, he laboured the point with great knowledge and ingenuity in many parts of his works; diſcountenanced the practice, and forbade the *placenta* to be extracted haſtily, chooſing clearly to run the hazard of the evils, which might follow the imperfections of nature, rather than of thoſe which would be incurred by the harſh and violent methods then in uſe†. For

* Not having the French edition of *Paré*, I tranſcribe the following from the Latin tranſlation. *Molli ſi fieri poteſt umbilici tractu; quod ſi ſic non licet, obſtrictrix oleo inunctum manum, blande in uterum immittat, ducem ſecuta umbilicum, ſicque comprehenſas, ſi adhuc hæreant utero, leniter hac et illac concutiat, et ſic concuſſas, leniter extrahat; non autem violentius educat, ne unã ſequens uterus procidat.*

† *Prudentius ergo relinquere placentam, donec natura hæc ſeparat, aut donec laxata, magiſque libera, manu evellere hæc detur, quam lethali feſtinatione occidere ægram. Putetne quis, boni quid contigiffetruſidata mulieri, quod mortua ſit ſine placenta? Quæ cum illa poterat vixiſſe! Ruyſch. Adverſ. Anat. Dec. Secunda.*—Some allowance is to be made for the arguments of

many years after the time of *Ruyfch*, the practice of *Celfus* was followed in this country, by some even down to this time, but not univerfally; for in a large manuſcript, written on the ſubject of midwifery by Dr. *Percival Willoughby*, Phyſician at *Derby*, in the time of the Civil War, a copy of which came into my poſſeſſion by the kindneſs of my very able and intelligent friend, Dr. *Kirkland*, there is in this obſervation; *the afterbirthe oft cometh of itſelfe, yet it is not amiſſe to aſſiſt nature for the producing of it. There bee ſome midwiues, that never offer to fetch the afterbirthe, but ſuffer nature to expell it, and their women have done well.* The practice of extracting the *placenta*, immediately after the birth of the child, was nevertheless common in this country, which I am certain muſt often have produced both much immediate and future miſchief. It was taught in the ſecond ſchool of midwifery eſtabliſhed in *London* by *Chapman* in 1733; by Sir *Richard Manningham*, in the public eſtabliſhment ſet on foot for the purpoſe of teaching midwifery, in the *St. Sames's* Infirmiry, in the year 1738; and by *Smellie*, who I think came to *London* in the year 1742. Soon after this time, in 1746, Dr. *William Hunter* began to give lectures in anatomy; as an appendage to which, he added a certain number of lectures on the anatomy and phyſiology of the gravid *uterus*, interſperſed with many practical obſervations. With a mind compoſed and finely turned for obſervation, with a judgment exceedingly correct, and with unwearied application, Dr. *Hunter* ſoon acquired very high and deſerved reputation; and the great character he eſtabliſhed in the practice of midwifery, for which his perſon and manners were admirably well calculated, and in which he was ſoon and very much engaged, gave a more than uſual authority to what he advanced on the ſubject. * Being an aſſociate with Dr. *Sandys* for the care of the lying-in department in the *Middleſex* Hoſpital, he propoſed to Dr. *Sandys*, that they ſhould try the event of leaving the *placenta* to be expelled by the action of the *uterus*, without attempting to give any aſſiſtance. After much conſideration and ſome delay, from the dread of cenſure, they agreed

* *This account I had from Dr. Hunter himſelf.*

Ruyfch, which were intended to overſet the bad practice of his time. For if the *placenta* were to be left entirely to nature in all caſes, there would not be wanting many examples of miſchief and fatal conſequences from the very method which he recommends.

upon the trial ; and in the first instance, the *placenta* remained twenty-four hours. No ill consequence however followed ; and the trials being repeated with success, it became a very frequent, and almost general rule, to leave the *placenta* to be expelled without any assistance. Several untoward and some fatal accidents having followed this practice, was altered ; at least it became necessary to admit many exceptions ; and after a variety of changes and observations, I believe we are at length arrived at a state of practice, with regard to the management of the *placenta*, that will with difficulty be improved ; a practice founded on common sense and observation, that the *placenta* ought to be, and is generally expelled by the action of the *uterus*, in the same manner as the child ; feeling ourselves at liberty, and called upon to assist, only when this action is not equal to the purpose, or when a hemorrhage or other dangerous circumstances demand our assistance.

SECTION IX.

IN the course of ten or twenty minutes, or a longer time, after the birth of the child, sooner or later, according to the condition of the patient at the time of her delivery, the action of the *uterus* returns for the purpose of expelling the *placenta* and membranes, which collectively have the common name of *secundines*, or *afterbirth*. This action is indicated by pains, in all respects like those the patient had before the child was born, excepting their degree. When these pains come on, it is customary, to take hold of the *funis*, by which if we pull slightly, the evacuation of the *placenta* out of the *uterus* will be forwarded, without the risk of doing any kind of injury to the *uterus*. The *placenta* and membranes formed a complete lining to the *uterus* : but the *placenta* coming away first, and then the membranes, the whole is usually expelled in an inverted state ; yet not always, as the separation of the *placenta* is in some cases so speedy, that it drops into the *vagina*, and pushes the membranes before it. But though the *placenta* is generally expelled in a short time after the birth of the child, and with the return of a few pains, it is sometimes retained, on account, 1st. of the inaction of the *uterus* ; or 2d. of the irregular action of the *uterus* ; or 3d. of a scirrhus adhesion of the *placenta* to the *uterus*. It may be retained beyond the usual time, without any hemorrhage, but whenever there is a discharge of blood, the whole or a portion of it must have been previously separated ; and

the hemorrhage may continue, or increase, or cease and return in these cases, till the *placenta* is extracted or expelled. Every discharge of blood at this time, properly speaking, is a hemorrhage; but to this term, together with the other parts of the definition, we annex the idea of such a loss of blood, as, by its continuance or degree, may be apprehended to occasion danger, which we are ever to bear in mind; or on every slight discharge of blood, we might be led to make unnecessary attempts to extract the *placenta*.

A very strenuous, and long continued exertion of all the powers of the constitution is often required for the expulsion of the child. These powers, though generally adequate to this effect sometimes fail before it is accomplished. But experience having shewn, that difficulties, to our apprehension insurmountable, are very frequently overcome by the natural efforts, both reason and humanity discourage all hasty determinations to pursue such measures, as may affect the safety of the mother or the child. But as there is a leaven of imperfection in all human actions, animal as well as moral, we may sometimes be led, by the most commendable motives; to defer that assistance, which any particular case may require, so long, that after the birth of the child, the patient may be in such an exhausted state, and the *uterus* so completely divested of all power of farther action, that it is neither disposed nor able to separate or eject the *placenta*; and she is scarcely able to support the necessary consequences of her delivery. The mere debility of the patient is therefore often a powerful reason why we ought to wait, without making any attempts to hasten the separation or extraction of the *placenta*; as an immediate separation, natural or artificial, would render her still more exhausted and feeble, and greatly increase the danger arising from that debility, which before existed. Sometimes also when a labour has gone on with great activity, there is, for a considerable time, and from the moment of the expulsion of the child, even though the labour may not have been very fatiguing or slow, a total inaction of the *uterus*, for which no reason can be assigned. But if the time, which passes between the birth of the child and the expulsion of the *placenta*, be employed in composing the patient's mind, in cooling her when overheated, or in supplying her with proper cordials when much fatigued and wearied with the preceding circumstances, in short, in restoring her to her natural state, it generally happens, and we may reasonably expect the action of the *uterus* to return, and make its efforts to throw off the *placenta* in the usual manner, though more time may be required.

But during this time of waiting for the action of the *uterus* to return, should a hemorrhage come on, we must apply ourselves to the use of those means, by which the separation and exclusion of the *placenta* may be forwarded; there being (in a case of hemorrhage equally urgent) as justifiable a reason for the removal of the *placenta*, when that is retained, as there was for the extraction of the child. But every discharge of blood is not a sufficient reason for the introduction of the hand, or for the artificial extraction of the *placenta*, as some loss of blood most frequently precedes, and always accompanies both its separation and exclusion. We must therefore form a judgment of the necessity of extracting the *placenta*, by the opinion we entertain of the hemorrhage being so profuse as to endanger the life of the patient by its continuance or probable increase. Sometimes also *coagula* are discharged in considerable quantities, which from their appearance may be suspected to have been formed long before labour, by an effusion of blood into the *ovum*, from the rupture of some vessel which ran over the surface of the *placenta*; which *coagula* do not indicate any danger. It is not exactly in order, but it must nevertheless be observed in this place, that when I have been attending women, who were prone to violent hemorrhages after the birth of the child in former labours, I have made it a rule to keep them in an erect position, till the waters were discharged by the spontaneous breaking of the membranes, and the child was on the point of being born. By this method it appeared clearly to me, that the *uterus* acted more favourably, the *placenta* came away more naturally, and the quantity of blood lost was very much diminished.

When the *placenta* is not separated or ejected in due time after the birth of the child, with or without a hemorrhage, means must be used for the purpose of its exclusion or extraction. If there be no hemorrhage, or none of importance, it is always better to wait than to interfere, because slight attempts to extract the *placenta* by pulling by the *funis* may be just sufficient, by loosening a portion of the *placenta*, to occasion or increase a hemorrhage, and not equal to the extraction of the *placenta*; and such conduct is a very frequent cause of a degree of hemorrhage, which may lay us under the necessity of introducing the hand into the *uterus*, in order to bring away the *placenta*, which operation might not otherwise have been required. But after a certain time, which is too indefinite a term if we were authorised to use one more precise, but certainly not within one hour after the birth of the child, unless we are compelled by

hemorrhage or some untoward symptom, gentle means are to be used to favour its exclusion: and the most gentle must be first tried, as by giving and frequently repeating some actually warm and temperate cordial, which may renew the disposition in the *uterus* to act; by change of position, or by making a moderate pressure with the expanded hand upon the *abdomen* to aid the action of the *uterus*; or by pulling very moderately by the *funis*, to try whether it be disposed to come away. As the term *moderate* has no precise meaning, and what I call violent, may by another called moderate, we will say that so much force is on account to be used in pulling by the *funis*, as to incur the risque of tearing it from the *placenta*, or of inverting the *uterus*; and that it is better to make it a general rule, to prefer the introduction of the hand into the *uterus*, to separate and bring the *placenta* away, than to incur the hazard of either of those accidents. It is however to be observed, that when the hand is introduced for this purpose, there is not always a necessity of acting; for the very irritation thereby occasioned will often excite the *uterus* to its natural action, and the *placenta* be both separated and expelled, as will be recollected by every one accustomed to this operation. But the hand ought never, on any account, to be introduced into the *uterus*, except as a matter of necessity, and then with the utmost care and tenderness; and when introduced, should never be withdrawn, till the end for which it was introduced is, if possible, accomplished.

In the writings, and in conversations on this subject, the introduction of the hand, for the purpose of bringing away a retained *placenta*, is often mentioned as a slight thing; but I am persuaded, that every person, who attends to the consequences of practice, will think it of importance, that, if possible, it always ought to be avoided.

To promote the separation and exclusion of the *placenta*, the application of the half-closed hand to the *abdomen*, so as to make a moderate pressure, is sometimes of use by aiding the *uterus* in its contraction; but this assistance cannot be given in the worst cases, that is, when the *uterus* is not at all contracted, or contracted irregularly. The respiration of the patient has also an evident effect upon the *uterus* and *placenta*, of which we shall be sensible, if we retain the *funis* in our hand, in the act of expiration, when it descends, and in the act of inspiration, when it is somewhat retracted. By supporting the *funis* with just so much force as will prevent its retraction in the act of inspiration, we shall soon be sensible, that the *funis* is lengthened, which will prove that the *placenta* is descend-

ing; and the purpose of extracting the *placenta* will be completed, without the use of any other means: but this method requires much time and attention. Sometimes also the exclusion of a descending *placenta* may be favoured by pressing it, with one finger carried along the *funis*, towards the *sacrum*, in such a manner, as to bring down an edge instead of the whole mass; but this is not the case of which we are speaking.

In all cases of dangerous hemorrhage, when the *placenta* is retained, it was said to be equally justifiable and necessary to extract the *placenta*, as it was to deliver the woman of her child under the same circumstances. But this general rule requires explanation, and some skill in the application. When there is a present hemorrhage, so important as by its violence or continuance to threaten danger, the *placenta* ought to be immediately extracted. This is not an opinion, but a rule of practice. But if there have already been a hemorrhage, so profuse as to occasion danger, and the common consequences of loss of blood, as fainting and the like, have already followed; the *placenta* ought not then to be extracted, nor the patient disturbed, nor any change made, till she is somewhat revived from her extreme debility; as the danger would be thereby increased, and the patient die, during or immediately after the operation, as I have seen and known in too many instances. In other words, the extraction of the *placenta* is to be considered as a remedy for a present or an apprehended dangerous hemorrhage, but cannot remove the effects of one which has already ceased.

In cases also in which there is no hemorrhage, if the *placenta* be not ejected, or if none or but very feeble efforts be made by the *uterus* for that purpose, a time will come, when we must determine upon its extraction, or leave it behind; and the latter being unsafe and unjustifiable, the mere retention will be sufficient authority for us to extract it. Upon this point there can be no dispute, except as to the time, and we will say, leaving the matter at large, for the exercise of individual judgment, that, if the *placenta* be not expelled at the end of four hours from the birth of the child, it is generally wise to determine upon extracting it; and the determination of choosing that time is, I believe, to be founded on the opinion, that the parts have not closed since the expulsion of the child. I can however recollect many examples of a retained *placenta*, without a hemorrhage, to which I have been called at any time within twelve or even twenty-four hours after the birth of the child, in which the *placenta* has been very easily managed, when the exigencies of any case required it.

In this place it is necessary to make another distinction. Though the *placenta* may be retained for many hours after the birth of the child, if we be convinced of some degree of descent, especially if we can feel that part of it into which the *funis* is inserted, we have no occasion to be alarmed, or to hurry its exclusion, unless there be an existing hemorrhage. Then the *placenta* may be suffered to remain, till it is excluded by the action of the *uterus*, or as it descends, the most gentle assistance may be given by pulling by the *funis*, to extract it; without any apprehension of danger, whether it be detained two, or even twenty-four hours, because we have at all times, under such circumstances, an easy and certain command of it.

SECTION X.

WHENEVER we have determined upon the necessity and propriety of extracting the *placenta* by art, we must proceed in this manner. The patient being placed in a convenient position, as when we deliver with the *forceps* or *vectis*, and every thing in order, the *funis*, which is our guide, is to be held with a moderate degree of tightness. The external parts are usually in such a state, as not to require much dilatation; but if this should be necessary, it must be done tenderly, and in the manner before directed with the right hand or left, as may be found most convenient; as must also the *os* or *cervix* of the *uterus*, should either be contracted. When the hand is in the *vagina*, the *funis* is to be slowly followed into the *uterus*, which though in a state of total inaction before, may then be irritated to a sufficient degree of action, to separate and expel the *placenta*, without any further assistance on our part. But if the spontaneous action of the *uterus* should not come on, we must proceed with the hand to the *placenta*, which may either adhere with its whole surface, or it may be partly, or even wholly separated and lying loose in the cavity of the *uterus*. Should there be a total adhesion, we must search for the edge of the *placenta*, on the outside of the membranes, cautiously distinguishing between the *placenta* and the *uterus*. When the edge of the *placenta* is raised, the further the separation must be made with the blunt ends of the fingers, and the closer and firmer the adhesion, the slower the separation ought to be made; not proceeding rashly, or affecting dexterity, but giving our heads time to guide our hands, as if the operation were performed under inspection. By slow proceeding, and by demurring a short time if we meet

with more than ordinary difficulty, the separation will be perfected; or, when the greater portion is loosened, if we grasp it slightly in the hand, and bend it backwards, the remaining part will often peel from the *uterus*, without trouble; but this requires much caution. Should the *placenta* be found partly separated, we must proceed in the same manner. But whether on the introduction of the hand we found the *placenta* separated, or whether it were necessary to separate it, we are not to extract it immediately, but to wait till the *uterus* begins to contract, and then to withdraw the hand including the *placenta*, more quickly or slowly, according to the degree of contraction; for the hemorrhage may not be occasioned because the *placenta* was retained, but because its retention, or some other cause, hindered the contraction of the *uterus*. If there be no action of the *uterus* whatever, it is of service to throw the fingers gently backwards against the sides or *fundus* of the *uterus*, to irritate and bring on its action, previous to our withdrawing our hand. But when the *uterus* is perceived to act, then gently withdraw the hand, till the *placenta* is brought into the *vagina*. Whatever motive induced us to introduce the hand to separate the *placenta*, when it is brought into the *vagina*, it ought to be suffered to abide there, till the patient is composed, and recovered from her fatigue; and till the *uterus* has had time to contract in such a manner, as to prevent the return of the hemorrhage, at least in a dangerous way. For many years I have made it a rule to leave the *placenta*, naturally or artificially separated, to abide in the *vagina* one hour, after it was voided out of the cavity of the *uterus*; and I am convinced by this method, there is an infinitely less chance of an ensuing hemorrhage, on its coming or being brought away, and less afterpain. For the blood discharged in consequence of the separation of the *placenta* usually forms into *coagula*, which are collected into the membranes as in a net, and the *uterus* is left perfectly void of any thing, which can become the cause of any considerable pain.

With regard to those cases in which the *placenta* is retained by the irregular action of the *uterus*, there is generally some degree of hemorrhage, and often a very profuse one; though sometimes there is no discharge, or none of importance, only a retention of the *placenta* beyond the common time of its expulsion. When all the parts of the *uterus* act with equivalent force at the same time, the united action contributes to the expulsion of whatever may be contained in its cavity. But if one part, the inferior for instance, should act, when the other

is at rest, a contrary effect might be produced. The forms, which the *uterus* may assume in consequence of this irregular action, are innumerable, but the most common is the longitudinal, which is produced when all the parts, except the *fundus*, act; or the hour-glass form, when the middle of the *uterus* only acts, by which it is divided as it were into two chambers or cavities. When it was the custom to bring away the *placenta* immediately after the birth of the child, three reasons were assigned for the practice; first, that it was a dead substance, without any power like that which was supposed to be inherent in the child; secondly, that it was an extraneous mass, which became pernicious every moment it remained; and thirdly, that if not immediately extracted, it would be almost impossible to bring it away, the *os uteri* closing in such a manner, as absolutely to prevent the introduction of the hand for the purpose of extracting it. These opinions are proved to be groundless, for the *placenta*, we know, may remain many hours or several days without doing any mischief to the *uterus*; and the opinion of the *os uteri* closing so soon after the birth of the child is without foundation, as that seldom or never happens: what has been esteemed the natural closing of the *os uteri*, being in reality an irregular contraction or spasm of some portion of the *cervix*, from which we are assured no harm and little additional difficulty can arise*.

When the *uterus*, is contracted thus irregularly, as the *placenta* cannot be expelled, it must be extracted, by art, whenever, on account of a hemorrhage, or of the time that is past since the birth of the child, it may be thought expedient or necessary. There is no way of judging of this kind or degree of contraction, unless by the uncertain information we may acquire by the application of the hand to the *abdomen*, till we introduce our hand into the *uterus*. Before this operation it is always proper to try, whether the *placenta* may not be disposed to come away by any of the gentle means before recommended. On the failure of these, and being fully convinced of the necessity, the

* *Scire enim est post natum infantem, in utero nullum reperiri tale os ut olim fuerat: sed ita omnino se res habet, ut in bursa nummaria, qua loris transmissis contricta, rugosum os format; laxatis autem hinc vinculis, ubique aequae lata est et expansa. Ruysch. Advers. Anat. Dec. Secunda.*

The tenth chapter of the second Decade is full of useful observations regarding the management of the *placenta*, given in very honest and animated language.

hand must be conducted in the manner before mentioned, till we come to that part which is partially contracted, whether it be at the *cervix*, or in the cavity of the *uterus*. The hand must then be reduced into a conical form, in the way directed for the dilatation of the *os uteri*, or external orifice. Should the spasm be in such a degree, as to make a perfect closure of the *uterus* round the *funis*, one finger must be first insinuated along the *funis*, and this being turned with a femirotary motion, will soon make room for a second, and so on, till all the fingers, in a conical form, may be admitted. The dilatation is sometimes to be made in opposition to a very firm contraction, yet it must be done steadily and resolutely, though not rashly or violently. Before the hand is passed beyond the contracted part, this must be amply dilated, otherwise it will clip round the wrist, and impede the subsequent part of the operation. When the contracted part is amply dilated, the hand must be carried forwards into what may be called the upper chamber of the *uterus*, in which the *placenta* is contained. Whether this be separated wholly or partially, or be yet adhering, we must proceed according to the method before mentioned. Immediately upon the separation of the *placenta*, the hand containing it is to be drawn out of the upper cavity, to that part of the *uterus* which was before so closely contracted, and held there, till by the pressure behind, we are sensible of the action of the *fundus*. The hand containing the *placenta* is then to be withdrawn by slow degrees, till it arrives in the *vagina*, where the *placenta* may be suffered to remain for one or several hours; or we may wait till it is wholly expelled by the pains, in order to avoid the hazard of a subsequent hemorrhage.

When the *placenta* is either expelled by the action of the *uterus*, or extracted by art, it should be a general rule to apply the hand to the *abdomen* afterward, that we may be assured the *uterus* is not inverted; but this method is not always satisfactory, for in one case, though the volume of the *uterus* was felt, apparently contracting properly, the inverting *uterus*, as it receded, was mistaken for a regular contraction.

The natural attachment of the *placenta* to the *uterus* is of such a texture and kind, as very readily to admit of separation. But if that part of the *uterus*, to which the *placenta* adheres, should be in a scirrhus or morbid state the *placenta* will partake of the disease. On the examination of the *placenta* of different women, there are not unfrequently found morbid appearances, some being disposed to a putrid, others to a scirrhus or cartilaginous state; while in others there is a degree of ossification

in the vessels, and sometimes perfect concretions. The adipose substance often found upon the *placenta* in large quantities is not of any importance. The difficulty of the separation will depend partly upon the *placenta* itself, and partly upon the state of the *uterus*. When there is found, on the introduction of the hand into the *uterus*, an uncommonly firm adhesion of the *placenta*, a perfect separation will be extremely difficult, and perhaps sometimes impossible, without hazard of doing direct injury to the *uterus*. There is no security in these cases, but by taking time in the operation, confiding chiefly in slow proceeding, both for accomplishing our purpose, and avoiding mischief. It has been said, that it is more justifiable to leave a portion of the *placenta* behind, than to continue very strenuous efforts to bring the whole away, as these may give unbearable pain, and become the cause of immediate or subsequent injury. It must be acknowledged, that it is always a very desirable thing, to bring away the *placenta* wholly and perfectly, not only for the satisfaction of friends, but for the real good and interest of the patient. Even the membranes should be managed with caution, for though a portion or the whole of these might be left without danger, they occasion a *fator* in the discharges, and often so much pain as to create a suspicion of disease. But without meaning to give authority to negligence, or misconduct, to rashness, or violence, we may suppose a situation, in which we must submit to some evil, and in which all that is in our power is, to choose the least. There can then be no doubt, but that it is a less evil to leave a portion of the *placenta* behind, than to do any positive injury to the *uterus*, in striving to bring it away. For it has been found, when a portion of the *placenta* was left behind, that the hemorrhage has ceased and not returned, and that this portion far sooner decayed, or was more readily digested or expelled, than the whole. I once saw an instance of a whole *placenta* retained till the fifteenth day after the birth of the child, and then expelled with little signs of putrefaction except upon the membranes; the whole surface, which had adhered, exhibiting marks of a fresh separation. The recovery of this patient was very fortunate, for I have seen several other cases of a similar kind terminate fatally. It is a conclusion generally made, though not always warranted, that, if a woman die with a portion of the *placenta* retained, her death ought to be attributed to it; yet it should be considered, that there may have been previous disease in the *uterus*, and that the event may have been really occasioned by violent, though unsuccessful attempts to bring it away, and not

by the retention. Sometimes the danger of these cases is known to the practitioner only, who is obliged to act according to exigencies, for which he may not be particularly prepared; but if he has before acquired a just knowledge of the principles of the art, explain himself ingenuously, determine not rashly, and proceed slowly, he will not do any thing, for which he can be justly blamed, and will generally be successful.

The *funis* is commonly inserted about one third of its space from, or at the very edge of the *placenta*, sometimes in the centre, and now and then the vessels branch off before it reaches the *placenta*; and the ease or difficulty, with which this may be brought away, somewhat depends upon the insertion of the *funis*. The chance also of tearing the *funis* away rests chiefly upon the force used to extract the *placenta* by it; yet if it be inserted fully into the *placenta*, and be in a sound state, the force which it can bear is infinitely greater, than can be exerted without the hazard of inverting or doing other injury to the *uterus*. But if the *funis* be in a putrid state, or if the vessels branch off too soon, it may be torn away with a very small degree of force, as in the latter case it can only sustain what a single branch of the vessels can bear. Hence in a cautious extraction of the *placenta*, we are sometime sensible of a sudden yielding or jerk in the *funis*, which, if the same force be continued, will be repeated, till at length the *funis* comes unexpectedly away, and the *placenta* is left in the *uterus*, or in the *vagina*. Great circumspection and slow proceeding will usually prevent this accident; but if it should happen in our own practice, or we should be called to assist others, we must determine whether the case will allow of farther waiting, or whether there be a necessity of bringing the *placenta* away immediately, by introducing the hand into the *uterus*. If there should be occasion, on account of hemorrhage or any other untoward circumstance, for the latter method, which, if consistent with the safety of the patient, ought always to be avoided, we may consider the inconveniencies produced by the want of the *funis*, which, when it remains, serves as a guide to conduct the hand, and helps moreover to keep the *uterus* steady, and to bring down the *placenta* when separated. The former of these will not be of much consequence to a person accustomed to the operation; and the latter will be lessened, if an assistant make a judicious pressure upon the *abdomen* with both his hands. Some disadvantage will necessarily arise from this accident, we should therefore be careful to avoid it when in our power; but though a little embarrassment may be occasioned even when the *pla-*

centa is in the *vagina*, the importance of the disadvantages produced by the separation of the *funis* has, I believe, generally been over-rated.

SECTION XI.

THE hemorrhage, which follows the expulsion or extraction of the *placenta*, may be a continuation of that which came on before the birth of the child, or between the birth of the child and the expulsion of the *placenta*; or it may be unconnected with either of these, but merely a consequence of the separation and exclusion of the *placenta*. This has usually been described by writers as an immoderate flux of the *lochia*, but it is with more propriety arranged under the class of hemorrhages; and though generally not so dangerous as either of the varieties last described, it is often alarming, and, under particular circumstances, has sometimes proved fatal.

The discharge of blood which followed the separation and exclusion of the *placenta*, varies in different women, being in some very small, and in others there is, after every act of parturition, a disposition to a very profuse hemorrhage, which suddenly reduces the patient into a frightful state. It is a popular opinion, that the greater these discharges are at the time of delivery, the safer women will be from the chance of diseases during childbed; and this opinion very much lessens the terror of the bye-standers, when discharges come on with great profusion. But the practitioner, who knows the possible effect of sudden and violent hemorrhages at this time, especially in patients who were before much weakened, cannot feel at his ease, though supported by the general experience of their being seldom dangerous. Nor is the opinion true, that the greater the discharge, the safer the patient will be; for whatever weakens the patient extremely, must render her more liable to diseases of various kinds in childbed.

It has often been a matter of great surprise to me, when I have seen a patient bear a sudden discharge of what seemed an enormous quantity of blood on the coming away of the *placenta*, without fainting, or shewing any signs of the common consequences of great loss of blood; but it may be explained in this manner. Should every drop of blood, which circulates in the *uterus*, be discharged in an instant, it would be of no immediate consequence to the patient, the very existence of the *uterus* not being necessary for her life. When all this blood

is discharged, if the *uterus* should contract speedily, so that the vessels should be reduced to a small size, there would not be a continuance or return of the hemorrhage, and the patient would exhibit no signs of suffering from that which had happened. But after the discharge of the blood contained in the vessels of the *uterus*, as before stated, if there should be no contraction of the *uterus*, then the vessels remaining of the same size, and the communication between the body and the *uterus* being preserved open, as in pregnancy; the vessels of the *uterus* would be replenished from the constitution, and the same effect would be produced in the patient, as if it were really lost. Should this second quantity of blood supplied to the *uterus* be discharged, and another be claimed from the constitution, then, according to the quantity demanded, and the number of times the demand was made, would of course be the danger of the patient. In some cases the hemorrhage does not follow the extraction of the *placenta* immediately, but comes on after a certain time; and then it may be supposed, that the communication between the body and the *uterus* was closed, but not being confirmed, was opened again by some effort too soon made, or more violent than the situation of the patient could endure. These circumstances point out very clearly the necessity, in the management and for the prevention of uterine hemorrhages, of ever remembering, that the danger attending them is lessened, and the safety of the patient secured only by a proper contraction of the *uterus*. Hence in hemorrhages of this kind, however vehement, the accession of uterine pain immediately proclaims, that the danger is passing, or is past.

With respect to this variety of hemorrhage, two things are to be considered; 1st. by what method or means it is to be prevented; 2d. how it shall be remedied, when it does exist.

When the hemorrhage depends upon the imperfect or irregular action of the *uterus*, excited for the end of expelling the *placenta*, it may not be in our power to regulate these. But as far as relates to the force used in the separation, or hurry in the extraction of the *placenta* we may always act reasonably and calmly, and proper conduct will generally insure success. It was before advised to leave the *placenta* in the *vagina* for one hour after its exclusion from the *uterus*, in common cases, unless it were sooner expelled by the natural efforts. Objections have been raised to this, because it confines the patient to an uncomfortable situation for a long time; and it has been

said, that it was cruel to leave her friends under anxiety, with the delivery incomplete, when we have the power of readily bringing the *placenta* away. Now, if we are speaking of a case of real or presumed danger, the argument of uncomfortableness is not to be put in competition with a conduct, on which the increase or diminution of that danger may turn; nor does the censure of a good action make it degenerate into a crime, or convert that, which is in its own nature honest and intelligent, to cruelty. On the contrary, it may be the height of tenderness, in me, to encourage the patient to bear a small degree of present pain or inconvenience, by which her safety is insured, rather than by an officious interposition to add to the hazard, by complying with the sollicitation of those, who are not qualified to judge. When the *placenta* is brought into the *vagina*, we have then the absolute command of it at our pleasure; but the very ease, with which it could be brought away, is often a good reason why it should be suffered to abide, as it proves, that there is no natural contraction of the parts for its exclusion otherwise it would be expelled without our assistance. In what other manner a *placenta* remaining in the *vagina* may contribute to the prevention of a hemorrhage, except that by, the irritation made upon the *os uteri*, it urges the *uterus* to act, it may be hard to say; though I am convinced of the benefit thence derived. Nor have I, when attending patients who have been prone to a hemorrhage in former labours, been satisfied with leaving it in that situation for one hour, but have prolonged the time to two hours, or more, unless it should be in the mean while ejected by the pains, which proving the increased action of the *uterus*, would give an assurance of safety. Moreover, after waiting so long as seemed reasonable and proper, I withdraw the *placenta* very gently, not increasing the force on account of every little obstacle, but demurring and waiting longer. Even after the *placenta* is wholly excluded, if the membranes stick, I wait yet longer, and proceed more slowly, knowing that a few minutes occasion a difference between the loss of one, and seven or eight ounces of blood, which sometimes may be of the utmost importance; nor, under these circumstances, can any harm arise from delay.

When we have the management, or are called to cases of preceding or present hemorrhage, the *placenta* being extracted, it should be an unfailing general rule to examine the patient, to be sure that the *uterus* is not inverted; or perhaps by slight irritation about the *os uteri*, to endeavour to bring on its action. Then all the means before recommended for the suppression of

hemorrhages are to be put in practice, speedily and strenuously; and we are also to endeavour to promote the action of the *uterus*, if at rest, or to strengthen it if feeble, by moderate pressure upon the *abdomen* with a very cold hand.

After the exclusion of the *placenta*, on the application of the hand into the *abdomen*, it is sometimes clear, from the volume of the *uterus*, though contracted, that there are large *coagula* contained in its cavity. We have been directed by gentle dilatation of the *os uteri*, to give these an opportunity of coming away, or even to introduce the hand for this purpose*, as by their continuance, they were supposed to keep up the distention of the *uterus*, and to occasion a continuance of the hemorrhage, as well as other mischief. Of any advantage said to be derived from this practice I am very doubtful, or whether it may not be suspected to renew or increase, rather than to suppress the hemorrhage. I have never attempted it, nor even troubled myself with the state of the *uterus*, unless it was inverted, after the *placenta*, was brought away, but have left whatever *coagula* it contained, to be expelled by its own action. Some have believed, that the hemorrhage was to be prevented by giving, without delay, after the birth of the child, two or three glasses of wine, or even a stronger cordial, with a view of bringing on a speedy contraction of the *uterus*, and I have really thought sometimes with great success.

The fainting which follows hemorrhages was considered as an effect produced, or as a remedy provided for their suppression. It was also said that the medicines given, or the means used, did service, according to the degree of chillness they occasioned, and the slackness of the circulation which followed. We were cautioned not to remove this faintness by the exhibition of cordials, lest with the return of the circulation, there should be a renewal of the hemorrhage; at least till we had given sufficient time for the contraction of the vessels and other circumstances to take place, before the patient revived. But when the patient becomes cold, and there is apparently the most imminent danger of her dying, we must presume those effects are produced, or no longer regard them, but give without delay nourishment and cordials in small quantities, very often repeated, and the patient must be as it were compelled to live, by the strenuous and constant support we give. Nor is the exhibition of cordials to be confined to any particular quantity or time, we are only to be guided in both respects by the con-

* See the quotation from Celsus, at page 170.

tinuance of danger. Wine, brandy properly diluted, or any domestic cordial, will be suitable on these terrible occasions, and they must be made actually warm. In some cases, volatiles have a good effect, and the *julap. vitæ* of Bates, which is composed of warm wine and the yolks of eggs, with the addition of a few drops of oil of cinnamon, has proved an admirable medicine. Yet I must confess, that the best and most general cordial is very cold air, at least it is indispensably necessary; and the strongest stimulant in extreme cases is, to sprinkle the face repeatedly with cold water, which the patient, sensible of the benefit she receives, would often require to be done with great earnestness*.

On the same ground on which these medicines are advised, opiates, though in some cases they may prevent, were esteemed improper, during the continuance of a hemorrhage, and they certainly ought not to be given too freely, when the patient is reduced to a state of great weakness. Above all, she is not to be disturbed, or raised to an erect position, but the small portion of the principle of life is to be carefully husbanded; and there is often a power of living in a quiescent state, or in a recumbent position, when the patient would be destroyed by the least exertion, or by being raised to an erect position. Whether an hour or a day be required for this purpose, after a profuse hemorrhage, the patient ought not to be raised, or even moved, before she is quite revived, and then with the utmost care and circumspection; and through want of attention to this matter, sudden death has sometimes happened, when we were not suspicious of danger. When immediate danger is no longer apprehended, and the patient has been reduced to a very low state, the views of practice are changed, and it will not be prudent to replenish the emptied vessels too hastily, or to stimulate them to strong action.

It is lastly to be observed, that in the violent and pertinacious head-ach†, and other nervous complaints, which follow pro-

* Chapman mentions a compliment paid him by Sir Richard Blackmore, in a case of this kind which shews great accuracy of distinction. If, said Sir Richard, you had used less cold applications, this patient would have died from the loss of blood; and if you had continued them longer, you would have extinguished the powers of life.

† *Douleurs du teste apres grandes pertes du sang.*
Mauriceau.

fuse hemorrhages, and sometimes continue for many weeks, it will be of great service to procure two or three stools every day previous to the exhibition of the *bark*, or other tonic medicines, though the patient be pale and in a weak state. For the present relief of head-ach, cold applications to the temples, as white of egg mixed with powdered *bay salt*, or crude *sal ammoniac*, always keeping the legs and feet warm, will sometimes be of service, as will occasionally all the nervous medicines in common use.

These observations I have written with great pleasure, hoping they may be of service, and I may recommend the method founded on them with some confidence, having in practice seen innumerable instances of its good effects, though the subject yet admits of much improvement.

SECTION XII.

ON THE INVERSION OF THE UTERUS.

THE inversion of the *uterus* has been more than once mentioned, but the subject is so important, as to require some farther consideration.

In every case in which there was reason to suspect this terrible accident, especially when it had been found necessary to extract the *placenta* by art, we were advised to apply the hand to the *abdomen*, for the purpose of trying whether the tumour of the contracted *uterus* could be felt, and if there were any remaining doubt, to examine *per vaginam*. When it is inverted, instead of feeling through the integuments the contracted *uterus*, there is a considerable vacuity at the lower part of the *abdomen*, which gives sufficient reason to suspect the inversion, and the latter examination proves it. In one case which was under the care of a person, who might have been allowed to be a competent judge, and expected to act more wisely, when he applied his hand to the *abdomen*, the recession of the inverting *uterus* was mistaken for its contraction; and it was actually inverted, though, he entertained no suspicion of what had happened.

The reasons advanced to prove the necessity of ascertaining the inversion are, 1. that the patient may be relieved from her present danger, if there be a hemorrhage; 2. that a part of so much consequence may not be suffered to remain in that state,

even if there were no hemorrhage ; 3. that if it were not soon replaced, it could not, after a very short time, be restored to its proper situation.

Whether the inversion of the *uterus* be the first cause of the hemorrhage, with which it is almost universally attended, or only a cause of its continuance, or if there be no hemorrhage, the reasons for replacing it speedily would be of equal force. Not that all women would die though the *uterus* were inverted, but they would be in the greatest and most imminent danger. The impossibility of replacing it, if not done soon after the accident, has been proved in several cases, to which I have been called, so early as within four hours, and the difficulty will be increased at the expiration of a longer time. Whenever an opinion is asked, or assistance required in those cases which may not improperly be called chronic inversions, it is almost of course, that the reposition should be attempted ; but I have never succeeded in any one instance, though the trials were made with all the force I durst exert, and with whatever skill and ingenuity I possessed ; and I remember the same complaint being made by the late Doctors *Hunter* and *Ford* ; so that a reversion of a *uterus*, which has been long inverted, may be concluded to be impossible. It seems as if the *cervix* of the *uterus* continued to act, or had soon acted in such a manner, as to gird the inverted *uterus* so firmly, that it could not be moved ; yet the inverted surfaces, though lying in contact, have not been found coalesced together, so as to form one mass, as has been surmised. All that art can do in such cases, in which the patients are commonly subject to profuse mucous discharges, or to frequent hemorrhages, but without any unbearable pain, is to alleviate their sufferings, to moderate symptoms, and sometimes to support the perpending *uterus* by a flat pessary. In a plate published many years ago, there is an exact representation of an inverted *uterus* of long standing, from a beautiful drawing, by Dr. *R. Atkinson*.

Beside the complete inversion of the *uterus*, in which the *fundus* may be brought into the *vagina*, or without the body, dissections have shewn, that there is what may be called a semi-inversion, in which the *fundus* of the *uterus* has been bent inwards, but not passed through the *os uteri* ; yet the case may have been wholly unknown during the life-time of the patients.

This is accompanied with symptoms like those of the complete inversion, and had it been discovered, would have required equal care, and the same methods to be used for replacing it. Many years ago, in a case of retained *placenta*, I perfectly well

remember feeling a beginning inversion, which was prevented by first restoring the *uterus* to its place, and then waiting a short time, before I made any farther attempts to separate or bring down the *placenta*.

With respect to the causes of the inversion, it has generally been attributed, solely, to the force used in pulling by the *funis*, in order to bring away a retained *placenta*. But there is reason to believe, that the *uterus* has been inverted, when on account of a hemorrhage, or some other urgent symptom, the hand has been introduced into the *uterus* while in a collapsed or wholly uncontracted state, and the *placenta* being withdrawn before it was perfectly loosened the *fundus* of the *uterus*, has unexpectedly followed, and a complete inversion been occasioned. I have also been assured, that in some cases there has been a spontaneous inversion; that the accident happened, at least, when no force, or none capable of producing the effect, had been used; and then it was imputed to the shortness of the *funis*, giving the disposition before the birth of the child; or to some untoward action of the *uterus*. But with this assurance, or explanation, I do not feel quite satisfied, because the degrees of force must always be vaguely estimated; though if a disposition to an inversion be first given by the force used in pulling by the *funis*, it may be completed by the action of the *uterus*; or if the least possible degree of inversion were given by the shortened *funis*, it might certainly be completed by a very slight additional force in pulling by the *funis*.

Uterine hemorrhages following the exclusion or extraction of the *placenta*, though often apparently dangerous, very seldom prove fatal; yet now and then we hear of a patient dying from this cause. May it not be suspected, that in such cases there was an inversion of the *uterus*, which together with hemorrhage, is always attended with dreadful disturbance of the whole nervous system. Whether the *uterus* be inverted or not, should therefore be ascertained by the methods before mentioned, in every case of profuse uterine hemorrhage.

Seeing then the causes by which an inversion of the *uterus* may be occasioned, knowing the immediate danger arising from it, and, as far as experience has proved, that after a certain time it cannot be replaced, we shall want no other inducements to use all possible care, to avoid doing two things, which have not been uncommon in practice, though it is evident, that in various ways they must be injurious; first, pulling by the *funis* prematurely, or violently, to bring away the *placenta*; secondly, hasty introductions of the hand for that purpose.

Should, notwithstanding all our care, a case of this kind occur in our own practice, or should we be called to one, which had happened in that of any other person, we should find none, or very little difficulty, in restoring the *uterus* to its proper situation, if, which is of prime importance in every case of difficulty or alarm, we maintained the composure of our minds; if, paying due regard to the state of the patient, we made our attempt without delay, but at the same time without violent, or precipitation. The only point of practice, which occurs to me, as likely to raise any doubt of the conduct we ought to pursue, is, when together with an inverted *uterus* there is an adhering *placenta*. It would probably then be right to say, if the *placenta* be partly separated, it will be proper to finish the separation, before we attempt to replace the *uterus*; but if the *placenta* should wholly adhere, it will be better to replace the *uterus*, before we endeavour to separate the *placenta*. The ground of this opinion is, that while we are separating the *placenta*, the *cervix* of the *uterus* is contracting, and the difficulty of replacing it increasing, which is a greater evil by far than a retained *placenta*.

CHAPTER XVI.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER SECOND.

Labours attended with Convulsions.

SECTION I.

THE rules given by different writers, for the management of of labours attended with convulsions, seem to have been founded on less certain principles, and to have been less confirmed by experience, than those which have been given for almost any other cases that occur. These rules have nevertheless led to two methods of practice, offered with sufficient confidence, though diametrically opposite to each other. According to the first*, which has been most generally approved and followed, it was deemed indispensably necessary, to deliver the patient by art, as expeditiously as possible, to free her from the cause of her impending danger. But according to the second, it being presumed that the convulsions appertained to the labour as symptoms, this, if natural in other respects, was to be suffered to go on without interposition, as if there were no convulsion†; while we were to be engaged in using the most efficacious means

* *La convulsion est un autre accident qui fait souvent perir la mère et l'enfant, aussi bien que la perte de sang, si la femme n'est très promptement secourue par l'accouchement, qui est le meilleur remède qu'on puisse apporter à l'une et à l'autre.*

Mauriceau, vol. i. chap. 28.

† *Naturæ partus, quæ cætoara sanus, relinqui potest.*

Roederer. *Element. Art. Obstetric. Aphorism.* 679.

VOL. II.

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for preventing their return, or for lessening the effect which might be produced by them. Without success, whatever has been done or omitted, has occasionally been blamed or regretted; and, in consultations on cases of this kind, I have generally observed, that the person, who advanced his opinion in the most confident manner, prevailed on the rest to acquiesce in his sentiments; the records of experience having been thought insufficient, or not so duly weighed, as to satisfy our minds, or to justify our forming an irrefragable rule of practice.

The true puerperal convulsions have not been accurately described; yet there are some peculiarities in the symptoms preceding their appearance, and in the convulsions, or the manner of their return, which distinguish them from every kind of hysteric symptom, and from convulsions proceeding from any other cause. Together with the symptoms of the epilepsy*, which they very much resemble, there is not unfrequently a *stertor*, which has been considered as peculiar to the apoplexy; or the patients, in the intervals between the fits, are obstinately comatose. With the foaming at the mouth there is also a sharp hisping noise, produced by fixing the teeth, and by the sudden motion of the under lip, as if attempts were made to retract the *saliva* back into the mouth; and by this noise I have generally been able to discover the state of a patient in convulsions, though she was in another room. The intervals between the convulsions, which are of shorter or longer duration according to the advancement of labour, evidently depend upon the action of the *uterus*, as will be proved merely by the application of the hand to the *abdomen*; and when they abate, the patients in some cases seem as if they were awakened by surprise, and soon recover the use of their faculties; but in others, they lie in the intervals in an insensible state, as if they were truly apoplectic, which they are not, though there have been instances of patients dying in the first attack, when there was no token of labour, as far as could be judged by the state of

* *Epilepsia*—*Agitatio convulsiva universalis, chronica, cum oppressione sensorum, exituque spumæ ex ore.*—*Vogelius.*

Epilepsia—*Musculorum convulsio cum sopore.*—*Cullen.*

Convulsio—*Musculorum contractio, clonica, abnormis, citra soporem.*—*Cullen.*

Spec. 2.

1. *Idiopathica.*

2. *Symptomática.*

the *os uteri**. By the degree of the derangement in the intervals between the convulsions, the danger of the patient is to be estimated, as well as by the violence of the fits, or by the symptoms which preceded them.

It will be convenient to arrange what I have to say farther on this subject, in the following order: first, to enumerate the reputed causes of convulsions; secondly, the symptoms which precede their appearance; thirdly, the means of preventing them; fourthly, the treatment which may be requisite when the patient is actually in convulsions; and, fifthly, on the delivery by art.

* In the examination of many women who have died in convulsions, I have never seen an instance of effusion of blood in the brain, though the vessels were extremely turgid, but it is remarkable, that in all, the heart was found unusually flaccid, and without a single drop of blood in the auricles or ventricles; and in several there instantly appeared many large livid spots on the extremities and surface of the body. They all died immediately after the *diastole* of the heart.

A woman in labour was put to bed, and made an effort to change her situation. She died instantly in the act of moving; but she had previously complained of a piercing pain in her head, and loss of sight.

Another was in such a situation, that the child was expected to be born the next pain. She threw herself back, and died instantly.

Another raised herself in bed to take nourishment, about half an hour after delivery. She fell back, and died immediately. She was opened by Dr. *Jenner* of *Berkley*.

There was no effusion of blood in the brain or any other part, in any of these; but the heart was found flaccid, perhaps somewhat enlarged, and not a drop of blood in either the auricles or ventricles. Yet the late Mr. *Hewson* informed me of a case of convulsions, in which, on examination after death, he found an effusion of blood, in a small quantity, on the *surface* of the brain.

SECTION II.

ON THE REPUTED CAUSES OF CONVULSIONS.

It is remarkable that puerperal convulsions occur so rarely in the country, that I have not been able to make some very intelligent men, of great experience, comprehend them, they having never seen a single example. The few cases, of which I have been informed, out of this city, have happened in large towns, or among those who might be reckoned in the higher ranks of life. It has also been justly observed, that women are far more liable to puerperal convulsions in certain years and seasons, than in others. We may therefore conclude, that a remote cause of these convulsions is to be sought for in some change made in the constitution, by the customs and manner of living in cities and large towns; or in the particular influence of the air; though there may also be immediate causes capable of producing these convulsions in any situation.

The female constitution becomes infinitely more irritable than usual in consequence of the changes made in the *uterus* during pregnancy, every part of the body readily participating with the state of the *uterus*. This increased irritability, when not excessive, and only affecting in one peculiar manner parts not essential to the economy of the constitution at large, is so far from being injurious, that it proves eventually salutary to the parent or child. But we may conclude, that in a constitution become unusually irritable from one cause, any additional cause of morbid irritation may often excite different and more violent effects, than if that constitution had been at rest, before the application of the second cause. It is therefore reasonable to believe, and the fact is proved by the daily occurrences of practice, that the constitution which a delicate mode of education can scarce fail to give, still farther augmented by habits of indulgence, and the eager pursuit of pleasure in advanced age, renders such woman at all times, and in all situations, more liable to every kind and degree of nervous affection; that the state of pregnancy makes them still more disposed to the same affections, and from slighter causes to convulsions, than those women are, who, by education, and habits of living, are seasoned, as it were, against impressions which might affect either their minds or constitutions; for it is to both these we are to look for the causes of convulsions.

That the state of the mind does very often dispose women to puerperal convulsions, and other dangerous nervous affections, there are numerous proofs to be drawn from the history of practice*. This has been more particularly observed among those women, whose unfortunate situations render pregnancy an evil instead of a blessing; for, from their seclusion and from a deprivation of the comforts of society, their sense of present ill, or apprehension of future distress, such women are especially subject to convulsions at the time of labour, and to become maniacal after their delivery. It has also been observed, that, from violent and sudden impressions on the mind, more generally from terror than any other, pregnant women have either immediately had convulsions, or fallen into a state which shewed a great propensity to them, though they did not appear before the accession of labour†. In some cases however, from a state of apparently perfect health, the first tendency to labour has produced convulsions, which have continued till the child was born, or after its birth; though in other cases the convulsions have been removed, and the labour has proceeded with great regularity. But there is often reason to suspect, that when convulsions have once appeared, they make to themselves new causes of their return, as they have continued for many hours, or even days, after delivery. There is likewise reason to think, that causes, seemingly too trifling to produce convulsions, have sometimes been equal to the effect; as I recollect two instances of women who had convulsions at the time of labour, preceded by violent head-aches, brought on, as it appeared, by the use of some mercurial preparation mixed with the powder used for their hair.

But it is not only in weak and very nervous habits that convulsions occur, as they sometimes happen in plethoric constitu-

* *There is a very interesting history of this in the Bible, I. Samuel, chapter iv. and three remarkable circumstances are mentioned; first, the cause, the violent agitation and distress of the mother's mind; second, her state of insensibility at the time of her delivery; third, that the child was born living, though the mother died immediately after his birth.*

† *The carriage of a lady, who was going on a party of pleasure, was broken down; she was near the time of her lying-in, and was very much frightened, though she received no apparent injury. When she fell into labour, this was preceded by convulsions, in which she died undelivered.*

tions, and are accompanied with a strong action of the vascular system in general, or of some particular part of the body; though I do not recollect a case, which could be attributed solely to this cause. With such different constitutions, and indications, some with all the symptoms of debility and depression, and others of plethora and fever, the method of treatment must of course vary; and great judgment will be required to suit the proper method, if that can be discovered, both in the degree and the extent to which it ought to be carried, to the state of every individual patient.

Beside the general affections of the body, which may be supposed to give a disposition to convulsions, affections of different parts, as of the intestinal canal or bladder, if they should be too much loaded or distended, may have the same power*. But in the female constitution the *uterus* is the great source of morbid irritability, and of course every cause capable of disturbing this part beyond a certain degree, or in an unnatural manner, may affect the whole frame, according to the kind and degree of the original affection, or according to the previous disposition. Yet all the parts of the *uterus* do not appear equally liable to be disturbed, for the *os uteri* is evidently the most irritable part, even in a natural state, as well as when disturbed by any morbid or adventitious cause†. Hence it appears in pregnant women, on the first tendency to labour, that the changes, which that part undergoes, often occasion a variety of nervous symptoms; and that these may be brought on, increased, or continued, if they before existed, by artificial or imprudent dilatation of that part in the course of labour, when it is usually rigid; or with an increased degree of irritability occasioned by inflammation‡.

* *Ad spasmodica, quæ ex uteri vitio proveniunt, pathemata concitanda, non opus semper erit, ut materia corrupta et vitiosa utero inhærens proximè et emmediate id efficiat.*

Hoffmann, *de Mal. Hysteric.*

† *In a case of this kind, which was published twenty-three years ago, I observed, "When the os internum began to dilate, I gently assisted during every fit; but being soon convinced, that this endeavour brought on, continued, or increased the convulsions, I desisted, and left the work to Nature."*

‡ *A woman, whose case was communicated to me by Dr. Mackenzie, though the convulsions ceased after delivery, died on the fifth day of the puerperal fever. In almost every case of convulsions that I have seen, there was evidently, after delivery, a greater or less degree of abdominal inflammation.*

It has been presumed, that the pressure made by the expanded uterus upon the descending blood vessels, causing a regurgitation of the blood to the superior parts of the body, to the head in particular, by overloading the vessels of the brain, produced convulsions. This opinion applies to a cause very general indeed, and, if true, must have had its effect so frequently as not to remain in doubt. But it was before observed, that women of plethoric habits, were universally less subject to convulsions of this kind than the feeble and irritable, that they sometimes first came on, or continued with equal violence after the birth of the child, when this presumed cause was removed.

Women are far more liable to convulsions in first than in subsequent labours, which is true; and then, it is said, more frequently when the child is dead, than when it is living; but this I cannot allow. For when women have convulsions, the death of the children ought generally to be esteemed rather an effect than a cause; as they have often been delivered of living children while they were in convulsions; or of dead, and even putrid children, without any tendency to convulsions. Some women have also had convulsions in several successive labours; but, having had them in one, they generally, by the precautions taken, or some natural change, escape them in future. Lastly, I was for many years persuaded, that convulsions happened only when the head presented; but experience has proved, that they sometimes occur in preternatural presentations of the child.

SECTION III.

ON THE SIGNS WHICH PRECEDE CONVULSIONS.

1. PUERPERAL convulsions are often preceded for many hours, or for several days, by a vacillation of the mind, or with a slight delirium.
2. Swimming in the head, and other vertiginous complaints, in the latter part of pregnancy, or in women in labour, not unfrequently forbode convulsions.
3. Violent or piercing pain of the head, preceding or recurring with the pains of labour, with similar signs of a disturbance of the functions of the brain, often denote convulsions*.

* *The lady of Captain C. who was at the full period of uterogestation, but not in labour, having complained about twelve hours of an excruciating pain in her head, coming on at intervals, fell down dead as she was walking across the room.*

4. When women in labour frequently complain of blindness, they are in danger of falling into convulsions.

5. Convulsions are often preceded by violent pain or cramp at the stomach.

6. Convulsions preceded by violent pain or cramp at the stomach, are usually more dangerous than those, which are preceded by affections of the brain only; and they sometimes cause sudden death by stopping the action of the heart.

7. Women who have a rigor on the returns of the pains of labour, are in some danger of falling into convulsions*.

8. Women in labour, who have great swelling or fulness of the neck, joined with an enlargement of the features of the face, and a staring or protrusion of the eyes, accompanied with an almost irresistible disposition to sleep, often fall into convulsions.

9. I have not known any woman, who had frequent vomitings, in the time of labour, fall into convulsions; nor do these often happen in difficult labours. But women will frequently have vomitings, after they have been seized with convulsions, which afford some relief.

10. The danger of cases attended with convulsions is not increased by their frequent return, as these depend upon the frequency of the action of the *uterus*; nor always upon an increase of the cause of the convulsions; but the increasing violence of the convulsions always denotes an increase of danger.

11. In our attendance on patients in convulsions, it may be often observed, that the spasms in the succeeding fits, chiefly and evidently affect distant parts, sometimes the head, at others the *abdomen*, sometimes the lungs, and at others the muscles of the throat; and the immediate danger may depend upon the effect of the spasm in any one individual fit, upon one particular part.

12. When patients are recovered from labours which were accompanied with convulsions, there will often be a vacillation of the mind, or symptoms partly delirious and partly maniacal, for several days or weeks; but from these they always recover.

13. Women who had convulsions, remain wholly insensi-

* *All rigors may be considered as a degree of convulsion; but these happen in labours frequently, though not always, without any ill consequences. I saw a feeble woman seized immediately after her delivery with a rigor, which, in spite of all the means that could be used, continued for twenty-five minutes, and then she died. Her labour had been very slow, but was perfectly natural.*

ble of all the circumstances which passed from the time when the first symptoms of the convulsions appeared, to that when they recover their faculties ; nor can they ever recollect them.

14. Those women, who when in labour, from the violent pain in the head and other symptoms, seem to be threatened with convulsions, have often a slight bleeding from the nose ; but seldom in sufficient quantity to give perfect relief, or to prevent mischief.

SECTION IV.

ON THE MEANS OF PREVENTING CONVULSIONS.

FOR the prevention of common accidents it appears reasonable and proper, that women far advanced in pregnancy should avoid all irregularities in their manner of living, and every situation where they may be under restraint ; or they will be liable to many complaints and inconveniencies*. At the time of labour it is a rule generally observed, that their minds should be kept composed, their apprehensions quieted, their present sufferings soothed by the tenderness of their friends and attendants ; that they should be encouraged with the hope of a happy event, and that the knowledge of every thing which might agitate or distress them should be concealed. But when any symptoms of disease appear, besides these precautions, such means, as the consideration of any particular case may indicate to be necessary, are to be used ; and no symptoms can require more attention than those, which have been recited as threatening convulsions.

Bleeding is known to lessen, in a very effectual manner, all the complaints in pregnancy which arise from uterine irritation, and to a certain degree, in pregnant women, from all other causes. It is therefore, I may say, universally recommended in all cases, when these convulsions exist, or are to be apprehended. The quantity of blood to be taken away, and the repetition of the operation may be several times required, must depend upon the strength of the patient and the violence of the

* *Gregarious animals when pregnant or giving suck, choose a place in the herd, different from what they take at other times.*

symptoms. But as, in some cases of this kind, there are also tokens of general debility, and a great dread of the operation, it will then be also necessary, or preferable, especially when the head is particularly affected, to use local bleedings, by scarification and cupping at the nape of the neck, by the free and frequent application of leeches, or by opening the jugular vein, or sometimes by cutting the temporal artery; a thing so easily done as not to deter us from the practice, and so efficacious as to invite our doing it on many other occasions.

When these symptoms have been preceded or are accompanied by others, which denote much disturbance of, or the lodgement of any offensive matter in the stomach, emetics may be given with safety and advantage*. In many affections of the brain it has been thought that emetics afforded singular benefit; and when these convulsions have been threatened, or existed, patients have been sometimes wonderfully relieved by the operation of an emetic. Care is also to be taken to regulate the state of the bowels, whether they be too much relaxed or constipated, especially in the latter condition.

Towards the conclusion of pregnancy some women are subject to violent cramps in various parts of the *abdomen*, or inferior extremities, together with complaints in the head or stomach. Should not these be relieved by the customary means, the warm bath may be advised, and from its occasional use they will often find much benefit.

Objections have been made to the frequent or habitual use of opiates for slight complaints in pregnant women; and there is much reason to suspect, that they sometimes, acting perhaps like spirituous liquors, prove injurious to the child. But these objections do not apply to their occasional use when they are really necessary. Yet as, in very large doses, opiates have been known to produce convulsions, it seems better to give

** A very short time ago, a lady had many severe attacks of this violent pain in the head, in the latter part of her pregnancy this was constantly relieved by the application of leeches to her temples, When she fell into labour she became blind, and had one convulsion. Having great sickness at her stomach, without vomiting, I urged her to irritate her throat with her finger, by which means she vomited five or six times, and had no fit afterwards; the blindness remained in some measure for several days after her delivery. The child had been dead about a fortnight.*

them in these cases, in small quantities often repeated, than in a large dose at one time*.

Nervous medicines of various kinds are usually given on these occasions, rather from custom, or with the intention of procuring temporary relief than permanent advantage; and they ought not to be neglected. But, on the whole it appears that in bleeding, and keeping the stomach and bowels in a healthy state, in giving opiates, and in the occasional use of the warm bath, we have the principal means which medicine affords, as far as can be judged either by reason or experience, of preventing puerperal convulsions, of insuring, in general, an undisturbed labour, and an uninterrupted recovery*.

It may lastly be considered, whether in cases of convulsions existing or threatened after delivery, especially when there are twins, it might not be expedient and useful to make an uniform pressure by passing a napkin round the body, as soon as it can be conveniently done, between the birth of the first and second child.

SECTION V.

ON THE TREATMENT OF CONVULSIONS.

FROM the attack of convulsions without any previous symptoms, or from the want of attention to those symptoms, we have much more frequently an opportunity of exercising our judgment in curing than in preventing convulsions. These, it was before observed, may come on in the beginning, or in the course of a labour; or, which is more rare, though not less dreadful, soon after the birth of the child; and some difference of treatment may be requisite, according to the time of their appearance. But, whenever they do come on, the danger is

** But the late Dr. Hunter informed me of the case of a patient who had convulsions, preceded by violent pain at the stomach. On the approach of her next labour she was attacked with the same kind of pain. She was immediately bled largely, and took thirty drops of tinct. opii, by which the pain was removed. She was delivered after an easy and natural labour.*

** Mulieri ex partu convulsione tentatæ, si febris succedat, bonum est.*

Hippocrat. Lib. i. de Morbis.

so manifest, and so alarming, as to call for the immediate exertion of all the powers of medicine for the relief of the patient.

The first and most obvious remedy in a case of such violent agitation of the whole frame, and such obtusion or perversion of the mental faculties, is, to take away a proper quantity of blood from the arm; for the direct good, which may be expected to be gained by bleeding speedily, as well as for the prevention of the mischief, which might follow the convulsions. One copious bleeding has sometimes entirely removed the convulsions, which have not returned after, as well as before delivery; but should these continue with equal force for a certain time, it will be expedient, for the particular easement of the head, to try the effect of local bleedings. Leeches are too slow in their operation, though they may be safely applied, and affording some relief, should not be neglected, and scarification, with cupping, could not be done without much difficulty; so that the two methods, most applicable and adequate to the urgency of the case, are, to open the temporal artery, or the jugular vein; and the latter has certainly been found preferable, perhaps because the blood is thereby discharged with greater velocity*. Objections are sometimes made to bleeding, lest there should be a difficulty in restraining the blood while the patient is so much disturbed; but there is no hazard, and the case does not admit of delay. The bleeding, from whatever part the blood may be drawn, is to be repeated according to the effect produced, the strength of the patient, and the violence or continuance of the convulsion†.

In the course of a few hours, I have by different operations seen more than forty ounces of blood taken away with the happiest effect; and in a labour of long duration, when the convulsions have been severe, at various times, not less than sixty or seventy ounces.

* For a patient, who was lying in a state which deprived me and several physicians of all hope of her recovery, Dr. Reynolds proposed, that the jugular veins should be opened. The good effects were almost instantaneous; the patient recovered, and has since had many children.

† The late Dr. Bromfield informed me of a case of puerperal convulsions, for which he had bled the patient without much benefit. In the violence of some of her struggles the orifice opened, and a considerable quantity of blood was lost before the accident was discovered; but the convulsions from that time ceased.

The state of the patient will seldom allow of the use of emetics ; but, when they could be given, and have produced their effect, they have procured much relief ; and the same observation may be made of purgative medicines. But the truth is, from the moment the convulsions come on, the patients often lose all power of swallowing, even in the intervals, and we are compelled to relinquish internal medicines altogether. Yet in such cases, clysters, if they can be made to pass, are usually given ; but, whether they were purgative in the first instance, or afterwards composed with a due quantity of opium, of oil of amber, the fetid gums, or other medicines of that kind, I cannot say that I ever saw any good produced by them, at least before the birth of the child ; and sometimes they seemed to increase the irritability.

On a supposition that the remote cause of these convulsions is in the too great irritability of the constitution at large, and the immediate cause in the excitement raised by some new stimulant, as the labour, or the like, opium in any convenient form has been freely given, and sometimes with evident advantage ; though I have seen many cases, in which it had no power to remove, or even to abate, this disease. From the exhibition of large doses, I have seen the patient brought into a comatose state, but the moment she was roused, the convulsions have returned with their former violence. Nor has more satisfaction been obtained by the various nervous medicines commonly prescribed ; even musk, often repeated in large quantities, has done as little service as the rest.

When the convulsions have continued or increased, notwithstanding the bleeding and the use of all the other reasonable means which could be devised, the patient may be put into the warm bath, in which she may remain a considerable time, if the convulsions be suspended while she is in it. There have been instances of women with convulsions, who have been freed from them only during the time they were in the bath ; and I have heard of more cases of their being actually delivered in the bath, without any ill consequences, either to the mother or child. When a warm bath could not be procured, or while it was preparing, I have directed flannels wrung out of hot water, or any suitable fomentation, to be applied over the whole *abdomen*, and, I think, with advantage ; and after the use of the fomentations I have also advised some liniment made more soothing by the mixture of opium, such as equal parts of oil and *tinctura opii*.

On every principle, of removing the cause of the convulsions,

of substituting new modes of irritation different from that which produced the convulsions, of preventing their ill effects, or of abating that exquisite irritability which renders patients subject to them, almost every measure and method has at one time or other been tried. *Harvey** recommended the irritation of the nose in a comatose patient who was in labour, and gives an instance of its success. Many years ago I was led by accident to try the effect of sprinkling or dashing cold water in the face; and in some cases the benefit was beyond expectation or belief †: but in other cases, in which I used this method with equal care and assiduity, no good whatever was derived from it; nor has the application of sinapisms to the feet, or blisters to various parts of the body, afforded any advantage, except, perhaps, when the convulsions had ceased, and the patient remained comatose.

When all the means have been tried without success, and the convulsions remain, with evident and extreme danger of the patient dying every time they return, we shall, notwithstanding,

* *Exercitat. de Partu.*—Page 554.

† I subjoin the following case, to explain the manner of using the cold water. To a patient in convulsions, who had been bled, and for whom many other means had been fruitlessly used, I determined to try the effect of cold water. I sat down by the bed side with a large basin before me, and a bunch of feathers. She had a writhing of the body, and other indications of pain evidently occasioned by the action of the *uterus*, before the convulsions; and when those came on, I dashed, with some force, the cold water in her face repeatedly, and prevented the convulsion. The effect was astonishing to the by-standers, and indeed to myself. On the return of the indications of pain I renewed the use of the cold water, and with equal success; and proceeded in this manner till the patient was delivered, which she was without any more convulsions, except once when the water was neglected. The child was born living about fifteen hours from the time of my being called, and the patient recovered perfectly.

I was much mortified to find, that I had not discovered a certain and safe method of treating convulsions; farther experience convincing me, that this often failed. It is however a safe remedy; and, though it may not always have sufficient efficacy to prevent or check convulsions, whoever tries this manner of using cold water will soon be convinced, that it is a very powerful stimulant.

be driven by necessity to wait quietly for the termination of the labour in a natural way, hoping she may struggle through; or we shall be obliged to seek further resources in the delivery of the patient by art. But this part of our subject shall be considered in the next section.

SECTION VI.

ON THE DELIVERY BY ART.

IF it be necessary to make distinctions as to the time when convulsions come on, with regard to the medicinal treatment, it is infinitely more so as to the delivery of the patient by art. We will therefore consider,

1. Whether delivery by art be proper or justifiable in the beginning of a labour attended with convulsions.

Women sometimes fall into convulsions before there is any discoverable tendency to labour, when there is not the smallest degree of dilatation or relaxation of the *os uteri*, and when there is no way of judging that it will be labour, except from the peculiarity of the convulsions, or the manner in which they return; and by these they may in general be readily distinguished from those proceeding from any other cause. In some cases also, after a long continuance of the convulsions, the *os uteri* has remained closed; and then it has been presumed, that they were not, properly speaking, puerperal. Yet, after a long delay, it has usually happened, that the dilatation both of the internal and external parts has begun, and proceeded very rapidly; so that, in a short space of time, from no degree of dilatation, the *os uteri* became unexpectedly, but completely dilated, when all hopes of delivery had been laid aside, and the very existence of the labour had been denied*.

When women have before had children, the infant and *placenta*, have been sometimes expelled with wonderful rapidity, by the mere force of the convulsion acting upon the *uterus*. But even in such cases the convulsions may continue with equal danger after delivery.

* In a well known case of this kind, the midwife, presuming that it would not be labour, left the patient, who was found dead in the morning, with her child, also dead, lying in the bed.

Now whether it be proper and reasonable, that attempts should be made to deliver a woman with the *os uteri* in this state, and under such circumstances in general, must appear very dubious to those, who consider how much would then be required to be done by art. But, if we farther reflect upon the event of the greater number of cases of women who have been delivered by art, under these, and far more favourable circumstances, the greater part of whom have soon died, their death being apparently hastened by the operation, however carefully it might have been performed, we shall be deterred from then proposing it; and, I think, be justified in forming this general rule of practice, subject perhaps to some exceptions, that women, who fall into convulsions in the beginning of labour, ought not then to be delivered by art.

I presume, that, with all the assistance which art enables us to give, or if the labour be resigned to nature without interposition on our part, patients will sometimes die in a deplorable manner*. I also know that, if the patient should die when no attempts were made to deliver, that the omission is always regretted; or, if she should be delivered by art and die, that the operation is lamented. Yet there must be a rule of conduct to be preferably followed, and with few exceptions; and this is to be made, not according to the timidity or boldness of the person under whose care the patient may be, nor according to the impatience or tenderness of friends; but according to a judgment formed by a sense of duty, maturely weighing all that the knowledge of a present case, or the experience of others, has enabled us to collect†.

* ——— with remorseless cruelty,
 Spoiled at once both fruit and tree.
 The hapless babe before his birth,
 Had burial, yet not laid in earth.

Milton's *Elegy on the Marchioness
 of Winchester.*

† Dr. Ross, who, forty years ago, was one of the physicians of St. George's Hospital, was the first person who had courage to declare his doubt of the propriety of speedy delivery in all cases of puerperal convulsions. The observation on which these doubts were founded was merely practical, and the event of very many cases has since confirmed the justice of his observation, both with respect to mothers and children.

2. Though convulsions often happen in the beginning of a labour, and continue to its termination, the first stage is, in some cases, passed over without any unusual disturbance or irregularity, and they come on in the second stage of the labour, when the symptoms which usually precede them did not appear, or rather passed without observation. The propriety of delivering by art is then to be determined on other grounds than in the preceding statement, whether the convulsions have continued, or commence at that time. For, if it should be thought necessary, to deliver by art, this may frequently be done without any peculiar force upon the parts concerned, as the *os uteri* will then either be dilated with the membranes, whole or lately broken, and the child may be turned without difficulty, and safely extracted by the feet; or the head will have descended so low into the *pelvis*, as to allow of the use of the *forceps* or *vectis*; or things may be so unhappily circumstanced, as to leave no other option of the mode of delivery, but we may be compelled to lessen the head of the child. Whichsoever of these methods may be thought necessary, the rules before given for the management of difficult or preternatural labours, will be sufficient guides for our conduct: and before any thing else is done, the membranes may be ruptured, and the waters discharged; from which alone, in some cases, much benefit has been derived. But, from a review of what has passed in my own practice, I feel it necessary to caution the operator against a forwardness to sacrifice the regard due to the child in cases of convulsions, as many of these, with very unfavourable appearances, have terminated happily and safely both to the mother and child; and against hurry in any operation, as he would thereby lessen his chance of saving the child, and probably with disadvantage to the mother; and no good can result to society, or reputation accrue to the profession, from a practice by which neither of their lives is preserved. Should the convulsions continue after the birth of the child, the methods before tried must be persisted in, or new ones adopted, as the state of the case may then require or allow; and under these circumstances it will often be found preferable, to satisfy ourselves with giving time, proceeding gently and circumspectly with general care, rather than to use incessantly the more active means, which it has been sometimes necessary to recommend.

With respect to those convulsions, which first appear after the birth of the child, the exigence of the case must govern the treatment, and great attention is to be paid to the *placenta*,

which, I believe, should not then be hastily extracted. There is in these an appearance of instant and unexpected danger, beyond what is found in convulsions before delivery, frightful as they always are. These convulsions are preceded or accompanied by the same symptoms as those, which come on the commencement or course of a labour; and notwithstanding the delivery, they require and allow of the same means being used for the relief of the patient, provided these are accommodated to her general strength and circumstances. In convulsions which come on after delivery, if women escape from the first fit, there is a great chance of their recovery; but should they remain comatose, or whatever their state may be, the particular symptoms are to be considered, and, from all that has been said upon this subject at large, we shall be at no loss to discover what may be applicable in any individual case of this kind.

But there is yet room for much improvement in our knowledge of the causes, effects, and treatment of convulsions, depending on pregnancy and parturition.

Before the conclusion of this subject, it will not be amiss to speak of the sudden deaths which sometimes happen soon, or a considerable time after delivery, when there was no apparent reason for suspecting such events.

In every case of extreme debility, induced by any circumstance which might occur at the time of parturition, great caution was generally recommended, that patients should not exert themselves beyond their strength, or what they were able to do with ease. But from a review of these dreadful accidents, of which, in the course of a long and extensive practice, I have seen and known too many instances, I think they may be reduced under the following heads.

First, when before delivery the patients were subject to frequent returns of spasm or cramp-like pains in the stomach, spreading their influence to the heart, as is shewn by the temporary suspension or interruption of the circulation, indicated by the pulse. These symptoms are very apt to return after delivery with increased and dreadful violence.

Secondly, when the patient is very much reduced by loss of blood at the time of delivery, the weakness thereby occasioned remaining a long time afterwards. In these cases, on making any extraordinary exertion, the patient is suddenly overcome, and the powers of the constitution are never able from that time to recover vigour of action sufficient to sustain life.

Thirdly, when without any adequate indication of the mischief to be apprehended, a faintness and a difficulty of respiration suddenly come on, and these increasing, the patient dies unexpectedly. This event is usually preceded by her spitting a very small quantity of blood, and on examining the body after death an effusion of blood in the air vessels of the lungs has clearly shewn the cause.

Fourthly, in cases of extreme debility from other causes, particularly in the edematose swelling of the leg, in which there is often a surprising degree of weakness with much disturbed action of the whole frame, on the patient's making any effort beyond her strength, and perhaps her inclination, a fatal and sudden faintness is sometimes brought on before an action to which she seemed competent is completed, and death seems more instantaneous under these than any other circumstances.

With regard to the first cause of these deplorable events, without waiting for the return of the spasm, it will be proper to give some very warm cordial immediately after delivery, as brandy alone or diluted, acting in the manner usually practised, when patients are suffering from the gout in the stomach. The most suitable medicine is the *confectio opiata*, given and repeated in a full dose according to the exigencies of the case.

With regard to the second and third causes, there is no way of preventing their effects so reasonable, as by taking care not to fill the vessels too hastily, by very plentiful nourishment, from an impatience to restore that strength which the patient has lost.

And with respect to the fourth cause, of which I have seen three instances, we are to be very circumspect, that we do not permit, or persuade patients to make much exertion, while they are very weak, but leave them to act according to their own feelings and judgment.

These observations will not I fear be of much importance, but we may be truly said to be ignorant, or to have a very imperfect knowledge of this subject, which deserves more accurate observation, and greater consideration.

CHAPTER XVII.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER THIRD.

Labours with two or more Children.

SECTION I.

THE common order of generation, or the continuance of the particular kind of animals, according to the properties of each kind, is more frequently invaded by an extension than a failure of the principle; instances of unusual increase being often found both in animals and vegetables, though these instances occur more frequently in some classes than in others.

With respect to generation, all animals may be divided into two classes, uniparient and multiparient. Of the multiparient the number of young produced at one birth seems to be indefinite and governed by accidental circumstances, as the frequent intercourse with the male, plenty or want of food, and perhaps by the casual fixture of the first conception in the first chamber or partition of the *uterus*. It very seldom however happens, that animals multiparient by nature bring forth only one *fatus* at a birth; and perhaps the uniparient do not more frequently bring forth more than one, though in every species there are exceptions to this general rule. As to the economy of this important end of the animal creation, it would probably be found, that the female multiparient animals have no exclusive attachment to any individual male; but that the female uniparient have naturally such an attachment.

In some species of animals, the propensity to bring forth more than their common number of young is greater than in others; sheep, for instance, more frequently than in cows, in these than in lions. Climate, and state or degree of civil zation,

seem to have their influence in this respect on human beings ; for in the account of women admitted into the Middlesex Hospital in this city, in 8636 births, there were only ninety-three cases of twins, and none of a greater number. Of this number there were 3263 boys ; 310 were still born, and of this number 180 were boys ; and somewhat more than half of the twins were boys. But in the accounts published by Dr. Clerke of Dublin*, the number of twins was in greater proportion to the births, and there were several examples of three children.

It has been supposed, that there is a disposition in certain families to this multiplied generation, which may be transferred either by the male or female ; but if this be the case, there are no tokens by which this disposition would be suspected, either from the form, size, strength, or other appearance.

It is not very usual for women to have twins, though these are to common observation more frequent in particular years than in others, and it can scarcely be doubted, but there is some relation in those years between the animal and vegetable creation. In the course of more than thirty years I have met with only one instance of three children, and never of more. I have been informed of several cases of four children, and there have been published a few cases of five children born at one birth, but beyond this number there is no well authenticated case upon record.

The size of children born at one birth is generally in a reverse proportion to their number, as is also the probability of their being born alive, or continuing to live. Twins are frequently born living, and not much beneath the size of a single child ; sometimes three have been born living, and been reared, but not often ; and when there have been more, the chance of all or any being preserved is very little. With more than two children women seldom go on the full period of uterogestation. There must of necessity be somewhat more complex and sometimes hazardous when there are two or more children than in a single birth, but he who understands the proper management of a twin case will meet with no difficulty to embarrass him, how many children soever there may be ; we shall therefore speak of all births of this kind under the denomination of twin cases.

* See *Philosophical Transactions*.

SECTION II.

ON THE SIGNS OF TWINS.

1. WOMEN are said to be always of a greater size in the advanced state of utero-gestation when they are pregnant with twins, than when they have a single child. This is a very uncertain sign, and popular opinions being usually founded on this circumstance only, are therefore far more frequently fallacious than true. But if a woman be unusually large in the early part of pregnancy, and increase proportionably to the full period, there is good reason for suspecting she will have twins. But as the terms *size* is indefinite, and what one, not much conversant in such matters, may consider as large, another may consider as moderate, there can be no surprise, if conjectures on this subject often prove to be erroneous.

2. The *abdomen* of all women with child is in general uniformly distended, without any inequality. It sometimes however happens, that the tendons, which form what is called the *linea alba*, which leads from the navel to the middle of the *ossa pubis*, being less distensible than the sides of the *abdomen*, which are muscular, divide the *abdomen* as it were into two equal parts by a *raphe* or indentation through its inferior part. This presumed sign of twins is as ancient as the time when the human *uterus*, like that of the quadrupeds, was supposed to be divided into *cornua*, a child being thought to be contained in each horn. But as the form of the human *uterus* is now well understood, and known to be equally distensible by its contents, whatever the form of the *abdomen* may be, unless it be constrained by external means, even less regard is paid to its form than its degree of distention, when we are judging whether it be probable, that a woman is pregnant with more than one child.

3. Women with child, especially those who have before had children, are sometimes apprehensive that they have twins, from a greater, or some uncommon motion they feel during pregnancy. Some regard must at all times be paid to the representations of those who have had experience, though they may be ignorant of doctrines; yet I have seldom found these opinions verified by the event.

4. In the course of a labour, sooner or later, according to the

strength of the membranes and of the pains, the waters of the *ovum* are discharged at once, by one large, or a repetition of less discharges, when there is only one child. Mention is sometimes made of a second discharge of water, before the birth of the child, as a sign of twins. This second discharge may be occasioned by an imperfect first discharge, or by water collected in a considerable quantity between the membranes, on the rupture of the second membrane. When however a child is far advanced towards birth, a sudden discharge of any considerable quantity of water from a part beyond the child does create a just suspicion of there being another child, the membranes of the second breaking by the efforts made to expel the first.

5. Extreme slowness of a labour, which has been considered a sign of twins, may be produced by a variety of other causes, as we have often mentioned, and of course this must be a very uncertain one. It is true, when there are twins, the first labour is almost universally slow, and this slowness has been not unreasonably attributed to the great distention of the *uterus*.

But our ignorance of the number of children of which a woman may be pregnant, fortunately does not lead to any errors in practice; because if we knew with certainty that there were twins, our conduct with regard to the birth of the first child should not be altered. It would then be our duty, as at all other times, to wait for the expulsion of the first child, if the labour were natural, and any difference in practice would only relate to the second child.

After the birth of a child, it was formerly the custom to introduce the hand into the *uterus* to bring away the *placenta*, or any coagulated blood which might be collected in its cavity, and to ascertain whether there were another child. This practice has been for many years justly held both unnecessary and pernicious, the *placenta* generally coming away without any, or with very little assistance, and *coagula* being also safely expelled without any or much difficulty; and the application of the hand to the *abdomen* giving full satisfaction as to the other intention. By this method we can often tell distinctly if there be another child, and its limbs, together with the different parts of the body, through the integuments of the *abdomen*; but it is generally by its degree of distention after the birth of the first, that we judge there is a second child. But on this principle I remember being mistaken in a case in which a young woman with her first child had an *ascites* during pregnancy; and the error must always be of that kind, to lead us to believe there are twins when there are not, but can never suffer us to over-

look the case, or to leave a child remaining in the *uterus*, which through inattention or ignorance has sometimes happened.

In twin cases, priority of birth does not depend on superior strength, but on convenience of position; that which is nearest the aperture of the *pelvis* must first be born, whether it be strong or weak, living or dead. When one child is beyond comparison strong, and the other feeble, it is not unusual for the feeble one to be killed, apparently, by pressure, though it may not be expelled before the full period of uterogestation; so that one may come into the world fat and full grown, and the other may be small, withered, and compressed. This dissimilarity in size and appearance was once considered as a proof of the obsolete doctrine of superfetation.

SECTION III.

ON THE MANAGEMENT OF TWIN CASES.

IT is a constant rule, to keep patients, who have born one child, ignorant of there being another, as long as it can possibly be done.

In far the greater number of those twin cases, which have occurred to me in practice, while I have been waiting for the circulation in the *funis* to cease, or employed in tying it, or waiting for a pain to exclude the *placenta*, the patient has complained with more than ordinary eagerness. On examination, I have found the second child on the point of being born, or the membranes protruding with great firmness, so that instantly on their breaking, the patient has been delivered with great rapidity almost before I had time to give notice to the attendants, to prepare for its reception. Of course, in labours like these, nothing particular could be required to be done, as they terminated with as little trouble, as if there had been only a single child. Our intelligence and care can then only be exercised on one or other of these occasions.

1. Whatever may be the presentation of the first child, and whatever method it may be found necessary to pursue for the delivery of the patient, these are to be precisely the same, and there will be no greater difficulty, than if there were only a single child. One circumstance alone demands attention, that, if the presentation of the first child be such as to require the child to be turned, when we have introduced our hand into the

uterus, we must be careful not to break the membranes of the second child, if they be yet whole; or if we should find them broken, we must take care to bring down the feet of the same child. In all other respects I think I have found the turning of the child less difficult, when there were twins; and if we have been under the necessity of turning the first child, it will generally be expedient, to extract or get the command of the second, by repassing the hand into the *uterus* and bringing down its feet into the *vagina*.

Should the second child present with the breech or inferior extremities, there can be no solicitude about the case. We must act as was before advised in such cases, that is, we must wait for the expulsion of the child by the natural efforts, if they be excited, or be equal to the effect, otherwise we must give assistance.

The most fortunate presentation of the second child in a twin case is certainly with the inferior extremities, because it may in that position be born without injury or difficulty, and if assistance be required, this may be given with safety and convenience.

In cases of the second child presenting with the head, the same observations will hold good. That is to say, the child will probably be expelled by the natural efforts; or if farther assistance be requisite, the *forceps* or *veltris* may be conveniently used. As to lessening the head of the child, this operation cannot possibly be needful, if there were room for the first child to pass without diminishing its bulk; unless from some very unusual circumstance, as a hemorrhage or convulsions, threatening immediate danger.

2dly. When after the birth of the first child there is a suspension of the pains of labour, and no efforts are made to expel the second child.

The process of the labour of the first child will have its effect on that of the second. If we were compelled to make the first labour artificial, it might be necessary or expedient, to deliver the patient of her second on the same principle, unless the natural efforts should be efficaciously made very soon after the birth of the first child; which is not the statement I now wish to make. But when after the birth of the first child, expelled in a reasonable time and by the natural efforts, from some cause which we cannot comprehend or counteract, no efforts-whatever are made for the expulsion of the second child, the patient being as much at her ease as if there had been no previous labour;

this is a state of great solicitude to every person careful of his patient, and of his own character, as he must know she will be in some degree liable to unpleasant, and even to dangerous symptoms, till the second is also born, and the business completed. The rules of practice have been on this subject not only various, but directly opposite. By the older writers we have been taught, that it was necessary and proper, if the second labour were not speedily finished, immediately after the first, to extract the second child, according to its position or situation, by properly adapted artificial means. Others, on the contrary, averse on every safe occasion to the interposition of art, have advised us to wait patiently, till the efforts to expel the second child were renewed, unless some symptom should arise, which should call for more speedy assistance. The latter appears to be a more judicious principle on which to act in general, and it is supported by some facts under the eye and direction of very able men, as well as by many popular accounts; not to mention the guard it provides against the misconduct of those, who may not be perfectly competent to give that assistance, which they presume to be required. Like all other general principles in practice, it requires nice distinctions to be made in particular cases, otherwise the cause of danger will sometimes creep on insiduously, and come by surprize. No person can object to waiting for a certain time after the birth of the first child, provided there be no pressing occasion for his interposition, before he determines on the extraction of the second child by art. We can then only debate upon the length of time which it may be expedient to wait; and, as we say with regard to the *placenta*, it shall neither be so short as to run the risk of injuring the patient by hurry or rashness, nor so long as to increase the danger, should any exist, nor the difficulty of delivering the patient, if we should be at length obliged to use art for this purpose. Without regard to those who are fond of speculative opinions, or the determination of those who are guided by practice alone, I have concluded that we may safely, and ought to wait for four hours at least after the birth of the first child, before we deliver the patient by art of the second child; if there be no particular cause for delivering her sooner. By this decision we shall certainly avoid many unnecessary operations, without detriment to the patient, without increasing our own difficulties, or hazarding our reputation.

The proper management of the patient after the birth of the first child is very obvious. There is no reason for alarming her fears, but the case will terminate more favourably by keeping

her ignorant of the circumstance, or if it be discovered by cheering her mind, and she will go on better and with more resolution, by being assured that assistance shall be given, if she should not be delivered naturally before some fixed time.

3. When a hemorrhage, convulsions, or other dangerous symptoms come on, or are threatened, after the birth of the first, or before the birth of the second child.

Though there may be many aberrations, every labour has its denomination from the most important circumstance, with which it is attended, and such circumstance principally governs the practice, which it may be necessary to pursue. Among these, hemorrhages and convulsions stand in the first place, and, whatever may be the nature of a labour in other respects, that must be of secondary consideration. In twin cases, however proper or expedient it might be to wait, for a limited time, for the natural expulsion of the second child, the appearance of convulsions, or hemorrhage, or other dangerous symptoms, would decide the matter, and put the propriety of waiting any longer out of the question. The patient, if these cannot be removed by other means, must be speedily delivered by art. But I wish to confine the term *speedy* to the determination to deliver; for under all circumstances, the operation instituted for extracting the child, of whatever kind that may be, ought to be performed deliberately, or we shall add to the danger which before existed. Whether therefore we be compelled by these dangerous appearances, or after waiting a specific time, four hours for instance, as was before stated, we have determined on the propriety of delivering the patient by art, we must bear in mind this rule, that we never ought to proceed with any degree of hurry or violence, if it can possibly be avoided. We must never forget, that it is not the mere delivery of a woman which is of value, but as this may be the means of freeing her from the immediate danger she is in, leaving her with the fairest chance of a perfect recovery, at the same time preserving, should it be possible, the life of the child.

SECTION IV.

ON THE MANAGEMENT OF THE PLACENTÆ.

WHEN there are twins, more difficulty is expected, but not always found, in the management of the *placentæ*, than in the case of a single child.

The two *placentæ* are usually connected together so as to form one mass; but in some cases they remain single, except where the membranes cohere, and are to be successively extracted.

The number of *placentæ*, separate or connected, is usually in proportion to the number of children. Some deviations from this observation have been recorded, a single *placenta* and a single cord having been found in a case of twins, the latter of which branched off into two, after it had departed to some distance from the *placenta**.

When the *placentæ* are separate, that of the first child should not be extracted before the birth of the second child, as a discharge of blood must necessarily follow, and perhaps a hemorrhage; though sometimes one *placenta* has been discharged before the birth of the second child, without any material loss of blood; and in some cases of hemorrhage, when there was only one child, the *placenta* has been expelled before the child, without any detriment.

When the *placentæ* are connected, they usually remain perfectly attached till after the birth of the second child, otherwise there would be a hemorrhage.

If there have been a necessity of extracting the second child by art, it is commonly, but not universally, necessary to extract the *placenta* also by art.

But presuming that two or more children have been expelled by the natural efforts, and that there is no hemorrhage or other cause of alarm, then there appears, and actually is, no more reason for giving assistance to bring away the *placenta*, than if there had been only one child, but we safely may and ought to wait for the expulsion of the *placenta* by the natural efforts, as in a single birth.

When we do give assistance, we must recollect, that the two *placentæ* ought to be extracted together or in quick succession, as the patient would not be freed from the hazard of her situation, if any existed, should one of them be retained. When therefore we give assistance in pulling by the *funis*, we must be careful, that each shall bear an equal share of the force we think it expedient to use. Or if it should be necessary to extract the *placentæ*, by introducing the hand into the *uterus*, the hand is not to be withdrawn, till both the *placentæ* are loos-

In the Memoirs of the Royal Academy there is an account of a case of this kind.

ened and ready to come away. The case will then require precisely the same conduct as that of a single *placenta*, which there is no occasion to repeat.

The *uterine* discharges are more copious in a case of twins, than in that of a single child, and they are in general of longer continuance.

CHAPTER XVIII.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER FOURTH.

On Labours in which there is a descent of the Funis Umbilicalis before any part of the Child.

SECTION I.

THE *funis umbilicalis* may be easily distinguished from any part of the child by its pulsation if the child be living, and by its form and continuation, whether the child be living or dead. When a considerable fold of the *funis* drops through the external parts, the attendants are very apprehensive of danger from their ignorance of the part; but this alarm is soon removed by an explanation.

Some incident is generally assigned as the cause of this descent of the *funis*; but the rupture of the membranes, with a rapid discharge of the waters of the *ovum*, especially if they be excessive in quantity, has been considered as the most usual cause. This circumstance may sometimes occasion the descent of the *funis*, but far less frequently than has been imagined. For, before the rupture of the membranes, the *funis* may very often be distinguished through them, lying before the head, or presenting part of the child, so, that, whenever the membranes break, whatever might be the quantity of water, or the manner of its discharge, it would be impossible, but that the *funis* must be the part which first descends. For this, with many other reasons, so many cautions have been given to avoid breaking the membranes; because though the *funis* were thus situate, the child would not be in danger, before the membranes were broken. It has also been observed, that the descent of the *funis* has happened to the same woman in several successive labours;

So that, from the uncommon length of the *funis*, or from some other peculiar circumstance, some women seem to be particularly liable to this accident.

The descent of the *funis*, makes little or no difference with regard to the progress or event of a labour, as far as the mother is concerned. The danger thence arising is wholly confined to the child. All our attention, and every measure we pursue, must then relate to the prevention of this danger, which can arise only from the compression of the *funis*, and the consequent interruption or suppression of the circulation of the blood between the *placenta* and child.

All the assistance which art has afforded for this purpose has led to two points of practice; first, in directing us to return the descended *funis* beyond the head, or presenting part of the child, whatever that may be; in drawing it to the sides, where it might be out of the way of compression; or, if these were impracticable, to favour the continuance of the circulation, by preventing its exposure to the influence of the open air. Secondly, by passing the hand into the *uterus*, turning and delivering the child by the feet, by which the labour was accelerated, and the danger from the compression of the *funis* avoided.

When the *funis* has descended, the state of the child may be precisely determined by the *funis* itself. If there be a pulsation in it, the child is certainly living, though the pulsation may cease during the continuance of a pain, and return in the intervals; but, if no pulsation can be perceived in the *funis*, the child, we may be assured, is already dead. When the child is dead, all the efforts of art must be useless to it, and might be injurious to the mother; we must therefore be satisfied, with permitting the labour to proceed, as if the *funis* had not descended. It is only when the child is living, which, as we before observed, will be proved by the pulsation of the *funis*, that any interposition can either be required, or be of service; yet it is remarkable, that writers on this subject have instituted their directions in general terms, without regard to the state of the child, whether living or dead. It is also to be observed, that the same directions have been given under all the various circumstances, in which the mother may be, though these are sometimes such as to make it impossible for them to be followed, without inducing some danger to the mother, or with any prospect of advantage to the child; but we shall understand this subject better by considering it in the following manner.

SECTION II.

ON THE DESCENT OF THE FUNIS WHEN THE OS UTERI IS BUT
LITTLE DILATED.

SHOULD the membranes break in the beginning of labour, more especially if it be the first, when the *os uteri* is but little dilated, and the *funis* descend before the presenting part of the child, this would probably perish long before the *os uteri* became dilated, or acquired such a state of dilatibility, as to allow of the safe introduction of the hand, if we were disposed to turn the child; and before we had an opportunity of putting in practice any of the methods for replacing the *funis*. With this statement of the situation of the mother, it appears to be more eligible, and, I believe, it is generally consonant to the present practice, rather to submit quietly to the natural event of the case, than by violent and ill-timed attempts to deliver the patient by art, with very little hope of saving the child, and not without some danger to the mother.

SECTION III.

WHEN THE OS UTERI IS FULLY DILATED.

THE *os uteri* is understood to be completely or sufficiently dilated, when it will allow of the introduction of the hand without much force. When the membranes break in the advanced state of a labour, should the *funis* be descended before the child, it will even then be necessary, to consider the state of the child, before we determine on the measures we might find it safe, and think it reasonable, to pursue. If the child should be dead, we then certainly ought to resign the labour to the natural efforts without any interposition. But, if the child be living, and the presenting part remain high up in the *pelvis*, especially if the pains have been slow and feeble, it will generally be better to pass the hand into the *uterus*, to turn and deliver the child by the feet; using, at the same time, the precaution of carrying up the descended *funis*, that it may be out of the way of compression. But if the head should be so far advanced in

the *pelvis*, as in any conspicuous degree to render the turning of the child unsafe to the mother, that is, if the child cannot be turned without the use of much force, it may be proper to use our endeavours to preserve the child by other means, such as by replacing the *funis*, or by accelerating the labour in its present position.

For the first we have been directed to raise the descended *funis* beyond the presenting part of the child, in the absence of a pain, as far as we can reach; retaining it there when the pains come on, till it shall abide above the presenting part of the child, when we might presume it was in safety. But this method, as far as I know, is, on trial, seldom or never found to succeed, for the *funis* is usually forced down again on the return of the pains; though the success of these attempts will very much depend upon the quantity of *funis* descended, or upon its being in a single fold, or in several convolutions, and whether it be on the fore part or sides of the *pelvis*, where it can be more commodiously managed.

The late Dr. *Mackensie*, than whom I have not known a man more intelligent in conversation, or more excellent in practice, informed me of another method which he had tried. Instead of attempting to replace the descended *funis* in the common way, he brought down as much more of it as would come with ease, and then enclosed the whole mass in a small bag made of soft leather, gently drawn together with a string, like the mouth of a purse. The whole of the descended *funis*, inclosed in this bag, was conveniently returned, and remained beyond the head of the child till this was expelled; and the bag containing the *funis* having escaped compression, the child was born living. But he very ingenuously told me, that he had afterwards made several other trials in the same manner without success.

Many years ago Mr. *Croft* also informed me of a method, which he had successfully practised in these cases. When he had in vain attempted to replace the *funis* in the common way, he carried up the descended part beyond the head, till he met with a limb of the child, suppose the leg or arm. On this he suspended the *funis*, and then withdrawing his hand, suffered the labour to proceed in a natural way*. There may be much of accident in the success of these different methods, but I should

* Mr. *Croft* informed me, that, beside the two cases published in the *London Medical Journal* for the year 1786, he has met with other cases, in which he has been equally successful.

believe, whenever it may have been thought necessary to introduce the hand into the *uterus*, that it would be found more expedient, to complete the business by turning the child, and delivering by the feet.

With respect to the acceleration of the labour, the means to be used must depend upon various circumstances, which we will consider in the next section.

SECTION IV.

1. It is to be observed, that every child is not born dead, though the *funis* had descended, and no means were used to free it from compression; but it must evidently have been in the greatest jeopardy. The danger of these cases depends upon two circumstances; the time which may pass when the *funis* is compressed before the expulsion of the child; and the degree of compression made upon it, in consequence either of the smallness of the *pelvis* in proportion to the head of the child, or of the resistance of the soft parts, or of the untoward situation of the *funis*. The first is beyond the power of art to remedy: the second will depend upon the state of the parts, whether it be a first child, or whether the patient may have before had one or many children, which is accidental. If the *funis* should have descended with a first child, in general, the more slowly the labour proceeds, the less will be the hazard from the compression; but, unfortunately, the children thus circumstanced will commonly perish, though there is a bare possibility of their escaping; and I have been mortified, in some instances, with an assurance, in my own mind, that a very few minutes delay in the expulsion of the child has been the cause of the misfortune. When the *funis* descends in those women, who have had many children, there is little comparative resistance made by the soft parts; and, by exciting the pains to act with more vigour, or by encouraging the patient to exert her efforts more strenuously towards the conclusion, the child will be sooner expelled, and its life, perhaps, be preserved. But no attempts to save the child are on any account to be made, but such as can be practised without the chance of injuring the mother.

2. When the head of the child presents, and has advanced far into the *pelvis*, if the pains be slow and ineffectual, and the child living, it may be considered whether, without hazard to the mother, we may not apply the *forceps* or *veclis*; and, by

extracting the head sooner than there was reason to think it would be expelled by the natural pains, preserve the child. With regard to turning the child, and delivering by the feet in these cases, the operation can only be performed before the head has descended far into the *pelvis*; though in some instances I have gone in this respect beyond the common rules of the art, and have succeeded in saving the child.

3. When there is a descent of the *funis*, with a preternatural presentation of the child, our conduct must have regard to both these circumstances.

Should the breech present, the case will very much resemble the presentation of the head; that is, the same methods for replacing the *funis* may be tried, and with rather a better chance of success. If these fail, instead of considering the labour as one of those, which is to be resigned to the natural efforts, it may be expedient at a proper time to bring down one or both of the inferior extremities, taking care that the *funis* be not entangled between the legs of the infant; and there are few cases of this kind, in which we may not conduce to the preservation of the infant, by proceeding in this manner when the *funis* is the presenting part.

Should the arm of the child present, and such presentation be complicated with a descent of the *funis*, very little difference of conduct will be required; because, for the first reason, we should determine to turn the child, and deliver by the feet, and the additional circumstance of the descended *funis* can require nothing more to be done. Yet when the feet of the child are brought down, if the pulsation of the arteries of the *funis* be lively or perceptible, it may sometimes admit of a debate whether it will be most proper to hasten the delivery, especially if the *os uteri* be not sufficiently dilated; or to leave it to be expelled by the returning pains. In either case it will however be right, to attempt to return the *funis* within the *os uteri*, and, if it be in our power, out of the way of compression. The general rules already given for the use of the *forceps* and *vectis*, and for the management of preternatural labours, make it unnecessary to enlarge on this part of our subject in this place.

SECTION V.

ON MONSTERS.

THIS subject affords very little room for practical observations, because the symptoms in early pregnancy are not different from those in natural births ; and because the *fetus*, whatever be its structure, is usually expelled easily and regularly at the time of labour. We might indeed be mistaken in our opinion of a presenting part : but as in any case of real difficulty, the needful investigation would discover the nature of the case ; and as we should have little to consider but the simple extraction of the monstrous *fetus*, without injury to the mother, the general rules of practice would be readily applied to every exigence arising from that cause.

Several books have been professedly written on monsters, but the subject, instead of being considered and cultivated as a branch of natural history, or as leading to physiological discoveries and explanations, has, by the manner of treating it, been rendered little more than a theme of superstitious wonder, of ridiculous falsehood, or of senseless curiosity. The same observation may be made on the cases published in almost every periodical work, and on collections of monsters. Yet lord Bacon thought that a history of monsters was very much wanted for two purposes ; “ first, to correct the partiality of axioms and opinions, which are commonly formed on common and familiar examples ; secondly, because from the wonders of nature is the nearest passage to the wonders of art ; for it is no more than by following, and as it were hounding nature in her wanderings, to be able to lead her afterwards to the same place.” The advantages which might be derived from the pursuit of the first intention are manifest, but those from the second, seem to be problematical.

It is probable that monsters might be reduced into regular orders or systems, as they all seem to be of one or other of the following kinds.

1. Monsters from redundance, or multiplicity of parts.
2. Monsters from deficiency or want of parts.
3. Monsters from confusion of parts.

To these might perhaps be added, without impropriety, another, kind, in which there is neither redundance, nor defi-

ciency, nor confusion of parts, but an error of place, as in transpositions of the *viscera*. But children born with diseases, as the *hydrocephalus*, or their effects, as in some cases of blindness from previous inflammation, cannot be properly considered as monsters, though they are often so denominated.

Of the first order there may be two kinds, redundance or multiplicity of natural parts, as of two heads and one body; of one head and two bodies; an increased number of limbs, as legs, arms, fingers, and toes; or excrescences, or additions to parts, of no certain form, as those upon the head, and other parts of the body, and these are usually more or less important according to their size, or the part where they grow. But as such excrescences, whatever may be their size, have, from their texture, a disposition to enlarge, and to assume a morbid action, it is become an established rule to extirpate them whenever it can be done with safety.

2. Of monsters from deficiency or want of parts, the instances are less frequent than those of the former kind, as of the brain and back part of the head; or of the whole head, as in the *acephalus*; or of one eye, as in the *monoculus*; or the lip and palate, as in the hare-lip; of one or both arms; of the fore-arm or hand; of one or more fingers; of a portion, or of the whole of the spinal processes of the *vertebræ*, as in the *spina bifida*; of the incomplete formation of the skin, most frequent at the navel, or some part of the *abdomen*; of the penis, especially of the prepuce; of one or both of the inferior extremities; of the heart; of the liver; spleen, or any of the abdominal *viscera*; of the lower part of the *rectum*, terminating before it reaches the *anus*; and many others.

3. Monsters from confusion of parts, as when the whole body is in one mass (usually called a mole), in which various parts of the child are found lying together in apparent confusion; of parts adhering together, as of the fingers and toes; of the *rectum*, as in the closure of the *anus*; of the *vagina*; of the external or internal parts of generation, as in those called hermaphrodites; of the two inferior extremities connected together and terminating in a point; of the club foot: and many others.

As we are ignorant of the manner in which the primordial parts of a regular conception are formed and established, and in many respects, of the order in which the various parts of a *fœtus* are unfolded or enlarged, it is not surprising that we should be ignorant also of the manner in which monsters or irregular births are generated or produced; though it is probable

that the laws by which these are governed, are as regular, both as to cause and effect, as in common or natural productions. Formerly, and indeed till within these few years, it was a generally received opinion that monsters were not primordial or aboriginal, but that they were caused subsequently, by the power of the imagination of the mother, transferring the imperfection of some external object, or the mark of something for which she *longed*, with which she was not indulged, to the child of which she was pregnant; or by some accident which happened to her during her pregnancy. Such opinions, it is reasonable to think, were permitted to pass current, in order to protect pregnant women from all hazardous and disagreeable occupations, to screen them from severe labour, and to procure for them a greater share of indulgence and tenderness, than could be granted to them in the common occurrences of life. The laws and customs of every civilized nation have in some degree established a persuasion that there was something sacred in the person of a pregnant woman, and this may be right in several points of view; but these go a little way towards justifying the opinion of monsters being caused by the imagination of the mother. The opinion has been disproved by common observation, and by philosophy, not perhaps by positive proofs, but by many strong negative facts; as the improbability of any child being born perfect, had such a power existed; the freedom of children from any blemish, their mothers being in situations most exposed to objects likely to produce them; the ignorance of the mother of any thing being wrong in the child, till, from information of the fact, she begins to recollect every accident which happened during her pregnancy, and assigns the worst or the most plausible as the cause; the organization and colour of these adventitious substances; the frequent occurrence of monsters in the brute creation, in which the power of the imagination cannot be great; and the analogous appearances in the vegetable system, where it does not exist in any degree. Judging however from appearances, accidents may perhaps be allowed to have considerable influence in the production of monsters of some kinds, either by actual injury upon parts, or by suppressing or deranging the principle of growth, because when an arm, for instance, is wanting, the rudiments of the deficient parts may generally be discovered*.

As to the explanation or correction of axioms framed on common and familiar examples, there are some things of great

* See Blondell on the Power of the Imagination, &c.

importance too obvious to escape notice. When, for instance there has been a defect of brain, or even no head, there has been found a system of nerves; when the heart has been wanting, there has been a vascular system, sufficient to carry on the circulation of the blood; when there was neither liver nor spleen, the blood was equally red as in perfect infants; and an endless number of circumstances as curious is to be found in the history of monsters. It appears, that physiology might be greatly improved by a close and accurate cultivation of this subject, and that an able and diligent anatomist would not only detect many modes and varieties of things, hitherto unobserved, but by carefully registering his observations, he would at length be able to form general conclusions, highly important to science, and which would in an eminent degree increase his own reputation.

SECTION VI.

ON THE EXTRAUTERINE FÆTUS.

THE kind of extrauterine *fætus* of which it is intended to speak in this place is not occasioned by a rupture of the *uterus*, but by a failure of that part of the process of conception, when the impregnated *ovum*, instead of returning through one of the fallopian tubes into the *uterus*, is either detained in one of those tubes, or, not being received into them, drops into the cavity of the *abdomen*, where it must abide. In these cases, wherever the misplaced *ovum* may be lodged, the external surface adheres, and forming a *placenta*, acquires sufficient nourishment to bring the child to perfection. But though it be well ascertained, that this must be the order of proceeding when an extrauterine *fætus* acquires any considerable size, it is not unreasonable to think, that an *ovum* may miscarry in its transition from the *ovarium*, and often remain without increase in the part which receives it, as a simple extraneous body.

When the period of uterogestation is in these cases completed, or sooner, there is a general disturbance, similar in many respects to that of natural labour; which continues till the child is dead, when the tumult is for the present appeased, and the constitution is at rest. But after some time, either on account of undue pressure made by the bulk of the child on some part not able to bear it, without being excited to some new and extraordinary action, or from other causes, fresh but un-

availling efforts are made. Or as in the case of any other extraneous and offending body, a common process is established, which beginning with inflammation, and producing adhesion to the neighbouring parts, an opening is ultimately made into some part of the intestines or *vagina*, or through the integuments of the *abdomen*, by which the indissoluble parts of the child are at length expelled. In many cases however, when the *fetus* has been lodged in one of the fallopian tubes, this has burst at various periods, and the patient has been speedily, though not immediately, destroyed. But in some cases the extrauterine *fetus*, enveloped in its own, or some adventitious membrane, or covered with a stony concretion, has remained harmless, except from its bulk, for the rest of the patient's life*.

Various opinions have been entertained respecting the situation of the extrauterine *fetus*. It was commonly believed that it might be placed in any part of the cavity of the *abdomen*, though many asserted that it was most generally detained in one of the fallopian tubes*. In support of this latter opinion many facts might be adduced, and I was inclined to give my assent; but from some cases which have since occurred, I rather believe, that the *fetus* when extrauterine is not universally, though most frequently, lodged in one of the fallopian tubes.

Many circumstances in the animal economy are proved, or rendered probable, by these cases.

1. That impregnation takes place in the *ovarium*, but is perfected in the *uterus*.

2. That though the *fetus* be extrauterine, the *uterus* becomes considerably enlarged, and performs its proper office by providing the efflorescent or deciduous membrane for the reception of the *ovum*.

3. That the same symptoms are produced in the early part of pregnancy, whether the child be contained in the cavity of the *uterus*, or be extrauterine.

4. That though the child be placed in one of the fallopian tubes, or in the cavity of the *abdomen*, a *placenta* is formed, different indeed in structure, but capable of supplying the child with sufficient nourishment to bring it to perfection; which tends to prove, that the *uterus* does not perform its office by any specific action or quality.

* See Collection of Engravings.

† See Opera omnia Anatomica, Diemerbroeck, page 135.

5. That the disposition to labour comes on, before or at the completion of the period of uterogestation, which shews that it is not excited by distention, or any faculty of the *uterus*, but by some state or quality of the child.

6. that so small a cavity or canal as is that of a fallopian tube is capable of being gradually distended to such a size, as to contain a *fetus* of the growth of five or six months, or sometimes even nine months, without bursting; though in several cases the fallopian tube which contained the child has been found rent open, the death of the patient being thereby speedily occasioned, though the cause had not been suspected.

7. That the *menfes* cease during the time of gestation so long as the child is living.

8. That the *menfes* return in due time after the death of the child, though this may not be expelled; unless the constitution be very much impaired.

In the records of medicine there is a very great number of examples of the extrauterine *fetus*, in all of which there may be observed some similarity of circumstances, though in several of them there are many and great varieties, depending perhaps upon some casual situation of the child, or some peculiarity in the constitution of the patient. Few practical remarks have been made upon the subject, which can be useful to those, who are in the way of meeting with cases of this kind. Nor has the order of the process, when the extrauterine *fetus* comes to be voided, been described with much accuracy. I therefore wish to observe, that in every case of this kind, which I have seen, there has been sometimes great danger, and in all of them much pain and suffering, which it is our duty to avert, or to alleviate, according to the indications. When the process by which an extrauterine *fetus* is to be evacuated commences, it may soon be discovered, whether the effort will be made by the intestines or *vagina*, or through the integuments of the *abdomen*. If by the former, the whole process is to be left without any, or as little molestation as possible on our part, to the natural action of the constitution; for though we might apparently accelerate the process, and procure perhaps a little temporary relief, we ought to be careful not to disturb or interrupt the proceedings of nature already established, which art can in these cases, as in many others, very imperfectly imitate. But if an abscess should be formed in the side or any part of the *abdomen*, and through the subsequent opening any part of the child should be evacuated, it will then be expedient to forward the exclusion of the remaining parts,

either by enlarging the opening, or by giving such other assistance, as surgery is very competent to afford.

When the extrauterine *fetus* is evacuated by the intestines or *vagina*, after the patient has endured all the consequences of an abscess formed in very tender parts, there is first discharged a large quantity of offensive purulent matter; then the same kind of matter mingled with hair or membranous substance; then the small bones of the *fetus*; and lastly the larger bones, the most difficult to be excluded of which are the bones of the *cranium*, and the larger bones of the limbs; and if any of these should happen to lie athwart the opening in the intestine or *vagina*, their discharge may sometimes be favoured by changing their position. When all the bones are evacuated, the affected parts gradually recover from the injury they have sustained without any remaining mischief, and the patient usually enjoys as perfect health, as if no such accident had happened.

CHAPTER XIX.

ON THE MANAGEMENT OF WOMEN IN CHILDBED.

SECTION I.

IN the course of the observations which have been made on various parts of the practice of midwifery, occasion hath frequently been taken, to mark and to consider those resources of the constitution, by which present evils were remedied, and future danger prevented. These resources are so conspicuous in all circumstances attending parturition, and so generally found adequate to the effect, that, notwithstanding the long train of difficulties and disorders we have enumerated, it is a popular, and I believe a true remark, that the most healthful parts of the lives of women is that, in which they are employed in bearing and nursing children. As it is however proved, that those processes, which are apparently of little importance to the constitution, do sometimes become the causes of disease, so it might be expected, that those, which are of great importance, should, though generally exempt from danger, in particular cases become the causes of peculiar accidents and diseases. The laws of a religion founded on principles of the most active benevolence, the feelings of humanity, and the common interests of society, will not suffer us to be indolent spectators of the distresses of our fellow creatures, from whatever cause they may arise. But in the situation which we are now considering, the passions of men are deeply interested, there is more than common tenderness mixed with our concern for those who suffer on these occasions, and the mind is not at these times prepared for untoward events. Much industry hath therefore been used for discovery and establishment of some method, by which women might be conducted through the state of childbed with the least hazard of exciting those diseases, to which their state was supposed to render them peculiarly liable; or that very great pains should have been taken to discover the safest and most efficacious method of curing those diseases, when

they actually existed. The intentions of all may have been commendable, but as the directions given for both these purposes have been various and contradictory, it is proper to inquire into the principles, on which such opposite practice has been advised. We may then fix upon that, which seems most reasonable, or has been found most successful.

From the Mosaic law we learn, that, in the state of childbed, women were obliged, for a certain time, to live separate from the world, and were exempted from the cares and solitudes of life. Whatever was the principle of this law, whether it were established from motives of religion or manners, the time thus allotted gave to the women the privilege and opportunity of repairing their own health and strength, and of dedicating themselves with uninterrupted attention to the care of their children.

By the earliest writers in medicine we are taught, that the treatment most proper for women in childbed was that, which is now termed antiphlogistic. Without entering upon a minute detail, it is sufficient to observe, that, in the pursuit of this method, we were generally directed to confine, for a certain number of days, every patient lately delivered, to the same strict regimen, as if she actually had an inflammatory fever, or had received a wound of the most dangerous kind*.

This absolute restraint from every customary indulgence, and consignment to a regimen appropriate to the bed of sickness, was a mode of shewing tenderness, of the propriety of which it must have been difficult to persuade the majority of people, who felt themselves at their ease, and in perfect health. For this was not pretended to be necessary with a view to remove any present evil, but to prevent a danger which might never occur. As no general method of proceeding could possibly secure the well-doing of every patient, the failure of this strict regimen in any individual case was brought forward as an argument of its general impropriety: in fact, though this plan might be always rigorously enjoined; it appears to have been seldom exactly followed.

The proposal of allowing a diet more plentiful in quantity, and more cordial in quality, was founded on the presumed necessity of guarding against the consequences of that weakness, which was thought to be occasioned by the circumstances attending child-birth. Then was recommended the custom of supplying to the constitution those deficiencies, which might be occasioned by the uterine discharges, with plentiful living;

* See Celsus.

and *caudle* was dispensed with an unsparring hand, to remedy every temporary inconvenience. Consent is seldom refused to that medical advice, which is agreeable to the will of patients, or the partiality of friends; and this regimen was of course readily adopted, and long maintained its influence.

A consideration of these two different methods of proceeding will explain all that has been said by different writers, on the doctrine and practice of low and generous living in childbed. There have been also recommended in a few instances, other methods of treatment instituted according to the fancies or opinions of physicians who have applied themselves to this subject, but of these I shall only mention two.

1. It had been observed, that fevers of any kind were seldom terminated without an increased perspiration, or a profuse sweating. A fallacious inference was then drawn, that the same process, by which the constitution was freed from a disease, would, before the formation of such disease, be the most likely method of preventing it. On this ground the custom of keeping women in a state of constant perspiration for a certain number of days after their delivery by warm drinks, hot rooms, and diaphoretic medicines, was established; and the greater the degree to which it was carried, and the longer it was continued, the greater security was presumed to be given to the patients from the apprehended diseases. Many inconveniences followed this method of proceeding, especially by checking the natural discharges, in interrupting the secretion of the milk, by reducing the strength, and increasing the irritability of the patient. But the practice was long pursued, neither common sense, nor experience, having power to extirpate deep-rooted prejudice.

2. It was by some believed, that a woman lately delivered ought to be treated, as if she had been injured by a concussion or violent bruise of some internal part; and that the means to be advised for the relief of present inconveniencies, as well as the prevention of future mischief, were such as might be proper under similar circumstances from any other cause. There is no occasion to recapitulate all the means recommended upon this principle; but it may be observed, that *spermaceti*, the most popular medicine given to women in childbed at the present time, was originally advised, because it was esteemed of sovereign efficacy in the case of an internal bruise.

It is remarkable, that the different and opposite modes of treatment have been enjoined to women in childbed, universally, without any discrimination of peculiarity of constitution,

former habits of living, disposition to certain diseases, or the kind of labour which the patient might have endured; and without due regard to the heat or coldness of the climate, or the season of the year when the patient might be confined. General as the regulations were, all, that was supposed necessary to be done, was to follow one or other of these injunctions implicitly; and whenever a disease arose, it was attributed, often erroneously, and sometimes very unjustly, to some irregularity or deviation from these.

It has been often observed, that a state of pregnancy was an altered, but not a morbid state. The same observation may be made with equal propriety and truth of a woman in actual labour; and it may be extended to women in the state of childbed, which, though sometimes accompanied with diseases, cannot seriously be suspected to be of necessity the cause of them. One moment's consideration, and the slightest view of the perfectly safe termination of labours in general, and of the happy recovery of the mass of women from childbed, under infinitely various circumstances, must convince us of the contrary. Before we therefore fix upon this or that method of treatment, it is worth our trouble to enquire, whether it be necessary to establish any peculiar method.

When a woman is recently delivered, the attending circumstances, as the discharge of the waters, the exclusion of the child and of the *placenta*, together with the lochial discharge, commonly reduce her to the state of a person, who has had a profuse evacuation of any other kind. The great efforts she may probably have made, in the course of even a natural labour, must also considerably increase this change in her constitution. From what causes does this change arise? from that emptiness and fatigue consequent to vehemently increased action. Is it possible to fix any better method of treatment, than what would be esteemed right and proper under the same circumstances from any other cause? That is, to give her suitable refreshment, and leave her to repose. Judging from events we certainly cannot, and after seeing much practice and trying various methods, not only immediately after delivery, but through the course of childbed, I am fully persuaded, that laying aside all refined speculation, those patients will fare the best, and recover most certainly and speedily, by whom the least change from their former habits is made. Some difference of treatment must of course be required for the delicate and the robust, for the nervous and the plethoric, when there has been a long and difficult, or a short and easy labour, in a hot or a cold cli-

mate, in summer or in winter, and in the same climate, under particular situations and circumstances. These must of course be left to the judgment of the medical attendant. But when no particular reason, which demands a contrary treatment, exists, I am convinced, that the general principle of making as little change as possible from their former habits and customs, either in diet, or in any other respect, will best answer his expectations. In the colder climates, some extraordinary care seems to be employed in guarding against the evils and inconveniencies to be dreaded from cold; but in *Africa* the women immediately walks into the adjoining river, for the purpose of purifying herself and her infant from the consequences of her delivery.

Some years ago it was a general custom, to bind the *abdomen* very tight immediately after delivery, with the view of aiding the contraction of the integuments, and of preserving the shape of the patient. In some countries, *India* in particular, this is practised to a degree, that one cannot think of without shuddering at the mischief, which must of necessity be very often occasioned. In this country the practice has been very much discountenanced as useless and pernicious, and it is now wholly, or nearly laid aside, till five or six days after delivery; when a broad band, daily but very gradually drawn a little tighter, may be applied not only without injury, but with some advantage.

One of the first, and not an uncommon consequence of delivery, is faintness. This may proceed from any of these causes, loss of blood, fatigue of the labour, sudden emptying of the *abdomen*, and its consequent changes, or from great agitation of mind. The method to be pursued, when it arises from the first cause, has been fully considered when we spoke of uterine hemorrhages; and when it proceeds from other causes, wine or some temperate cordial is to be given, and the patient is to be kept perfectly undisturbed, till she recovers. From the dread of any accident happening, I have long made it a general rule, to wait with every patient for an hour after her delivery, not choosing to put confidence in those, who may not be well acquainted with what is necessary to be done on extraordinary occasions, should they arise.

Sometimes, but very rarely indeed, one of the *labia* becomes suddenly and enormously enlarged, either towards the conclusion of labour, or immediately after delivery, from an effusion of blood in the cellular membrane of that part, and in a short space of time after the appearance of the accident, the skin bursts from the violence of the distention. This complaint

was first described by Dr. *Macbride** of *Dublin*, in the year 1766, and since that time, I have been called to three instances. It occasions very great pain, but one most important part of it is the surprize it occasions, and the alarm it gives, when it is not well understood. But I believe it is void of danger, not having seen or heard of any dangerous consequences from it, or ever found any thing necessary to be done, but to wrap the tumefied part in a flannel wrung out of warm water and vinegar, and on the discharge of the coagula, which should not be hastened, to dress the litte sore with some soft linament. It is remarkable, that the *labium* always bursts on the inside, as if it were merely from mechanical distention; and as the pain is sometimes violent, and the patient full of apprehension, it will be expedient to give a proper dose of the *tinctura opii* in some cordial. I have also seen one case of a similar kind produced by external injury, in a person who had never been pregnant, and this yielded to the like treatment.

Few women pass through the state of childbed without suffering more or less pain in the *abdomen*, and this may arise from various causes.

1. From coagula of blood formed and retained in the cavity of *uterus**; or according to the opinion of some, by the shrinking of the *uterus* to it its proper size. In the uterine discharges consequent to delivery, there is a general order, but with an endless variety, depending upon the constitution of the patient, the circumstances which attended the delivery, and the local state of the parts†. A proper knowledge of these may be readily acquired; and when coagula are formed, as above stated, the pains thereby occasioned, which are called *afterpains*, are usually according to the size of the coagula, and the difficulty with which they are excluded. These pains come on soon after

* *Medical observations*, London, Vol. V.—See also *Medical Commentaries*, Edinburgh No. xxi.

† *Cum uteri cervix post partum sese modicè contrahit, et propterea sanguinis grumi cum difficultate aliqua prodeunt, doloresque faciunt, quos abstrices nostræ enixus posteros (afterthroes) vocant, &c.*—See *Harvey*, page 567.

‡ *Per lochi emanat primo sanguis purus, postea saniosus, recentis carnis loturæ similis, deinde ichorosus—ideoque per excreta de puerperæ aut sanitæ discrimine statimimus.*

Harvey, Exercitatio de Partu.

delivery, and they return, though with longer intervals and less in degree, in the manner of those of labour, excluding in due time whatever *coagula* might remain in the cavity of the *uterus*. Women have seldom pains from this cause with first children, and they are supposed to have them in proportion to the number of children they have had, which is generally true. Very much of this pain may however depend on the manner in which the *placenta* and membranes were brought away, for if that were done with violence, or in a hurry, the *uterus* will be left in a very irritable state, and there will generally be formed a succession of large *coagula*; whereas if we had waited for their exclusion by the natural action of the *uterus*, or given only very gentle assistance, the cavity of this would have been gradually diminished as the *placenta* descended, and of course have prevented either the effusion of so much blood, or the formation of such large *coagula*.

The sufferings of women from these pains are sometimes very great, though they prove eventually salutary, and, if we had it in our power, should not be suppressed, till the end for which they are excited is answered. They may however be safely moderated by warm applications to the *abdomen*, and when extremely violent by small doses of the *tinctura opii*, though much unjustifiable clamour hath been raised against the use of this medicine for women in childbed. It will also be of service, as soon as it can with propriety be done after delivery, to procure one or more stools, by an injection or some lenient medicine. The freedom from danger prevents all solicitude on this account, and we know, when the *uterus* is cleared, pains from this cause will usually cease within twenty-four hours after delivery.

2. When the *abdomen* has been greatly distended, the integuments, even before delivery, will be tender and often slightly inflamed, and the tenderness may be increased by the labour, and continue after delivery. A warm flannel well sprinkled with any kind of spirit applied over the whole *abdomen*, and occasionally renewed, is the only thing I have found it necessary to employ for this complaint.

3. From wind in the bowels.

On the exclusion of the contents of the *uterus*, a considerable change immediately takes place in the position of many parts contained in the *abdomen*, and from many others the accustomed pressure or support, which they received during pregnancy, is wholly taken away. A greater freedom being given to every

part, the change for the present gives the same uneasy sensation, as wind pent up or rolling in the bowels, though in a short time it is generally removed by the accommodation of the parts to their new state. Should there afterward be reason to attribute the pain in the *abdomen*, with which a woman may be troubled, to this cause, instead of giving strong aromatic or heating medicines, it will be proper to procure one or more stools by an injection, or some lenient purgative, the most efficacious and excellent of which is that in common use, prepared in the following manner.

R. Kali tartarifat. vel natri tartarifat. vel magnesiæ vitriolataæ,
 Syrup. rosæ, \bar{a} \bar{a} unciam dimidiam,
 Infus. senæ tartarifat. uncias quatuor,
 Tinct. ejusd. drachmas sex. M.
 Capiat cochlearia iij. vel iv. ampla primum, et post tres horas
 cochlearia duo secundis horis, donec alvus soluta erit.

After the operation of the medicine an opiate in any proper vehicle may be given, and the patient will be freed from the complaint.

4. From spasm.

After delivery the *uterus* itself, or its appendages, or any of the contents of the *abdomen*, may be affected from this cause, with pain varying in degree, but sometimes extremely severe. This may often be relieved by lightly rubbing the *abdomen* with a warm hand, or with some anodyne embrocation, or the application of warm flannels wrung out of some spirituous fomentation. If these fail, recourse must be had to *tinctura opii*, at least to *opium* in some form, given in suitable doses, according to the degree of pain, and repeated as may be necessary. Spasmodic pains of the *abdomen* very often resemble those arising from inflammation, and in some cases I consider it as one of the most difficult things in the practice of medicine, to discriminate them. In very irritable habits the difficulty is much increased, as such are extremely liable to painful spasms, to have their pulse quickened, heat excited, and the whole frame disturbed in a manner very like to what happens in true fever or inflammation, yet all the disturbance may often be speedily quieted by a proper opiate.

5. From inflammation.

This leads us to the consideration of that disease now generally called the puerperal fever; not because it is peculiar to the state of childbed, but because it is the most common species

of fever, to which puerperal women are subject, and certainly occasions the death of much the greater part of those women, who die in childbed. This has been described by the ancient as well as modern writers, with perspicuity sufficient to distinguish it, but the methods proposed for the cure have been less satisfactory. Evident disadvantage hath arisen from its having been attributed to a variety of causes, and from the different opinions entertained with respect to the nature and qualities of the disease, from the suspicions entertained, that the peculiar state of the patient required peculiar management, and from its having been described under such various appellations. It has been represented by some writers, as entirely owing its existence to the undue secretion or subsequent deposition of the milk, and therefore denominated the milk fever; by others, to a suppression of the *lochia*, and called by that name; while others have described it as the miliary fever. Some again have considered this disease not as a fever, but as an inflammation or ulceration of the *uterus**; while others have contended, that the inflammation was wholly confined to the *omentum*, the *peritonæum*, or the intestines, and that the *uterus* was not anywise concerned. A contrariety of opinion of more importance, was produced by the interpretation of the word *erysipelas*, which was probably given by the ancients to this disease, without any intention to denote a specific kind of inflammation; yet the early use of this term was of sufficient consequence to bind those, who attended to the nicer distinctions in nosology, to a particular mode of practice according to the nomenclature*. With such different notions regarding the causes of this disease, we might expect, that the treatment would be different; and as it was contradictory, we may presume; that it must often have been hurtful. There is undoubtedly much difficulty in forming a just idea of a very complicated disease, and in proportion to the difficulty, every attempt to make accurate distinctions is deserving of commendation. But however symptoms may vary from affections of particular parts, or in particular constitutions,

* *Uterus a placenta separationem, præcipue violentam, excoriatur, tanquam ulcus ingens internum, lochiorum liberiore emanatione deturgitur et mundificatur. Ideoque per excreta de puerperæ sanitate aut discrimine statuimus.*

Harv. page 556.

† *Si mulieri pregnantæ fiat in utero erysipelas, lethale est.*
Hippocrates.

there is but one essential nature of the disease; and if we have a true notion of this, we have less reason to be solicitous about the cause, or the determination of the part originally or principally affected. For a similar treatment may be enjoined with equal propriety for an inflammation of the *uterus*, *omentum peritonæum*, or intestines, or perhaps any of the contents of the *abdomen*; provided a fever is produced, and the influence of the disease, originally local, be extended to the constitution. It is however observable, that inflammation of the *uterus* is far less dangerous than an equal degree of inflammation of any of the *viscera* of the *abdomen*, especially in the state of childbed; because the *uterus* readily admits of a return of the lochial discharge, which always affords relief, and sometimes cures the disease. But in inflammations of any of the contents of the cavity which has no vent or outlet, the effects of the inflammation become an addition to the existing disease, or a cause of a new disease.

The knowledge of the causes of this disease, whether occasional or immediate, will be of service rather in enabling us to prevent it, than in leading us to the cure when it is formed; for if a patient be brought into a certain state, the peculiar cause of that state will not demand any material difference in the treatment directed for her relief. There is but too much reason to lament, that inconsiderate proceeding, and the want of common care, frequently give rise to the puerperal fever. But independently of the changes occasioned in the constitution by particular modes of living, women, with a view to parturition, will not bear a comparison with other creatures*. The erect position of the body, the different structure of the *uterus* and *placenta*, and the passions, though necessary, and perfectly adapted to the rank in which Providence hath placed mankind, become permanent causes of much pain, and eventually produce inconveniencies, and sometimes danger; and for these reasons women are also subject to so great a number of complaints during pregnancy, from which all other creatures are exempt. Some of these complaints, the retroversion of the *uterus* for example, are dangerous in their own nature, while others indicate or produce a disposition to diseases, not formed in the constitution till after delivery; and the inflammatory appearance, so often observed in the blood of pregnant women, may perhaps be justly

* *Mulieribus præ cæteris animalibus hæc contingunt, et præsertim delicatis, vitamque umbratilem et mollem degere assuetis; ut et iis quæ teneræ valetudinis sunt, et facile in morbos labuntur.* Harv. Exercitat. de Partu.

esteemed a mark of a state particularly disposed to fever. Some habits are naturally liable to diseases of the bowels, proceeding from an excess in the quantity, or an alteration in the quality of the bile, and such may derive a new and temporary cause of them from irritation, and from the disturbed secretions of the *viscera*, from the pressure of the enlarging *uterus*, or by the labour. Nor is it improbable, but that, by the sudden removal of this pressure at the time of delivery, a greater proportion of fluids, than circulates even in a natural state, may rush upon some particular part, and from a very slight obstruction cause a local plethora. Imprudent management at the time of labour, especially rude treatment of the *os uteri*, and a violent or hasty separation of the *placenta*, will often give rise to this disease. In short, every cause, capable of producing either local inflammation or fever under any circumstances, will at this time be followed by worse effects; and any disturbance raised in the constitution will, after delivery, be invited as it were to parts already in a very irritable state, from the violence which they have so lately undergone.

It is natural for women, especially with their first children, to have slow and painful labours, which they will generally bear with resolution, and, if not mismanaged, without danger. Instead therefore of hurrying and deranging the order of a labour, which is always improper, and sometimes injurious, under the false and ill-judged notion of freeing the woman from her misery, we should consider, that the business was intended to proceed slowly, and should be left entirely to the action of the *uterus*, and and the efforts of the constitution*. When there are deviations from the regular course of labours, the usefulness of mid-

* *Increpandae sunt obstetices, praesertim juniores temerariae: quae, cum parturientes prae dolore ejulare opemque efflagitare audiunt, ne imperitae vel parum satagentes videantur, manus oleis oblinendo, locaque muliebria distendendo, mire tumultuantur; porrectisque potionibus medicatis, facultatem expultricem irritant; atque morae debitae impatientes, dum accelerare ac facilitare partum cupiunt, eundem retardant potius et pervertunt, efficiuntque non naturalem et difficilem.—Melius profecto cum pauperculis res agitur, visque quae furtim gravidae factae clanculum pariunt nullius obstetricis advocata epera: quanto enim diutius partum retinent et morantur, tanto facilius et facilius rem expediunt.*

wifery as an art, and the skill and judgment of the practitioner, will be shewn, in deciding which of these require the assistance of art, and in choosing the safest and the best means of giving relief.

There is not throughout nature an operation more wonderful than the act of parturition, and there is little reason to be surprised at the bad consequences which sometimes follow an alteration so important, though this alteration is natural. Judging from speculative principles, they might be expected to occur more frequently; and, though they are often occasioned by bad management, they cannot always be avoided under the most promising circumstances, and with the greatest care.

When a woman is delivered, it seems necessary to make a moderate and uniform compression upon the *abdomen*, but binding it tight is certainly improper, and the general abuse of bandages, as was before observed, has induced me to forbid it altogether till the seventh or eighth day after delivery. Women are certainly not so often attacked with this fever, after difficult labours, because of the particular care with which they are then managed, whereas after easy ones they are more unguarded.

The time when women are chiefly subject to this fever, is uncertain. There are not wanting instances in which it has been evidently forming before delivery, or during labour, or at any intermediate time for several weeks afterward; but the sooner from the time of delivery the patient is attacked, if in an equal degree, the greater is the attendant danger. But the most frequent time of its appearing is on the third or fourth day after delivery, when the patient, is seized with a shivering fit, from the violence and duration of which we may generally estimate the danger of the succeeding disease. In some cases however there has been no cold or shivering fit, or none which was observable; and in others, the shivering fit in the state of child-bed has not been followed with those symptoms which were to be apprehended. Before the shivering fit, the patients have been much debilitated, and complained of wandering pains in the *abdomen*, which very soon became fixed in the hypogastric region, where a swelling or fulness with exquisite tenderness soon ensue. As the disease advances the whole *abdomen* becomes affected and tumefied, sometimes nearly to its size before delivery, the woman herself being sensible of and describing its progress. She also feels great pain in the back, hips, and sometimes in one or both legs, and other parts affected in uterine complaints. She can scarcely lie in any other position than on her back, or on one side, with her body incurvated, and if the

disease be confined to the *uterus*, the seat of the pain seems to be changed when she alters her position. There is usually either vomiting of green or yellow bitter matter, or a nausea and loathing of the stomach, with an offensive taste in the mouth. An instantaneous change both in the quantity and appearance of the *lochia* takes place, and sometimes, though rarely, they are wholly suppressed. The milk, if secreted, recedes, or is diminished, and the taste with the appearance are much altered. The urine is voided often, with pain, and in small quantities, and is remarkably turbid. A tenesmus or frequent stools come on, and from the general disturbance it is often manifest, that all the contents of the *pelvis* are at once affected by the disease. The tongue becomes dry, though sometimes it remains moist and is covered with a thick brown fur; but as the disease advances its appearance varies, and in some dangerous cases it has been little changed. The patient immediately entertains the strongest apprehensions of her danger, and usually labours under vast anxiety, her countenance bearing indubitable marks of great suffering both in body and mind.

The progress of this disease is sometimes extremely rapid, especially in unfavorable seasons and hot climates. Instances have occurred, in which women have died within twenty-four hours of the first attack; and I have seen a few, who never grew warm after the *rigor*. In some, death has followed quite unexpectedly, either from inattention, or from the scarcely perceptible, but insidious progress of the disease, the indications not having been at all proportionate to the danger. In other cases the shivering fit is succeeded by heat, thirst, and other symptoms, according to the course observed in other fevers; but the pain which originated in the *abdomen*, joined with these, is to be esteemed the pathognomonic or chief sign of this disease. It seems necessary to enumerate all the symptoms, which commonly, though not exclusively, attend this fever, and not in any individual patient; yet cases will occur in practice, in which there will be much variation, depending on the degree of disease, the part affected, the constitution of the patient, and the period after delivery when the fever makes its appearance.

The pulse has almost invariably in this disease an unusual quickness from the beginning. It has often that strength and vibration observed in disorders of the most inflammatory kind, in robust constitutions; and yet is sometimes exceedingly feeble and quick, beyond what might be expected from the concurring circumstances. The latter is to be reckoned among the most dangerous signs, proving perhaps, that there is a great

degree of disease, and that the powers of the constitution are unable to struggle with it, or to bear the operation of the medicines, which might be necessary for its relief. There is much variation in the subsequent stages, but there is scarcely a worse omen, than a very weak and accelerated pulse, even though the other symptoms may seem to be abated. But this quickness of the pulse, if not attended with other signs of inflammation or fever, is not to be considered as indicating danger, because very irritable patients have sometimes in childbed a very quick pulse, unaccompanied with any other dangerous symptom.

The signs of inflammation, joined with those of extreme irritability, continue for a few days, when those of putridity appear, sooner perhaps in this than in most other diseases, which are originally of the truly inflammatory kind. The teeth very early collect a brown adhesive *sordes*, and all kinds of food and drink are nauseated, except such as are agreeable from their coldness or sharpness. A singultus attends, every return of which affects the *abdomen* in the most painful manner. *Petechia* or *vibices* are often found in unwholesome situations, and in some constitutions of the air, at a very early period of the disease, and there are frequently miliary eruptions; but the latter is rather a consequence of the method of treatment, than of the disease, for they do not afford that relief, which often follows their appearance in true eruptive fevers.

The bowels are in general very much disturbed, and in some cases a looseness takes place immediately upon the accession, in others three or four days after, or not till the last stage of the disease; but it very seldom fails to attend, nor can it be removed without the greatest difficulty as well as danger, before the disease is terminated. The stools often come away involuntarily, being always preceded by an increase of pain, and every evacuation gives momentary relief. They are uncommonly fetid, of a green or dark brown colour, and working like yeast. It is also remarkable that after the long continuance of the looseness, when the patient has taken little or no solid nourishment large and hard lumps of excrement will be sometimes discharged which one might suspect to have been confined in the bowels for a long time before delivery. With regard however to this symptom, it is very necessary to observe, that great disturbances of the bowels are frequently occasioned by mere irritation, in delicate constitutions, which are soon removed by the well-timed exhibition of some cordial opiate.

There is a peculiarity in this fever, which I believe has not been observed or mentioned. It is an erysipelatose tumour of

a dusky red colour, on the knuckles, wrists, elbows, knees, or ancles, about the size of a shilling, and sometimes larger. This is almost universally a mortal sign, and on the inspection of those who have died with this appearance, the disease has been found to have affected principally the *uterus* or its appendages.

When this fever commences soon after delivery, and continues its progress with violence for a few days, our hopes of a favourable event will often be disappointed, and the impending danger may usually be foretold by the uninterrupted progress of the symptoms, and by returns of the *rigor*. An early derangement of the faculties of the mind is always a very threatening symptom. A looseness immediately succeeding the attack, though in one sense it may indicate the degree of disease, always contributes to its abatement, and sometimes proves critical; as does likewise a spontaneous vomiting, sometimes even towards the last stage, when all hopes of recovery were abandoned. The profuse sweat, which follows the shivering fit, has very often been completely critical. In some there has been a translocation of the disease to the extremities, where the part has inflamed, and a large abscess has been formed; a similar abscess has also in some cases been formed on one side of the *abdomen*, which has been healed by the most simple treatment. Fresh eruptions of the *lochia* are always a favourable symptom, and are to be reckoned among the most certain signs of amendment. A subsidence of the *abdomen*, after copious stools, and with a moist skin, is a fortunate alteration for the patient; but that circumstances, without evacuations, and a dry skin, threatens the utmost danger. In the most severe degrees of this disease, which have resisted all the means of relief in the early stage, those who have escaped, seem to have owed their safety to the vomiting before mentioned, or to a constitution happily strong enough to bear the long continuance of the looseness, by which the effects of the disease were gradually drained away.

Of an uncommon case of the abscess above mentioned it will not be superfluous to add the following account.

On June the 10th, 1798, a lady had been delivered of a dead child, between the seventh and eighth month of her pregnancy, when she suffered very acute pain in the extraction of the *placenta*, which was thought necessary. For several days previous to her delivery she had a considerable degree of fever, and much general uneasiness over the *abdomen*, for which she was bled, and took some cooling and quiet medicines. On the

12th, (the second day after her delivery), she had a strong and violent rigor, succeeded by a very severe pain in her left side, near the spine of the *ilium*, and fever, which continued for several days, when her milk, (before secreted) entirely disappeared.

Though the pain and fever were abated, they never entirely left her; and after another rigor on the 19th, with an increase of fever and pain in the part first affected, her friends were alarmed, and a physician of eminence was desired to see her. He prescribed what the situation and circumstances of the patient seemed to require, and she was much relieved.— There were, however, frequent exacerbations of fever; the pain of which she originally complained never entirely left her, and was sometimes violent. It was now perceived she had no power to move her left leg or thigh, and she herself was sensible of a deep-seated swelling on the left side of the *abdomen*, though it could not be discovered by her attendants. A blister was applied to the whole of the pained side, and after some farther attendance, the physician withdrew, recommending her to go into the country, and encouraging her to hope, that, as she recovered her strength, her complaints would leave her. She was also advised to use as much exercise as she could, and accordingly attempted every day to walk with a crutch, and the help of her nurse; but every attempt gave her excruciating pain, and she was daily sensible of losing, instead of gaining strength.

I first saw her on the 28th of July. As there was evident fulness on the left side of the *abdomen*, with much pain on pressure, loss of appetite, and other symptoms of fever, from some degree of which she was, in fact, very entirely free, I directed three or four leeches to be applied to the part affected, and to be repeated every other day, and such medicines as were likely to abate the fever, to keep the bowels gently open, and to moderate the pain. She was somewhat relieved by these means, and as she was very weak, I tried the *bark*, and some other tonic medicines, from which she did not apparently receive any benefit. From the contraction and wasting of the limb, and from the other circumstances before recited, thinking it probable that an abscess had begun to be formed in some part of the cavity of the *abdomen*, I requested to have a consultation, and Dr. *Baillie* was called in. After a mature deliberation on all the preceding circumstances, and the present state of the patient, it seemed most reasonable to think, that an abscess was forming in the *psoas* muscle. Small doses of *cicuta*

in the saline draughts were prescribed, and a soft plaster with *opium* was applied to the side; the case of the patient seeming to admit of little other relief than some alleviation of her suffering. In the middle of August she returned to her house in town, not in any respect amended in her general health, and she suffered more from her local complaints.

In a few days after her arrival in town, the pain being much increased, she went into the warm bath, and on the following day she was suddenly relieved by discharging a very large quantity of purulent matter, mixed with her urine. This was considered as a proof that an abscess had been formed, and discharged into the bladder, probably by means of an adhesion which had taken place, and a subsequent communication between this and the part first affected.

She continued to go into the warm bath for a few days, but suspecting that she was weakened, and feeling herself very much fatigued by it, she relinquished it altogether. At this time her medicines were changed for some of the milder turpentine, in small doses; and, she still suffering considerable pain, opiates were given, and repeated as the case required.

When there was the greatest quantity of purulent matter discharged with the urine, and sometimes I think there could not have been less than four ounces at a single evacuation, she suffered the least pain; but when there was a suspension of the discharge, the pain was always most severe.

In the beginning of September, a swelling of a considerable size, with an evident fluctuation in it, was discovered on the inside of the thigh, without any appearance of inflammation or redness of the skin, as if the fluctuating matter had been formed there; and, by a careful examination, the course by which the fluid had descended from the groin to the thigh, could be readily traced. The swelling gradually descended till it came very near the ham, varying in size, according to the position of the limb and body, and the patient thought she could distinctly perceive both the descent and rise of the fluid.

The night sweats, and other hectic symptoms, were now extreme; but, after a trial of the bark, and other medicines of that class, which disagreed, she for many weeks took no medicine whatever, except small doses of *opium*, when the pain was violent, and some gentle laxatives, when she was costive. She was allowed to drink porter at her meals, and at any other time, without restraint, when she wished for it, and always considered herself not only supported, but very much refreshed by its use.

In October she kept her bed altogether, unable to move, or

help herself in any position, and frequently suffering much pain. I then proposed a consultation with Mr. *Cline*, the surgeon of the family, to consider of the propriety or expediency of making an opening in the tumour in the thigh, and by giving it an inferior vent, to prevent the matter from returning into the *abdomen*. Mr. *Cline* did not then think it justifiable, to make an opening in the tumour, and I readily acquiesced in his opinion.

At the latter end of this month, she was reduced to a state of extreme weakness, and exceedingly emaciated, but her appetite, which had never entirely left her, now began to improve. The tumour in the thigh daily lessened, and soon disappeared altogether; as did the quantity of matter discharged with the urine, till that also entirely ceased. In November she frequently voided small quantities of blood with her stools, and at the latter end of that month her health and strength were considerably improved. There was also about this time a return of some power of moving her limb; she soon became able to walk with crutches, the infirm leg being supported in a stirrup; and she had a return of the *menfes*, which had not before appeared since the time of her delivery.

On the 20th December she was lifted into the coach for the benefit of taking the air, and her health might at this time be said to be restored, as she had no complaint, and though weak and emaciated, was every day sensible of amendment.

In the beginning of the year she again proved with child, and went on to the full period of pregnancy, when she was safely delivered of a healthy boy; having recovered before the time of her delivery the perfect use of her limb. She now walks and performs all the offices of life with her accustomed ease, and has not the least remaining token of the complaint from which she had so severely suffered.

The swelling and tenderness of some part of the *abdomen*, joined with a fever, were mentioned as the pathognomonic symptoms of this disease. But as these parts are often affected by the greatness of the distention during pregnancy, by after-pains, by flatulence, and by spasms, as well as inflammation, we may be alarmed without reason, and mistaken in giving the name of a disease, which does not exist, to complaints of infinitely less consequence. On this principle we may account for the slight manner in which some have mentioned the puerperal fever, while others have recommended methods of treatment foreign to its nature, and inadequate to its cure. But with attention, this fever may be readily distinguished from all other complaints, to

which it bears any resemblance. Violent spasmodic affections of the *uterus* coming on soon after delivery, and extending their influence to various parts of the *abdomen*, if accompanied with great quickness of the pulse, may give apprehensions of this fever, though they will be almost immediately relieved, by a fomentation to the *abdomen*, and the proper use of opiates. After-pains approach nearest to those pains of the *abdomen*, which attend it; but though these are sometimes attended with great tenderness of the *abdomen*, the intervals of perfect freedom from pain, which are never observed in this fever, notwithstanding there may be considerable exacerbations, and the regularity with which, in after-pains, all other circumstances proceed, will be evident and sufficient distinctions.

About the time when this fever most frequently appears, especially in its worst form, a disturbance is raised in the constitution by the secretion of the milk. The consent between the *uterus* and breasts is of so intimate a nature, that it is scarcely possible for them to be affected separately, as the transition of the humours from one to the other abundantly demonstrates. But though this disease has been very often imputed to the milk, the supposition is probably groundless; for if this secretion be not interrupted in its natural course, the inconveniencies arising from it, though they may be troublesome, will not be attended with any danger. But those who are unwilling or unable to give suck, or to whom suckling may on some other account be improper, are liable to various complaints, from which nurses are free. In such cases, I have found no method of preventing so effectually the ill consequences likely to ensue, as by procuring stools before the secretion is completed, and for some days afterward with regularity. Should inflammations come on, and abscesses be formed in the breasts, they are always much lamented, and considered as proofs of mismanagement; but there is great reason to conclude, that they sometimes prevent more grievous and dangerous complaints, and that they could by no care have been obviated. It is remarkable, that not one instance has been observed of any woman, who had an abscess in the breast, being attacked with this fever; nor of one who in consequence of her labour, had such an affection of the bladder, as to occasion a suppression of the urine. At another period of life, when the disposition to cancerous diseases exists in the constitution, their fixing upon the *uterus* or breasts seems to be merely owing to some accidental cause.

A disease in which the symptoms come on with violence, proceed with rapidity, and of which the event has so often been

fatal, cannot fail to alarm every man solicitous for the welfare of his patients, or who has a due regard of his own character; and under circumstances so peculiarly distressing as are those of women in childbed, humanity would urge us to exert our abilities for their relief with zeal and tenderness.

We should in the first place endeavour to shorten the *rigor*, by hot applications to the extremities, and by giving warm diuents in small quantities often repeated. A conviction of the necessity of speedily removing the *rigor*, has induced some to give very active cordials for this purpose; but as the hot fit which succeeds will in some measure depend upon the means used, it does not seem proper to give spirituous liquors, unless they are well diluted.

Bleeding has been advised in the beginning of violent diseases, with the intention of suppressing the disease, of alleviating the symptoms, or of rendering the operation of the medicines, which were afterwards to be given, more safe and effectual. For the cure of the fever now under consideration, some have placed their whole confidence in the early and free use of this remedy, while others have expressed more than ordinary fears and apprehensions with respect to it*. Perhaps it may be impossible to form a rule of practice so general as to preclude the necessity of leaving much to discretion; for the treatment of patients differing in constitution, though labouring under the same disease, must vary, or the worst consequences will inevitably follow.

In the early part of my own practice, I had much doubt of the propriety of bleeding indiscriminately for the cure of this disease, and I was long of opinion, that it was not the most natural, safe, or effectual remedy. I considered, that spontaneous hemorrhages were seldom critical in this disease; I suspected, that women in childbed sustained bleeding worse, than in almost any other situation; and from some defect in the remedy, or some error in the application, I often found myself disappointed

* *Equidem de sanguinis missione multum controvertitur; nonnulli enim venam pluries tundendam esse arbitrantur, dum ceteri vel minimam sanguinis detractionem aversantur.—And afterwards—Hæc praxis enim docet phlebotomiam, haud nisi casu urgentiori et summa cautela esse celebrandam, pro rerum conditione. Cæterum multa de hac re lepid et dilucidè tradita, prostant apud scriptores, quæ tamen inter praxim implicatissima deprehenduntur.*

in my hopes and expectations, when I relied upon it. It seemed also an observation of importance, that those women, who had lost much blood at the time of delivery, were more liable to this disease, and that it was more commonly fatal to them. The consequences also of erring by the too free use of the lancet seemed more to be dreaded, because they were harder to be repaired, than those which might arise from an opposite conduct.

But I am now convinced by manifold experience, that my reasoning was fallacious, and my fears groundless; and that what I had considered as proofs of the insufficiency or impropriety of bleeding in the true puerperal fever ought in reality to be attributed to the neglect of performing it in an effectual manner, at the very beginning of the disease. In short, if the first stage be suffered to pass unheeded, bleeding will certainly then be injurious, the opportunity having been lost; and the physician afterwards called in, however great his talents may be, will too often have the mortification of being a spectator of mischief, which he cannot then remedy, and of an event, which he can only deplore.

It is in general absolutely necessary to bleed in the beginning of the puerperal fever, and we may then avail ourselves of the advantage which this operation affords, with equal safety and propriety as in any other inflammatory disease, under other circumstances. With respect to the quantity of blood drawn, we are to be guided by the constitution of the patient, and the violence of the symptoms, being cautious not to err by bleeding unnecessarily, or in taking away too large a quantity. But if benefit should be derived from the first operation, and the violence of the disease should require it, we shall be justified in repeating it at short intervals, not with a view of moderating or retarding the progress of the inflammation, but if possible of wholly suppressing it. For when the fever has remained for a very few days, the putrid symptoms advance very rapidly, and its continuance depends upon causes, which bleeding cannot remove, and will certainly increase. When the attack is violent, and the constitution feeble, it is always more safe and expeditiously serviceable, to draw blood by scarification and cupping, or by the application of eight or ten, or even a greater number of leeches to that part of the *abdomen*, which appears to be principally affected. In some countries the application of leeches to the hemorrhoidal veins has been considered as more effectual in this disease, than any other mode of bleeding. I must acknowledge, that the advantages, which I have often

seen derived from local bleeding, have given me the greatest satisfaction and pleasure.

But though women, who have had profuse uterine hemorrhages at the time of delivery, are particularly liable to the puerperal fever from this or some contingent reason; and though it is seldom removed by spontaneous hemorrhages, yet these are sometimes critical. The following case, which was communicated to me by Dr. Joseph Denman, of whom, he is endeared to me by sentiments of esteem and regard more closely than by fraternal affection, might be allowed to speak in terms of high approbation, is an example of this kind.

“ I was called in the middle of the night to go ten miles to a woman, whose *placenta* had been retained many hours after the birth of the child. The want of courage to withstand solicitation, and the distance from me, were my reasons for undertaking to separate it. The *placenta* adhered strongly, but the separation was made very gently, and without any considerable hemorrhage. On the third day, the patient was seized with a shivering and fever which continued all night. From this she was relieved by so large a discharge of blood from the *uterus*, that I was again sent for on that account. There was no swelling of the *abdomen*, but great tenderness, much pain in the head, constant thirst, a little delirium, and she had no stools. An increase of fever every evening, and the same profuse discharge every forenoon, continued for ten days. She took occasionally testaceous powders with rhubarb, saline mixtures, tincture of roses, infusion of bark, and some doses of opium. She at length recovered.”

The hemorrhages seem in this case to have been absolutely critical, and my own practice hath supplied me with instances of a similar kind in different stages of this fever, and many more have proved the great advantage of returning or free sanguineous lochial discharges. Yet in these cases I had sufficient reason to presume, that the disease had not only originated in the *uterus*, but was confined there, without extending to the abdominal *viscera*.

Having finished these observations on the use and advantages of bleeding, I beg leave to repeat, that when the puerperal fever of a true inflammatory nature exists, I feel assured I am right in the opinion I have advanced respecting bleeding. But as it is sometimes extremely difficult to distinguish between this fever and complaints proceeding from mere irritability, which far more frequently occur, especially in very delicate habits; and as all the complaints arising from irritability would at this time

be increased by bleeding, and rendered dangerous by a repetition of it; I recommend in the strongest terms, that we should be accurate in our distinctions before we determine on a plan on the pursuit of which the good of our patient may so essentially depend.

When the attack of this fever is violent, a vomiting of bilious matter attends, there is often a multiplicity of stools, and the commencement is sometimes not unlike a moderate degree of the *cholera morbus*. It has been an almost universal rule in practice, in other diseases, to forward these evident intentions of nature, at least not hastily to obstruct or suppress them; but in this, different measures have been pursued. It has been objected, that a woman lately delivered has suffered too much from her labour, to bear with safety a method of proceeding, found useful in other fevers with the same indications; or that the parts affected would be too much agitated by the operation of an emetic. It has also been conjectured, that the vomiting and uneasiness of the stomach ought to be ascribed to uterine irritation alone, and are hysteric symptoms in the common acceptance of the word, and therefore not likely to be relieved by encouragement. But if in these cases we consider the appearance of the matter discharged, the great relief which the patient immediately receives from the evacuation, and the advantages which are found to result from it in the course of the disease, it seems impossible to fix upon circumstances, which more strongly indicate the necessity of giving an emetic. Assent has been given to an opinion, that the vomiting of porraceous matter when an hysteric symptom, does not require evacuations; yet even in such cases it may be suspected, that the porraceous matter, by its irritation upon the stomach, is the *materia morbi*, which occasions or increases the spasms, and that the discharge should not be stopped, while it is preternatural. It would be difficult to imagine a situation, in which medicines of any kind were likely to do much service, when the stomach is oppressed with vitiated humours.

But however unsatisfactory these reasons may be, experience will support me in asserting, that, when such complaints accompany the beginning of this disease, or occur during its progress, we shall lose an opportunity of doing much service, if we be deterred from giving a vomit; and that the operation is not only perfectly free from danger, but certainly answers many other good purposes besides that of cleaning the stomach. It is nevertheless to be observed, that an emetic was in this case first advised, chiefly for the relief of a symptom, without any

expectation of thereby curing the disease. Yet there are advocates so strenuous for the use of emetics in this disease, as to recommend the repetition of them everyday, and who have asserted, that they are the most powerful medicines for the absolute cure of the puerperal fever. To the merit of having first recommended this practice I am not entitled, because my first giving them was accidental, and perhaps I am not yet fully competent to judge of it; yet experience has in many cases proved to me, that emetics may not only be given, but frequently repeated in this disease, with very great advantage.

I may in this place be permitted to make a digression, for the purpose of observing, that it appears, from the records of medicine, that two different opinions were very early entertained respecting the treatment of fevers in general. The first and most prevalent of these was, that every fever was a process established by the powers of the constitution, for the purpose of altering and assimilating, or of separating and rejecting some offending matter; or changing one state of the body into another, better fitted for the performance of its functions. The process was defined by the term generally, though not properly, translated fermentation; by which the ancients understood the different states of bodies, whilst they were in the act of changing into some new form or state, or the process by which they were changed; and not vinous, acetous, or any other fermentation, according to the modern distinction of this term. As this process in fevers was expected to be ultimately salutary, it could not, according to this opinion, be disturbed without mischief; unless, on account of violence, irregularity, or some extraordinary deviation from its usual course, it might be judged necessary, to moderate it when too violent, to encourage it when too remiss, or to obviate accidental symptoms.

The second opinion was, that in a fever excited by any cause, the body was in a state adverse to its wellbeing, and perhaps inconsistent with life; and that the fever ought therefore to be subdued by the expeditious use of all such means, as were likely to remove the cause, or to appease the action of the powers of the constitution; or, by weakening the powers themselves, to reduce the body into such a state, that it should be unable to continue or maintain what might be called the feverish process.

The marks of these opinions may be readily discovered to pervade every system of fevers, and every method of treatment, which have been offered to our consideration, or recommended for our guide, even down to the present time. There is no doubt but that the knowledge of both these opinions will occa-

sionally be found of much use in practice, if we be not led to extremes. But the knowledge of a disease, or of a method of treatment, is of infinitely less value than the faculty of applying it, and constitutes in fact a small share of the excellence of a physician. He, by discovering the part principally affected, and by weighing its importance to the constitution; the nature of the disease, its present state and probable consequences; and by taking into consideration all the collateral circumstances, will clear his mind from perplexity and error, and form a rule for his own conduct far beyond the influence or power of any doctrine.

But in the treatment of the puerperal fever the difficulty has been much increased, on account of the very great caution, which, for reasons before assigned, was judged necessary. It was also said, that by regulating the puerperal discharges, all the diseases incident to women in childbed were to be prevented, or most naturally cured; and all evacuations, by which these were likely to be interrupted or suppressed, were forbidden. In short, in this state there was a suspicion of something sacred or mysterious, with which we were not authorized to interfere; and neither common sense nor observation had sufficient efficacy, to control those impressions, which originated in speculation and prejudice, and which are now fully proved to have been without foundation.

Many years ago, after much embarrassment and repeated disappointments in the treatment of this fever in the customary way, I gave the powder, which was recommended by, and has acquired much reputation under the sanction of the late Dr. James, and sometimes the following medicine; and I was soon sensible of the good effects.

Rx. Antimon. tartarifat. gr. ij.
Chel. cancror. pp. ℥ ii. *intimè misceantur.*

Of a powder thus prepared, after bleeding, and, if thought necessary, the exhibition of a clyster, I have given from three to ten grains, repeating it as circumstances required.

Should the first dose produce no sensible evacuations, for on these only we are to rely, an increased quantity must be given at the end of two hours, and we must proceed in this manner, till the end we wish be obtained.

But if the first dose should occasion a vomiting, purging or profuse sweat, we must wait for the good effect of these opera-

tions ; and we shall then be able to judge of the propriety of repeating the powder.

But when the evacuations are concluded, if any alarming symptoms should remain, we need not hesitate to give the powder in the same quantity as was first used, though an equal quantity is not often necessary, if the first dose have operated properly. We cannot reasonably expect, that a disease, which exhibits such evident marks of danger, should instantly cease, even if the principal part of the cause should be removed, or of the effect be abated. Yet we must be careful not to rely so far upon an abatement of the symptoms, as wholly to desist from pursuing the method, which produced the abatement ; for no disease is more liable to returns, which are generally more violent than the first attack, and with accumulated danger. It must also be observed, that as the certainty of the cure often depends upon the due repetition of the powder, the custom of giving this, or any other medicine, at stated hours, is never eligible, and sometimes improper.

If a sickness, loathing of the stomach, or offensive taste in the mouth, attend the commencement of the disease, this medicine seldom fails to occasion vomiting, and the patient, with a countenance strongly expressive of the benefit she has received, will attest the advantage of the method pursued. Nor does the medicine often fail to procure copious stools, which are uncommonly fetid, and, as was before observed, in the loose ones, lumps of hardened *faeces* are intermixed. Their appearance should in some measure guide us with respect to the continuance of the evacuations, in proportion to which the *abdomen* becomes easy and subsides, and the other symptoms become more favourable. The urine is soon voided with more ease, and in larger quantities, a moisture of the skin or profuse sweat succeeds, and the *lochia*, which were before brown or pale, fetid, and in small quantities, increase and become sanguineous. But we are to remember, that the small quantity of the *lochia* is never to be esteemed indicative of disease, independently of other appearances, because with respect to quantity they evidently vary in every constitution.

At the same time that we avail ourselves of the advantage to be obtained from the use of the antimonial powder, we must not neglect the use of those means, which contribute to procure immediate ease or relief to the patient. Emollient clysters in cases attended with violent pain, especially if preceded or accompanied with costiveness, are necessary and proper. Cly-

ters have also been esteemed of more importance than merely as the readiest means of promoting stools, or as a temporary fomentation to the bowels; for some physicians of great experience have thought they were able to remove a great part of the cause, or to prevent the continuance of the disease, by directing them to be administered so frequently, that they were at length returned without any mixture of *faeces*. Fomentations, or vapour-bathing, or even the warm bath, may sometimes be used with advantage; but I think a folded warm flannel, well sprinkled with brandy, and occasionally renewed, is one of the best and most comfortable applications. When the pain is confined to one part of the *abdomen*, or remains after the abatement of the fever, if not removed by leeches, a blistering plaster, applied directly to the part, may always be recommended with safety, and will sometimes do much service. Plentiful dilution being absolutely necessary, the patient should be carefully supplied with proper drink, in small quantities often repeated. The most palatable, and generally the best, is chicken water, or very weak beef tea; or, if objections be made to these, barley water, thin gruel, milk and water, whey, and tea of almost any kind, may be drunk at pleasure.

In this manner I treated the wife of a soldier in the guards, whom I attended July 1, 1767, in a safe, but tedious labour. She was of a very strong habit of body, and upwards of thirty years of age. About thirty-six hours after the birth of the child she was seized with a violent shivering, followed with severe pains in the *abdomen* and loins, and within a few hours from the attack of the disorder, became nearly as big as she had been before delivery. On the third I gave her four grains of the antimonial powder before mentioned, and finding no sensible effect, I repeated in the same quantity after two hours. She puked twice, and had seventeen stools, like yeast in appearance, within six hours after the repetition of the powder. When the operation of the medicine ceased, the *abdomen* had almost wholly subsided, and the tenderness and fever much abated. As she was much fatigued, I gave her a cordial draught, with a few drops of tincture of opium. She had some quiet sleep in the night and sweated profusely. There did not appear any necessity of repeating the powder, and she recovered perfectly, without taking any other medicine except some saline draughts, and afterward the decoction of *bark* twice every day.

The event of this case, and of some others which occurred to me about the same time, was very flattering. I presumed, that I had at length discovered a method of treating this fever, and

a medicine which would seldom fail to answer the most sanguine expectations. But further experience has convinced me, that without previous or even repeated bleeding in some cases, when the inflammatory symptoms are violent, this medicine will often fail to subdue the fever, and that it is sometimes uncertain in its operation. It is perhaps to be reckoned among the signs of an unfavourable termination of the disease, when the medicine in proper quantities produces no sensible effects. I am however persuaded, that if we have an opportunity of giving it soon after the accession of the disease, it will often do the most essential service, and that too much cannot well be said in favour of this method. And it is above all things to be wished, that physicians had the *early* care of patients in this disease; for the dissections of those, who have died, have proved, that very terrible mischief is produced in various parts with amazing celerity. In a very great number of patients, whom I have had an opportunity of examining, all or some of the following appearances were observed. The *uterus*, or its appendages, were in a state of inflammation; or sometimes one or both of the *ovaria* of a livid colour, and altered in their texture, as if mortified. The general substance of the *uterus* was loose and spongy, and it was less contracted, than it ought to have been since the time of delivery. The *os uteri*, and that part of the *uterus* to which the *placenta* adhered, were discoloured, and had a sloughy appearance. Small abscesses were sometimes found in the substance of the *uterus*, or in the cellular membrane, which connects it to the neighbouring parts. The bladder was inflamed. The *omentum* was very thin, irregularly spread, and in a state of inflammation. The intestines were inflamed chiefly in the peritoneal coat, adhering to each other, and much inflated. Inflammatory exudation, and serum extravasated in the cavity of the *abdomen*, have been found in various quantities; but these were in a less degree, when the patient had laboured under a long continued purging. In the cavity of the *abdomen* were likewise found large flakes of coagulable lymph, which have been often mistaken for curdled milk, or for dissolved portions of the *omentum*. It must indeed be acknowledged, that the information acquired in this search has not afforded any practical advantage, equal to the care or assiduity, with which it has been made. What we have been able to learn has chiefly proved, that various parts are affected in different subjects; that when the disease has continued with violence for a few days, its effects will generally be beyond the reach of medicine, and that if the patient should

fortunately recover, her recovery will depend upon circumstances, which the physician cannot without great uncertainty and difficulty command*.

In the less violent degrees of this disease, and more delicate constitutions, it will be necessary to pursue the same intentions, though with less activity. In such cases, after local bleeding with leeches or otherwise, as may be most convenient, and giving a proper dose of ipecacuanha, or washing the stomach with an infusion of chamomile flowers, more lenient medicines must be prescribed. But they must be such as will produce a certain and speedy effect, for after the operation of an emetic, if stools be not procured, we shall neglect the means, and lose the opportunity, of doing most effectual service; for without them the relief obtained will not be permanent. An emollient clyster may be first injected, to remove any hardened *faeces* from the lower part of the *rectum*; and the antimonial powder in small doses, or the saline draughts with a due proportion of the *natron* or the *kali tartarifatum*, or with rhubarb, or the following draught may be given every third or fourth hour:

R. Natri tartarifat.
Mannæ opt. ʒii.
Infus. fennæ, aq. ment. fat. ʒi.
Tinct. cardamom. gut. xxx. M.

Or two ounces of *magnesia vitriolata* may be dissolved in a pint of thin gruel, and one or two large spoonfuls given every hour, till due evacuations are obtained; and this medicine has been found to answer the intention, when apparently more pleasant medicines could not be retained.

In every case of disease, which requires speedy and repeated evacuations for its relief, particularly if attended with violent pain, it is necessary to give a respite to the constitution, by which it may be enabled to exert its own powers, or recover from the fatigue of the operations themselves. For this purpose opiates are wisely prescribed, when the operations are concluded. But opiates being given for the purpose of easing

* We have been told, that, in the dissections of some who are said to have died of this disease, no appearances of inflammation have been discovered; but I should suspect, that in such cases mistakes had been committed as to the nature of the disease, and probably in its treatment.

pain, or of quieting some agitation, if they be not given in a sufficient quantity to produce the intended effects, are useless; for it is by their effects we are to judge of the propriety or advantage of their use. In some cases also, which were accompanied with violent pain at the commencement, it has been found necessary, to give a large dose of *tinctura opii*, immediately after the first bleeding, without waiting for any other evacuations, by which the progress of the disease will be retarded. Nor is there ever occasion to hesitate upon the use or repetition of an opiate at any period of this disease, when the violence of the pain requires it; though the pain may originally be a consequence of the disease, it becomes after a certain time a powerful cause of its continuance and increase.

In the inferior degrees of this disease, after bleeding once, either with the lancet, or, which is generally preferable, by the application of leeches to the part, if thought necessary, and the exhibition of an emetic, which can seldom be dispensed with, we shall find the simple method of exhibiting an opening draught for the purpose of procuring four or five stools every day, and an opiate every evening, produce the most happy effects. But it is not possible for me to express my sentiments of the advantage, which may be sometimes procured by daily purging, so clearly as by the relation of the following case, which was lately under my care.

The wife of an eminent tradesman was brought to bed of a living child, after a very tedious and difficult labour. She was of a corpulent but relaxed habit, and this was her first child. About four hours after her delivery she was seized with a purging, and the stools, which were of a dark colour and exceedingly offensive, soon afterwards came away involuntarily. I saw her early the following morning, November 22d. She had constant but not exquisite pain in the *abdomen*, which was tumefied; her skin was hot, her pulse quick, and she was thirsty. Having voided no urine I introduced the catheter, applied a flannel well sprinkled with brandy to the lower part of the *abdomen*, and ordered an opening draught of the kind before mentioned. She had proper evacuations by stools all day, and in the evening took an opiate. On the 23d I found, that the purging continued, and there was little alteration in the other symptoms. The opening draught was repeated in the morning, and the opiate at bed-time. On the 24th I was informed she had got some refreshing sleep in the night. The pain in the bowels and feverish symptoms were abated, but the stools, which were yet very fetid, came away involuntarily. Both the draughts were

repeated as on the preceding day. On the 25th, though the stools continued to come away without her consent, the *abdomen* had subsided, and the tenderness was almost gone. On the 27th the purging ceased, and she recovered without the repetition of the medicines. I was under the necessity of drawing off her urine twice every day, till the eleventh after her delivery, when she was able to void it without any assistance. But it is not to a single case that I should have occasion to appeal in a matter of so much consequence. A long and successful practice hath convinced me, that the purging, which often attends this disease, is not only salutary, but frequently critical, and instead of being suppressed, that it ought to a certain degree to be encouraged. Nor would it be difficult for me to recollect many cases, in which fatal consequences have speedily followed imprudent attempts to stop the evacuations*.

As the disease passes into its more advanced stages, it becomes more complicated and dangerous, and there is a necessity of being very circumspect in our endeavours to give relief. Bleeding, unless by scarification, or the application of leeches to the *abdomen* or hemorrhoidal vessels, will very seldom be proper at this time; and if directed, or repeated, from the encouragement which the inflammatory appearance of the blood may afford, will generally hasten the fate of the patient, by reducing the strength in a much greater degree, than it can abate the disease; as I have seen in many instances of this and other kinds of fever. It must therefore be omitted, or prescribed

* *These remarks on the necessity of procuring stools are to be considered as applicable only before the patient is reduced to a state of great debility, or perhaps in fevers occasioned by local inflammation of some of the contents of the abdomen. Experience has proved, that, in the advanced state of fevers of the typhus class, costiveness is the most favourable symptom. Sydenham takes particular notice of this in his most excellent treatise on the fever of 1661; and in a principal hospital of this city, it is an established rule, never to promote stools, or any weakening evacuation, in fevers of this class, after the fourth day. But in the advanced state of these fevers, costiveness, for a great number of days, not only prevents an increase of the debility, but is the most promising symptom of a happy termination of the disease. It deserves to be particularly noticed, whether patients, in the advanced state of these fevers, ever die while the bowels are constipated.*

with the greatest caution. But if the stomach or bowels be much disturbed, and an emetic were not given in the beginning, one may be given at almost any period of the disease with safety and advantage. Or if there be no looseness, and stools have been procured sparingly through the course of the disease, the general method of cure may be pursued, if the state of the parts first affected should require it, allowing for the reduced strength of the patient. The frequent injection of gently purgative or emollient clysters will be extremely proper, and laxative medicines of the kind before mentioned; not omitting to give opiates to procure temporary ease, or neglecting the use of such diet and general regimen, as will support the strength of the patient.

But when the stools are very frequent or involuntary, and all appearances threaten imminent danger, we must be cautious, that our attempts to cure the disease are consistent with the state of the patient, though something must be hazarded for her relief. Clysters of chicken water, or flour and water boiled to a proper consistence, or of a decoction of linseed, often repeated, then constitute a very important part of the cure, by washing off some part of the offending matter, which stimulates the bowels to frequent evacuations, and by acting as a fomentation. But if great care be not taken in their administration, the patient will suffer intolerable pain on account of the tenderness of the *uterus*, which I suppose to be the part principally affected, at least in which the disease most commonly originates, and of the influence of which this part never fails to partake.

At this time it will also be useful, to give very small doses of ipecacuanha mixed with the opiate as a diaphoretic, or the *pulv. ipecacuanhæ compositus*, either in some cooling vehicle, as the saline draughts, or with cordials, as the situation of the patient may require. But if the stomach or bowels should be much disturbed in the advanced stage, or if any new cause of disturbance should occur, the ipecacuanha may even then be given sometimes in such a quantity, that it may act as an emetic. The white decoction with a large proportion of gum arabic, or the common emulsion with *spiritus ætheris nitrosi*, makes at this time a proper and agreeable drink. If the strength of the patient should sink, and great faintness come on, a necessary quantity of some cordial and wine must be given in the interval between the draughts. I have also often in this stage given camphor in substance, in julap, or in the form of emulsion, but have generally been obliged to discontinue its use, because it soon became disgusting to the palate, and offensive to the sto-

mach; nor have I ever found that advantage from the use of champor, which some have taught us to expect in this disease, though in many instances the camphor mixture has appeared to be an agreeable cordial, and to moderate pain.

Under the most deplorable circumstances, we ought never to desist from using our endeavours with assiduity, to relieve and extricate the sick from the imminent danger they are in, both from principles of humanity and prudence; for they will sometimes recover very unexpectedly, when every prognostic is against them. Something always remains to be done, which may be of use, or contribute to their comfort; either with the view of obviating troublesome or painful symptoms; or of supporting, by means adapted to their state, their strength; or of promoting some obstructed secretion, especially by regulating the state of the bowels. On such occasions I have among other things been induced to try clysters of various kinds, emollient, anodyne, and antiputrescent, particularly of strong decoctions of *Peruvian bark*: but the event obliges me to acknowledge, that I have not observed much advantage from them, beyond what may be derived from the domestic ones, which are in common use.

Nor has the *bark*, though given in different stages of the disease, with remissions tolerably distinct, answered the intention as a febrifuge; though in a few cases, in which the intermissions were complete, it has succeeded. As a supporter of the general strength of the constitution, the *bark* has been likewise found of less service than might have been expected; because of the disturbed and very irritable state of the bowels, which it tends to increase. Instead of this medicine, the colomaba root, in powder or infusion, has been given every fourth or sixth hour, or the common bitter infusion prepared with cold water, and joined with some aromatic; or a strong infusion of chamomile flowers, with the addition of a few cloves; and sometimes the following medicine, especially when the hiccup has been troublesome:

℞ Spir. ætheris vitriolici ℥ij.
 Aqu. puræ, vel menth. fativ. ℥viij.
 Sacchar. pur. q. s. fiat mistura, cujus sumat
 ægra uncias duas, tertia vel quarta quaque hora.

In other cases *ather* or *Hoffman's* mineral anodyne liquor has been given; but they have often proved less agreeable to the stomach, and I believe not more efficacious, than the *spiri-*

tus atheris nitrosi, which I have substituted for them, and given with great freedom and advantage. It was before observed, that the hiccup was frequently an indication of a collection of offensive humours in the stomach, and has generally preceded the spontaneous vomiting, which in the worst state has sometimes proved critical; though the same symptom is also not seldom a proof of the progress of the disease, and a sign of the utmost danger.

In the course of the disease, when the *abdomen* had been much distended, notwithstanding the evacuations, I have recommended the application of the *cataplasma cumini* moistened with brandy; and sometimes directed clysters composed of *electarium e baccis lauri*, or a solution of *asa fetida* in simple peppermint water; and wish I was justified in speaking more highly in their praise; but they are among the things which have occurred to me, when I have scarcely known what to propose.

I have rarely attempted to inject medicines of any kind into the *vagina* or *uterus*, though from a consideration of the probable state of the parts, and of the fetid humours discharged, it is reasonable to think, that emollient or gently detergent injections might sometimes be useful. But the helpless state of the patient is such, as to render the operation itself very troublesome; and if they be advised, great caution will be necessary both in their composition and administration; but fomentations to the external parts have, I think, sometimes afforded comfort, and been of service.

These are all the observations I have made, and the opinions I have entertained on the puerperal fever in its simple state; that is, considering it as a disease, originally, of the truly inflammatory kind, affecting one or more of the parts contained in the *abdomen*, extending its influence over the whole constitution, and speedily assuming a putrid form with more or less virulence, according to its degree and treatment during the inflammatory state. But when putrid diseases are epidemic*, the

* *The first account I have met with of a puerperal epidemic is in Peü. It appeared in the year 1664, in the Hotel-Dieu, at Paris. In this account there are some very curious observations. In this country we have very reprehensibly neglected, to preserve any register of the times, when such fevers have prevailed. But in the year 1788, an account of a puerperal epidemic was published by my ingenious friend Dr. John Clarke, according to its appearance in one of the hospitals in this city, and, in some instances, in private practice.*

puerperal fever may, at the commencement, partake of the reigning disease (varying only in the affection of the parts concerned in parturition), as the histories of the plague, in this and other countries, have sufficiently proved. This disease may also be combined with a phrensy or peripneumony, with symptoms multiplied and varying according to the combinations. Then our principal attention must of course be paid to the most urgent disease or symptom; but the event of such cases must be more dangerous, on account of the number and importance of the parts concerned.

There is another consequence of an epidemic, or even a sporadic puerperal fever, on which it would be criminal to be silent. This is the contagious nature of these fevers; it having been long suspected, and being now fully proved, that they may be, and often have been conveyed by midwives or nurses, from one patient to another. This fact explains the reason, why, persons, practising for many years with the most enviable success, have at one or more periods of their lives, without any change in the principles of their practice, met with a number of unfortunate cases; when perhaps an adjoining neighbourhood has been entirely free from such diseases. Of this I have known many instances, and have repeatedly seen it the cause of the most painful distress, and severest reflections. Nor should this subject remain a barren speculation, but, according to the value set upon reputation, teach those, who are engaged in the practice of midwifery, the impropriety of their attending patients in fevers and other dangerous diseases, if it can possibly be avoided; and to use every precaution, that they do not carry contagion from one patient to another. The nature and the power of contagion seem not to be perfectly understood, and it may exist in many diseases, in which it has not yet been suspected. The subject is therefore deserving of the most serious investigation.

SECTION II.

MANIA.

AMIDST the great variety of complaints to which women in childbed are liable, there is none so distressing as that aberration of the mental faculties, which sometimes, though happily very rarely, we have an opportunity of observing. This disorder

has sometimes shewn itself immediately on women becoming pregnant, in others when the time of labour approached, in others during the state of childbed, apparently occasioned by some extraordinary disturbance or peculiar irritation of the *uterus*. In some cases it has, however, been evidently caused by irritation of another kind; as when the breasts have been inflamed, or an abscess has been formed, and at the time of first suckling or weaning the child, seven or eight months after delivery; but in every case, the disorder has been occasioned by an uncommon irritation of one of these parts, spreading its influence to the brain, though without any reference to former disposition or habits, acquired or hereditary. Speaking of convulsions, it was said, that pregnant women labouring under any distress of mind from the peculiar circumstances of their situation were liable to them: and the same observation may be made of this disorder; for if the nervous system be once disturbed to a certain degree, or in any particular manner, the kind of disorder thereby produced may be accidental; and the same cause, which shall in one person produce convulsions or paralytic affections, shall in another produce the disorder of which we are speaking, either of the melancholic, or violent kind. In the same manner patients, who have long suffered from intermitting fevers, have in some seasons been disposed to maniacal disorders*.

Almost all the diseases of women in childbed were formerly attributed to two causes, the interruption of the lochial discharges, and the milk; the latter of which was supposed to have, when imperfectly secreted a pernicious influence upon the constitution in general, or on some part in particular. Hence the name of the milk fever, the *œdema lacteum*, or the edematose swelling of the leg, and in general of all swellings or abscesses formed in any part of the body soon after delivery; and this aberration of the mind is, for the same reason, called by nosologists, the *mania lactea*. I do not, however, know, whether there be any real difference in this disorder when it happens to women in childbed, or under other circumstances, or in the symptoms attending it; saving, as that state is constantly changing so as women depart from the time of delivery, there is always a chance of amendment from every degree of change. Perhaps for this reason, this disorder, in some instances, ceases in twenty-four hours, and in others, it continues only for a few days, in some a few weeks, and in others for several months.

* See Sydenham.

But the instances of its continuing more than six months are very rare ; and there is scarcely one to be found, who did not ultimately recover. It has been asserted in very unqualified terms, that women, who become maniacal in childbed, always recover. This opinion, I presume, extends only thus far, that if they live, they always recover their faculties, the distemper proceeding from disordered functions and not from any organic disease but ; I have seen several women die during their maniacal state, and not long after the accession of the disorder. Their death has sometimes appeared to be owing merely to the vehemence and continuance of their exertions.

The time when this disorder appears is different, in some cases a few days after delivery, in others about a fortnight or longer, in the manner before mentioned. All women soon after delivery are either more irritated, or more subject to irritation, than they perhaps are at any other time ; and hence, chiefly, arose the necessary custom of keeping them quiet, and secluding them, for a certain time, from the chance of meeting with such occurrences as might disturb them. I have known more than one instance of a lying-in woman in a very irritable state, but with perfect composure of mind, becoming at once deranged by some fright or mischief apprehended to herself or child, or from some dismal story related to her ; who might have escaped, had she been managed with circumspection. It is impossible to describe how much of the prevention and cure of these complaints depends on the judicious conduct, and proper manners of the attendants.

As to the delineation or history of maniacal disorders, under any circumstance, this does not seem necessary, if it were practicable ; because the name does not depend on a symptom, or a single act, unless it were an outrageous one indeed ; but often upon the construction of general and unusual conduct, varying in degree and outward form in every individual patient. For these reasons it is not surprising, that in some cases there should be a difference of opinion as to the actual existence of the disorder, even among men of experience ; or that, on the first interview, it is often impossible to give an opinion, which could be supported. The difficulty of deciding is also very much increased, by the difference in the conduct of the patient at particular times ; for even in very bad cases there are generally lucid intervals, or a reasonableness except on certain subjects, when the disorder would not be suspected. Yet if we once conclude a patient to be maniacal, which we were unwilling to suspect, and still less willing to announce, a review of the re-

ceding circumstances commonly exhibits pretty clear proofs of the gradual progression of the disorder.

On the attack of every complaint of this kind, from the exertions of the patient, and the tumultuous derangement of her mind, the pulse becomes extremely quick, the general heat of the body is increased, and there are in most cases the common symptoms of fever, though mania has been defined a delirium without fever. Nor, when cases become chronic, is there ever a time, when they are to be seen without more or less of what might be called fever, especially in and after fits of outrage.

Though there is sufficient difference in the general appearance of the patient in these disorders, to make it evident on the attack, that it is not, properly speaking, fever, something like the same method of treatment has been judged necessary. It was formerly the custom, to enjoin the use of very powerful medicines, and very severe treatment, for maniacal patients, and among other things copious bleedings. But for women reduced in their strength by the circumstances of childbed, more gentle proceedings are requisite. Bleeding, if advised in any degree, must be performed with a sparing hand; for if there be a fact, of which I am assured, it is, that copious bleedings are extremely prejudicial; not abating the disorder even for the present, and, if the patient survive, increasing and rendering it more deeply rooted and permanent afterwards. Generally speaking, they should therefore be altogether omitted. It is also because they increase the present irritation, and have been found ultimately to do no service, that blisters are seldom recommended in these cases. The resistance, which is often unwisely made to the harmless wishes and inclinations of the patient, frequently becomes a cause of violent outrage, as has also been observed in fevers attended with delirium.

The intentions in the use of medicines are, to remove all feverish disposition, whether original or symptomatic, and to lessen at the same time the excessive irritation. For these purposes it is usual, to give the saline draughts, with a suitable quantity of syrup of white poppies, or a few drops of laudanum, repeated as the case may require. The secretions being generally much interrupted, especially those by the bowels, these must be promoted by the occasional use of clysters, or of common purging mixture, sometimes by small doses of calomel, so as to procure two motions regularly every day; and in this state of the disorder no other medicines seem to be required.

Immediately on the attack, with many other alterations of the countenance, especially of the eyes, easily observed, but which

cannot be described, the skin has often a yellow tinge, and sometimes there is a complete jaundice. It is then thought requisite to give an emetic, not with the view of curing the disorder, but of relieving the symptom, and of regulating the constitution, and this must be our guide in all medicinal treatment; for I believe the idea of any medicine having the power of influencing the mind, except by producing certain effects upon the body, is wholly abandoned.

In the more advanced and settled state of the disorder, there has been but one view, that is to abate irritability, though very different means have been used for this purpose. In cases of great depression of the spirits, or what has gone under the general name of melancholy, gentle emetics have been much advised, and I think with great advantage, every other or every third day; and at the intermediate times, nervous medicines, such as the *spirit. æther vitriol. comp., confect. Damocrat.*, or the fetid gums; especially the gum ammoniac and camphor, which Dr. Kinneir recommended many years ago in stronger terms than experience will justify. On occasional returns of great preturbation and violence, we must recur to the method used on the first attack.

Opiates have been given with two intentions. Some have merely purposed to soothe and moderate the violence of the disturbance by the frequent repetition of small doses. Others have aimed by the more liberal use of opium often repeated to suppress the irritability altogether. As far as I can judge, the former method is far preferable to the latter; and I think there can be no doubt, but that opiates in large doses, instead of diminishing, add in no small degree to the irritability, which before existed. A physician of very great eminence observed to me, that opium almost universally excited disturbance, before it exerted its quieting powers, but that other *narcotics, cicuta* for instance, immediately acted by their peculiar quality, without raising any previous disturbance.

Among many other medicines, which have been recommended in the advanced stages of this disorder, it would have been extraordinary, if some of the preparations of quicksilver had not been tried; and of these calomel has had the preference. It was the favourite medicine in maniacal cases, as long as I remember any thing of the profession. By some all preparations of quicksilver have been thought to increase, and by others to lessen irritability, but the explanation of the operations of medicines has very little forwarded the improvement

of the art ; and I am not clear, whether the practice of medicine may not, even at this time, be justly considered as empirical, the excellence of the art chiefly depending on the sagacity and judgment of each person who practises it, and not on any fixed principles.

Calomel has usually in these cases been given as an alterative, in doses too small to produce any immediately evident effect, but repeated so often as to make very material alterations in the constitution. Sometimes it has also been given as an active purge, the operation of it being supposed more efficacious than that of any other medicine of this class. The causes of mania, or the effects produced by it, speaking of the disorder at large, as has been proved by the dissection of dead bodies, may be widely different, and for these different medicines may be necessary and proper. But in that species of which we are now speaking, it is not supposed, that any disease exists in any of the constituent parts of the body, but that it wholly proceeds from disturbed action of the nervous system ; and that we shall probably succeed the best, not by aiming to cure a disease which does not exist, or which is beyond the power of physic, with very active medicines, but by obviating symptoms, which may, in this case at least, be said to constitute the disease.

Throughout the course of the complaint strict regularity of the nonnaturals is to be established, such as the times of going to, and rising from bed, exercise, employment, if possible times of taking food, kinds of food, and the like ; and above all care is ever to be taken, that the patients, in their fits of rage, be prevented from doing mischief to themselves or others. From a strict regulation of these matters, and from the establishment of a mild, but firm and vigilant authority, it is probable, as much advantage may be derived, as from any medicine.

SECTION III.

Of every complaint, to which women in childbed are liable, and which may require medical assistance, it is not necessary or possible here to take notice. I have therefore confined myself to those, which seem of the greatest consideration either from their frequency or importance. Of this kind is the puerperal swelling of the inferior extremities, as it may not improperly be called. This disease has been long ago and often mentioned by the French writers, most commonly under the name of *l'ensure des jambes et des cuisses de la femme accou-*

chée ; or that of, *dépôt du lait*, from its supposed cause ; but often with so little accuracy, as to make it difficult to distinguish, what kind of swelling they meant to describe. By the Germans it is usually called the *œdema lacteum*. Though the disease has frequently occurred in this country, and has been long understood in practice, the first treatise upon it was published by Mr. *Charles White* of Manchester, and soon after another by Mr. *Trye* of Gloucester. As might be expected from men of their abilities and eminence, in each of their works there are many things deserving attention ; but as the subject yet requires farther investigation, with regard to its cause, its history, and method of treatment, I shall offer the result of such observations and opinions, as have occurred to me on this disease.

The puerperal swelling of the inferior extremities does not seem to depend upon the kind of labour the patient may have had, as it indiscriminately happens after those which were easy, and those which were difficult ; or on any evident peculiarity of the constitution, the corpulent and the thin, the feeble and the strong, being equally liable to it ; or on rank in life, as the rich and poor are alike subject to it ; or on any mode of treatment in the state of childbed. Nor does any appearance during pregnancy denote a disposition to it, the swelling of the inferior extremities at that time being a totally different complaint ; but the whole disease seems to arise from some circumstance, that occurs after the delivery of the patient. It is also remarkable, which is a satisfactory reply to those who have attributed this swelling to the deposition of the milk, that it has happened to those who had an abundance, or those who had a scarcity of milk ; to those who did, or those who did not give suck ; and sometimes, though rarely, in abortions, when no milk was secreted.

Before the appearance of any swelling, or any sense of pain in the limb about to be affected, women become very irritable, and grievously depressed in their spirits, without any apparently sufficient reason, complaining only of transient pains in the region of the *uterus*, and from these only the approach of the disease has frequently been foretold. After a short time they are seized, often very suddenly, with an extremely acute pain in the calf of the leg, extending to the inside of the heel, and then, observing the course of the lymphatics, stretching up to the ham, along the internal part of the thigh to the groin, occasioning a slight soreness over the the lower part of the *abdomen*. Then also the inguinal glands are affected, sometimes the external

which are perceptibly enlarged, indurated, and painful, and sometimes the internal, or both, and probably also, judging from the symptoms, those which lie at the bifurcation of the vessels at the loins. Except that I have not observed the limb to be discoloured, or the lymphatics inflamed, and marking their course by a redness of the skin (which we provincially call the *anguish vein*), the first effects of this disease very much resemble those, which would attend the absorption of some poisonous matter from the lower part of the limb. The whole surface of the swelled limb becomes insufferably tender to the slightest touch or pressure, especially in those parts where the glands are seated; yet without any other apparent change, except that the skin is glossy and of a deadly paleness; and a certain degree of paleness, not unlike that of a chlorotic or dropical person, is spread over the countenance and whole body, every vein seeming to be scantily supplied with blood. When the pain has continued about twenty-four hours, the limb begins to swell, and the pain is usually abated in proportion to the increase of the swelling; but from the moment of the attack, all power of acting with the limb is lost, every attempt to move it giving great torture, and a disposition to faint. There are, however, many varieties in the manner, in which the disease commenceth, as well as in its degree and progress; but the glands and lymphatics of the limb are evidently the parts first and principally affected. In some cases the access of the disease is slower, and the symptoms less violent, hesitating, as it were, whether it should be formed or not. In these the pain is not only less severe, but diffused over the limb, instead of being fixed on particular parts, and the swelling scarce sufficient to draw attention.

This disease happens at no precise time after delivery, as it has come on at any period, from the fifth or sixth day, to the third or even fourth week, but most commonly, I think, between the fifth and twelfth day. Whenever it does appear, the whole constitution is speedily and greatly affected by it. The pulse is extremely quick and generally feeble, the heat of the body is much increased, the tongue is white and clammy, and the countenance pale and dejected; the urine, which is voided in small quantities, is thick and of a muddy colour, unlike what I have observed in any other disease, the muddiness gradually lessening as the disease abates; the patient is costive, the *faeces* being of a pale colour and clayey consistence; and the uterine discharges, whatever their quantity may be, have an offensive smell, and unnatural appearance. It is however to be observed,

that this smell and appearance do not always continue through the course of the disease, but on inquiry will be found to have existed at, or some days before, its commencement.

Either or both the legs may be affected together or successively. When the latter is the case, the disease having remained for a certain time in one leg, and the symptoms being abated, the other has been suddenly and unexpectedly seized. Then the symptoms have recurred with equal violence, and gone through a similar course. But the patient having escaped the danger before apprehended, though disconcerted, bears the second attack, even if it be more severe, better than she did the first. Should the second leg become affected, it is not by a translation of the disease from one limb to the other, the leg first affected remaining in the same state, and observing the same progress as before the affection of the second. When only one leg is affected there are, in some cases, occasional exacerbations of the disease, after apparently considerable amendment; and these may render it necessary to change the order of treatment, or even to return to that which was proper at the commencement.

After eight or ten days continuance, according to its lenity or violence, the more urgent symptoms of this disease begin to abate, but in many cases very slowly; the debility and oppression sometimes remaining for several weeks, as the constitution is naturally more inert or vigorous. Though all the other symptoms be removed, the swelling may, and generally does remain for many weeks, or even months, and in some very bad cases, the limb has never been reduced to its primitive size, or recovered its wonted powers of agility and firmness, during the patient's life.

The constitution seems to be very much disturbed and enfeebled at the beginning of the disease, and unequal to the due performance of its common functions, yet after a certain time it seems to become local; for the patients recover their health, and often menstruate regularly; but even this change has seldom afforded the expected relief to the affected limb.

Though this disease often creates much and great alarm to the patient and her friends, and always occasions much pain and suffering, yet on the whole it may be said, that it is not dangerous. I do not mean, nor should I be justified in saying, that it was never attended with danger; having been informed of several cases, and seen one, which proved fatal, where no other cause of the patient's death could be assigned or suspected. But on the retrospect it appeared, that this might possibly have

been avoided, if more regard had been paid to the representations of the feelings of the patients; for they were urged, at least encouraged, to exert themselves beyond their abilities and inclinations, and sunk immediately after, or while they were making some great effort.

From this description of the disease, the inguinal and neighbouring glands seem to be the parts first affected, and the subsequent swelling of the limb to be evidently occasioned by the blocking up of all passage for the lymph through those glands. The pain and extreme soreness of the limb, which are always somewhat abated when the swelling comes on, appear to be incidental, and to be produced by the distention of the lymphatic vessels; so that the swelling seems to prove that those, which were before over distended, are relieved, either by the bursting of some, allowing the effusion of lymph into the cellular membrane; or a series of vessels of small dimensions are enlarged, by which those lymphatics, which before suffered from extreme distention, together with the parts on which they made compression, are eased.

But it remains to be proved how it comes to pass, that these glands are originally affected; and this I should endeavour to explain by presuming, that, as the lymphatic vessels of the *uterus* and *vagina* are very much increased in size during pregnancy, they are more capable of absorbing any fluid, which may come into contact with their orifices; and if any fluid not consonant in its qualities with that, which they were by nature intended to convey, were to be admitted and conducted to the gland, to which any particular lymphatic may lead, a morbid affection of the gland might be produced, which would occasion all the succeeding mischief. Whether the internal or external inguinal glands, or those at the head of the *triceps*, or any other, were affected, will depend on the course of the lymphatic, which had taken up the offending matter.

It was before observed, that the uterine discharges have an offensive smell, and unusual appearance. Now it has been proved, that the most healthy fluids of the body, perfectly innocent and unoffending to the part where they were secreted, may act as means of great and morbid irritation, if transferred to a part not originally destined to receive them; that is, they may act in some degree as poisons. But in the present case, the secretion being of a morbid kind, as far as can be judged by smell and appearance, the malignity of its effects may be aggravated. I therefore feel satisfied, that the absorption of vitiated matter from the *uterus* is the cause of the swelling of the inguinal

glands. Farther, if this absorbed matter had not been interrupted by the gland, and thus prevented from spreading over the whole body, this disease would have been infinitely more dangerous; and this opinion is strengthened, not only by the common consequences of acknowledged poisons when absorbed, but by many similar complaints frequently met with in practice: as in the swelling of the inferior extremities in men, when the prostrate gland is affected; in one or both legs, when the *uterus* is diseased; in the arm, when the axillary glands are enlarged; and in many other cases. But the changes in the uterine discharges, which precede this disease, are not, it is apprehended, like the changes produced by the retention of coagula, or of small portions of the *placenta* or membranes, but they are consequent to an unhealthy state or morbid action of the *uterus*.

Having formed this opinion of the cause of this disease, and reasoning by analogy of its effects, in the method of the treatment, without aiming to cure the disease in the first instance, I take the symptoms for my guide, and endeavour to relieve these by all the means in my power. As the sense of extreme weakness, and excessive irritability, are the most prominent and distressing, the patient is to be well supported by cordial medicines, and by a liberal use of wine; not restraining her to any precise quantity, but leaving her at liberty to judge what that shall be, by the degree of depression which she feels. Opiates are also to be given, to abate and soothe the general irritability of the habit, and together with these, such medicines as promote the secretion by the skin and kidneys. For these purposes I usually give the following draught.

Rx Aq. ammon. acetat. ℥ss.

Syrup. papaver. alb.

Spir. nuc. mos. ā ℥ii.

Aq. ment. sat.

—puræ. ā ℥ss. M. f. haustus quarta vel sexta quaque hora sumendus.

Should this fail to moderate the sufferings of the patient, a few drops of *tinct. opii* may be occasionally added to the draughts, especially to that taken at bed-time, and the quantity of *ammonia acetata* may be increased, or pure *ammonia* may be given in some cases of great depression.

Perhaps the best application to the swelled limb is a liniment composed of one drachm of camphor dissolved in an ounce of oil of olives; or some of the expressed oil of mace softened

down to a proper consistence with a sufficient quantity of oil of almonds; and to either of these may be added from five to ten grains of powdered *opium*. The most painful parts, or the whole limb, may be gently anointed with a small quantity of these every night and morning, and afterwards covered with a small quantity of these every night and morning, and afterwards covered with a loose flannel. By such means, some relief is usually obtained, though not much permanent benefit; and they are preferable, I think, either to spirituous or to hot fomentations, which, without producing more advantage, are apt to bring on profuse sweating, and great faintness.

In this stage of the disease, local bleedings with leeches, and blisters applied to the enlarged glands, have been recommended, as effectual means of speedily curing the disease by removing the glandular obstruction. But if my opinion of the cause of the disease be just, the hasty dispersion of the swelling of the glands, if it could be effected, though it might lessen or wholly remove the swelling of the limb, would ultimately prove a very great disadvantage, by allowing the absorbed *virus* to escape; and this pervading the whole body, a disease primarily local would become a general one of the most dangerous kind. In the case of poisonous matter of any kind absorbed by a slight wound or abrasion of the skin of the hand or fingers, (an accident to which surgeons are particularly liable in their dissections and operations), the swelling of the nearest or some gland, which cuts off the communication between the limb and the body, leads to the security of the patient. But if active and effectual means be used to remove the swelling of the gland, the absorbed *virus* passes into the constitution, and the patient will probably be destroyed. It was by an error of this kind we lost *Mr. Hewson* the celebrated anatomist, when he was rising into eminence, and many other deserving men, whom I recollect, and with whose cases I was well acquainted.

With regard to the state of the bowels, though we are to be circumspect in preventing the inconveniencies of constipation, it is never advisable to purge, in this stage of the disease. Their regular course may be obtained by the occasional use of *magnesia vitriolata*, or any other medicine of the kind, which will answer the purpose, and is least likely to disturb the stomach. Clysters are not eligible, because the change of position, which they require, is often extremely difficult and painful.

The great tumult raised on the first attack of the disease be-

ing appeas'd, the quantity of wine and opiates may be lessened, or they may be less frequently given; but in this we are to be guided by the degree of debility and irritation that remains. As a preventative also, when the disease is threatened, a generous diet and wine are to be allowed, if the appetite of the patient will allow her to take nourishment.

When the constitution is, according to the old mode of expression, fortified, and the health somewhat restored, the swelling of the leg is to be considered rather as of a chronic, than of an acute kind, and all reasonable endeavours may be used, to disperse it. I have then given the *decoctum cinchonæ* or *cascarilla*, with a saline draught, or the *kali vitriolatum*, or *magnesia vitriolata*, or a strong infusion of burnt sponge, two or three times a day, and every night at bed time, half a grain, or a grain of calomel, with or without an opiate. In some cases I have thought it more eligible to give from three to five grains of calomel twice a week, with a purging draught on the following morning, and some of the draughts before mentioned on the intermediate days. In other cases the crystals of *tartar* have been liberally given in any convenient form; or the *cicuta* with a decoction of *sursa*, and various other things usually advised on similar occasions; and whenever there was much remaining weakness, some preparation of iron, as the *ferrum vitriolatum* or *ammoniacle* in suitable doses have been of much service.

Then also it is necessary to support the swelled limb by a slight flannel bandage drawn gradually tighter, and to use different applications, such as the volatile liniment, or one composed of three parts of *linimentum saponis*, and one part of *tinctur*, *cantharidum*, and sometimes small quantities of the *unguentum hydrargyri*. The frequent application of small blisters to different parts of the limb has been then strongly advised, and in many cases with evident advantage. Electricity has been tried, but of its real benefits I am not competent to judge. Certainly many patients have been much relieved by persevering in the use of warm sea bathing; and they are to be encouraged, but with some caution, to use exercise, otherwise the desuetude will endanger their being crippled. It may lastly be observed, though some women have been afflicted with this swelling of one or other of the inferior extremities in several successive labours, in general they, who have had it in one labour, are not more liable to it in subsequent ones, and are sometimes relieved during their confinement from the consequences of a former attack. And here I must conclude.

INDEX

TO

THE SECOND VOLUME.

A.

	Page.
ABDOMEN, coldness of	77
. binding the	239, 246
. pain in, after delivery	242
. integuments of, tender and inflamed	243
. abscess in	261
Abortion	147
. treatment of	151, 157
. circumstances attending	153
. not often dangerous	158
Adhesions of the vagina	38
After pains, causes and treatment of	240
Age, advanced, cause of rigidity	18
Amulets	48
Antimonial powder	259
Arm presenting	124
Attachment of the placenta over the os uteri	159

B.

Bladder, stone in the	34
Bleeding, women in labour	14
. in convulsions	204
Boom	64
Bowels, wind in	241
Breasts, flaccidity of	77

C.

Catheters	34
Cawl, what	(note) 8

INDEX.

	Page.
Cesarean operation	103
. method of performing	112
Chamberlens	63
Child, first	17
. . . head of, uncommonly large, or too much ossified	27
. . . want of motion of the	79
. . . dead, signs of	77
. equivocal signs of	82
. . . causes of death of	83
. . . method of turning	134
. . . evolution of	138
Childbed, management of women in	235
Cicatrices in the vagina	37
Clysters, utility of	6
Coldness of the abdomen	77
Consumptive women	13
Constitution, weakness of	12
. wanting sufficient irritability	15
Convulsions, puerperal	194
. description of	195
. causes of	196
Convulsions, puerperal, signs of	199
. method of preventing	201
. treatment of	203
. manner of delivering in	207

D.

De Bruyn	63
Deformity, general, effects of	17
Delivery by means of instruments	58
. management of women after	236
Difficult labours	1
Discharge, fœtor and ill appearance of	80
. of meconium	ib.
Disease, head enlarged by	28
Distortion of the pelvis	25
Douglas, Dr. his account of ruptured uterus	43

E.

Edematose swelling of the head	81
Emetics in convulsions	205
Emphysema of the head	81
Enlargement of the ovaria	40

INDEX.

	Page.
Erysipelatose tumour on the knuckles, wrists, &c.	249
Evacuation of the meconium	80
. of the brain	88
Evolution of the child	138
Excrescences of the os uteri	35
Experience, method of improving by	2
External parts, rigidity of	23
Extraction of the head	89
Extrauterine fœtus	231

F.

Face inclined towards the pubes	29
. . . presentation of	30
Fainting after hemorrhage	187
. delivery	239
Fever, preventing the proper action of the uterus in parturition	14
. . . puerperal	242
Fillet, account and description of	50
Fœtor in the apartment of the patient	79
. . . of the discharges	80
Fœtus, extrauterine	231
Forceps, various kinds of	57
. . . general observations on	54
. . . rules for applying	57
. for using when applied	58
. . . application of, under various circumstances	61
. . . compared with the vectis	67
Funis umbilicalis, shortness of	10
. division of	11
. torn from the placenta	176
. descent of before the child	222

G.

General deformity, effects of	17
-------------------------------	----

H.

Head of the child, compression of	<i>ib.</i>
. uncommonly large, or too much ossified	27
. diseased	28
Head of the child presenting with the arms	31

INDEX.

Page.

. on lessening the	-	-	-	73
. edema and emphysema of	-	-	-	81
. operation of lessening	-	-	-	86
. extracting of the	-	-	-	89
. separation of from the body	-	-	-	142
. left	-	-	-	143
Head-ach after hemorrhage	-	-	-	188
Hemorrhage depending on pregnancy and parturition	-	-	-	146
. in abortion	-	-	-	148
. treatment of	-	-	-	151
. in advanced pregnancy	-	-	-	159
. danger of	-	-	-	<i>ib.</i>
. from attachment of the placenta over the os uteri	-	-	-	162
. danger of delay in	-	-	-	<i>ib.</i>
. manner of delivering in	-	-	-	165
. from separation of the placenta	-	-	-	166
. when the placenta is retained	-	-	-	<i>ib.</i>
. when the placenta is expelled or extracted	-	-	-	184
. as connected with puerperal fever	-	-	-	256

I.

Irritability, defect of	-	-	-	15
. excess of	-	-	-	197
Ill appearance of the discharges	-	-	-	80
Inflammation, local	-	-	-	14
. of the uterus	-	-	-	244
Instruments, general reflections on	-	-	-	54
. used in lessening the head	-	-	-	85

L.

Labium, tumefaction of	-	-	-	240
Labours, difficult, definition of	-	-	-	1
. orders of	-	-	-	3
. from inert or irregular action of the uterus	-	-	-	<i>ib.</i>
. attended with fever	-	-	-	14
. from extreme rigidity	-	-	-	21
. from disproportion	-	-	-	25
. from diseases of the soft parts	-	-	-	32
. general observations on	-	-	-	43
. premature	-	-	-	95
. preternatural	-	-	-	115

INDEX.

	Page.
. distinctions of	115
. . . with hemorrhage	145
. . . with convulsions	193
. two or more children	212
. a descent of the funis	224
Leg, swelling of	275
Lessening the head	73
Lives, comparison of	74

M.

Mania lactea	269
Mechanical weight of the uterus	78
Meconium, evacuation of	80
Membranes, rigidity of	7
. too early rupture of	19
Milk, recession of	77
Mind, its influence on labours	16
Monsters	228

O.

Os uteri, oblique position of	20
. extreme rigidity of	21
. excrescences of	35
. manner of dilating	129
Operation, Cesarean	48, 103
. method of performing	112
Ovaria, enlargement of	40

P.

Palfyn	63
Passions, influence of, on parturition	16
Pain in hemorrhage, a favourable symptom	161
Pelvis, original smallness of	24
. distortion of	25, 139
Perforation of the head	87
Placenta, manner of its separation and exclusion	173
. retention of	175
. mode of extracting	178
. funis separated from	183
Presentation of the inferior extremities	115
. arm	132
Preternatural labours	115

INDEX.

	Page.
. signs of	117
. first order of	118
. second order of	124
Pubes, face inclined towards the	29
Puerperal fever	242
. treatment of	-254, 266
. dissections of	263

R.

Rhonhuysen	64
Rigidity, labours rendered difficult by	17
. of the os uteri	21
. of the external parts	23
Rupture, too early, of membranes	19
. of the uterus	41

S.

Signs of a dead child	77
. convulsions	199
. twins	215
Smallness, original, of the pelvis	24
Spasm after delivery	242
Stone in the bladder	34
Steatomatose tumours	39
Suppression of urine	32
Symphysis, section of	99

T.

Titling	65
Tumours, steatomatose	39
Turning, method of	134
Twins, signs of	214
. manner of delivering	216
. management of the placenta	219

U.

Urine, suppression of	32
Uterus, insufficient action of	3
Uterus, too great distention of	4
. partial action of	6
. rupture of	41
. mechanical weight of	78

INDEX.

	Page.
. . . contraction of	129
. . . on medicines for moderating the action of	131
. . . introduction of the hand into	175
. . . irregular action of	179
. . . inversion of	189
. . . inflammation of	242

V.

Vagina, cicatrices in	37
. . . adhesions of	38
Vectis, history and description of	63
. . . different kinds of	65
. . . comparison of with the forceps	67
. . . manner of using	70
Vomiting in hemorrhages often beneficial	161

W.

Waters imperfect discharge of	9
Weakness of constitution	12
Wind in the bowels	241
Women, consumptive	13
. . . management of in childbed	235

END OF INDEX TO THE SECOND VOLUME.

