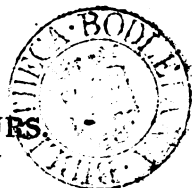


A
S Y N O P S I S
OF THE
V A R I O U S K I N D S
OF
D I F F I C U L T P A R T U R I T I O N,
WITH
P R A C T I C A L R E M A R K S
ON THE
M A N A G E M E N T O F L A B O U R S.



BY
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*Da spatium tenuemque moram, male cuncta ministrat
Impetus. Statii Theb. Lib. x.*

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PREFACE.

ABOUT a year ago, I drew up, in a nosological form, a list of the various kinds of difficult labours, most commonly met with in practice. I was induced to do this, that I might be enabled to describe each kind more precisely in my Lectures; and I published the arrangement in a small pamphlet, for the use of those gentlemen who attended my Courses.

Finding, however, that the book was often asked for, and sold at the

booksellers, and being about to publish a new edition, I was desirous of endeavouring to render it somewhat more useful, by adding such remarks upon the management of labours, as a pretty extensive practice in midwifery had taught me to approve.

But I have attempted nothing more than to give a sketch of obstetrical practice, to form such a Compendium of Midwifery as might occasionally supply the place of a more voluminous work, in suggesting a hint or a caution, or in recalling to the mind an observation useful to the young practitioner. Thus this little book may serve the purpose of a Vade-Mecum,

but will not supersede the perusal and study of more elaborate systems of midwifery.

At the end I have inserted Tables of accidents, unusual presentations, deaths, &c. in labour and childbed. The first is taken from Dr. Bland's Calculations; the second is collected from 1800 women, in my own practice; the third and fourth are from French authors; and the fifth, taken from the London Bills of Mortality, demonstrates how many more lives were formerly lost in child-bed, than are met with in modern practice.

OCT. 13, 1814.

CONTENTS.

	Page
Class 1. <i>Natural Labour</i> - - - - -	1
Class 2. <i>Difficult Labour</i> - - . - -	17
Order 1. <i>Lingering Labour</i> - - - - -	ib.
2. <i>Powerless Labour</i> - - - - -	36
3. <i>Mal-position of Head</i> - - -	39
4. <i>Deformity of Pelvis</i> - - - -	47
<i>Signs of a Dead Child</i> - - -	49
5. <i>Obstruction in the Soft Parts</i> -	53
6. <i>Displacement of the Uterus</i> - -	57
7. <i>Preternatural Presentations</i> - -	60*
<i>Nates</i> - - - - -	64
<i>Inferior Extremities</i> - - -	69
<i>Superior Extremities</i> - - -	79
<i>Back, Belly, and Sides</i> - -	93
<i>Navel String</i> - - - - -	94

CONTENTS.

	Page
Order 8. <i>Twin Children</i> - - - - -	102
9. <i>Ruptures or Lacerations</i> - -	113
10. <i>Hemorrhages</i> - - - - -	127
11. <i>Faintings and Palpitations</i> - -	145
12. <i>Convulsions</i> - - - - -	148
13. <i>Inflammation or Fever</i> - - -	160
14. <i>Retention of the Placenta</i> - -	162
15. <i>Inversion of the Uterus</i> - - -	171
<i>Of the Use of Instruments in Midwifery</i> -	ib.
<i>Of the Fillet, Forceps, and Vectis</i> - - -	175
<i>Of the Perforator</i> - - - - -	183
<i>Of the Cesarean Operation</i> - - - - -	190
<i>Of inducing Premature Labour</i> - - - -	193
<i>Tables</i> - - - - -	197

ERRATA.

Page 162, line 1, for *Relentiva* read *Retentiva*.

191, 8, for *Beaudelocque* read *Baudelocque*.

LABOURS

MAY BE DIVIDED INTO
TWO CLASSES:

1. EUTOCIA—*Natural Labour.*
2. DYSTOCIA—*Difficult Labour.*

CLASS I. — EUTOCIA,

COMPREHENDS ONLY ONE ORDER:

- I. *Eutocia Simplex—Natural Labour.*

NATURAL LABOUR. Smellie, Denman, Plenck, &c.
EASY LABOUR. Cooper.

Definition.—Natural labour is that, in which the vertex presents, the head descends readily into the pelvis, taking such a direction as brings the occiput to emerge under the arch of the pubes. The labour

B

terminates within twenty-four hours after its commencement. The placenta is expelled within one hour after the birth of the child. The whole process is passed through without danger to the mother.

* * *Mr. Burns* considers it as essential to *natural labour* that it shall not occur before the full term of nine months; he has therefore in his classification of labours, introduced *premature labour*, as his second class.

Mauriceau considered it not only essential that the woman should have reached the full term of pregnancy, but likewise that the child should be born alive, in order to constitute *natural labour*.*

“ Quatre conditions se doivent absolument rencontrer en l'accouchement pour pouvoir être véritablement dit naturel: 1, qu'il arrive à terme; 2, qu'il soit prompt, et sans aucuns accidens considerables; 3, que l'enfant soit vivant; 4, qu'il vienne en bonne figure et situation,”

Mauriceau, tom. 1. p. 202.

Of the different Stages of Labour.

Labour is divided into four stages or periods.

1. During the first stage, the head of the fetus passes through the superior aperture of the pelvis, and the os uteri becomes dilated at least to the size of a crown piece.

2. The second stage produces that change in the position of the head, which turns the forehead into the hollow of the sacrum, and brings the occiput to emerge under the arch of the pubes.

3. The third stage produces the expulsion of the child through the os externum.

4. The fourth stage is accomplished by the delivery of the placenta.*

* *Dr. Denman* divides labour into three stages only. "The first includes the dilatation of the os uteri: the rupture of the membranes: the discharge of the waters. The second, the descent of the child: the dilatation of the external parts: the expulsion of the child. The third, the separation of the placenta: the expulsion or extraction of the placenta."

Denman's Aphorisms, p. 3.

‡ Sometimes the os uteri becomes completely dilated during the first stage : at other times this is not accomplished till the second stage is nearly over.

‡*‡ The time at which the membranes rupture is very various. *The longer they remain entire, the safer in general is the labour.* . That labour is the most truly

Mr. Hogben divides labour into five stages. The first lasts from the commencement of labour till the child's head enters the brim of the pelvis. The second, is the time in which the face is passing into the lower pelvis, the face turning into the cavity of the sacrum. The third, the further advance of the head without the os externum. The fourth, the expulsion of the body and lower extremities of the child. The fifth, the discharge of the placenta and membranes.

Hogben's Obstetric Studies, p. 33.

Dr. Romer of Zurich, makes four stages of labour. The first is known by the *precursory pains: dolores præsagientes*; the second by the *preparatory pains: dolores præparantes*: the third by the *true pains: dolores veri ad partum*: the fourth by the *vehement forcing pains: dolores conquassantes*.

Romer Partus naturalis brevis Expositio.

Gottingæ, 1786.

natural, in which the *liquor amnii* (popularly called *the waters*) is not evacuated till the head of the child is just ready to pass into the world. *

Of the precursory Symptoms of Labour.

Labour is usually preceded by

1. A general and equal subsidence of the uterus and abdomen.

This is a favourable symptom, as

* "In easy natural labour, the waters are all along protruded before the child's head, in a regular form, and the membranes do not break till they have dilated the os externum; by which time the head of the child is advanced pretty low in the pelvis, and the membranes being then stretched to their utmost degree of distension, are burst in the time of a pain, by the force of the protruding waters; on which the child's head immediately falls to the edge of the os externum, and in another pain or two, the occiput rises round the edge of the pubes, and a very trifling assistance brings it into the world; and indeed it seldom requires any, the same pain that breaks the membranes, being frequently sufficient to protrude the child also."

Cooper's Compendium of Midwifery, 1766, p. 87.

it indicates that the pelvis is well formed, and that the parts are properly disposed for labour.

2. A discharge of a glairy or mucous fluid from the vagina.

When this discharge is tinged with blood it is popularly called *a show*; but this appearance is frequently not perceived till the labour has made considerable progress.

3. Frequent gripings or tenesmus.
4. A frequent urgency to make water.

Occurrences during Labour.

Pains.	Rigors.
Restlessness.	Vomitings.
Despondency.	Profuse perspirations.

Pains are of two kinds, *spurious* and *true*.

Spurious pains are to be distinguished by their irregular recurrence;
by affecting the belly more than the back or sides;
by not producing any dilatation of the os uteri.

Spurious pains are to be relieved,

- by aperients, if arising from costiveness or indigestion ;
- by absorbents, if from superabundant acidity in the intestines ;
- by opiates, if from spasm or fatigue ;
- by bleeding, if from inflammation or fever.

True pains may be known

- by their recurring at regular intervals ;
- by affecting the back and shooting round to the thighs ;
- by producing a sensible opening or dilatation of the os uteri during each pain ;
- by protruding the membranes, like a bladder filled with water, through the os uteri.

True pains are of two kinds,

1. *Grinding, rending, cutting* pains, when the os uteri first begins to open.
2. *Bearing or forcing* pains, after the os internum is somewhat opened, and the bag of waters, or the head of the child,

is forced through the circular mouth of the womb, producing its more complete dilatation, and afterwards expelling the child through the os externum.

The *restlessness* and *despondency* which parturient women experience, most commonly occur in the early stages, and are produced by nervous irritability during the continuance of the *grinding* pains : these symptoms are generally removed or relieved when the *bearing* pains come on.*

Rigors or *thrillings* often happen during the dilatation of the os uteri ; sometimes they accompany every pain ; more frequently they prevail most, when the os uteri first begins to dilate, and at the time when the dilatation is about to be fully accomplished. Not uncommonly they precede the passage of the head through the os externum, and terminate by

* Great restlessness and jactitation sometimes occur in *dystocia diutina*, when the patient's strength becomes nearly or quite exhausted, and are then to be looked upon as dangerous symptoms.

producing a violent cramp in the lower extremities.

Rigors or *thrillings* are generally esteemed favorable indications of labour; but they should be distinguished from those severe, distinct shivering fits which are the forerunners of fever, and consequently productive of danger.*

It is frequently useful to give warm diluting drinks during these rigors, such as tea, thin gruel, weak broths, &c.; but the custom of giving spiced caudle, warm beer, mulled wines, or spirits and water, is highly reprehensible, though very common among the lower ranks of society.

Vomiting is likewise looked upon as a very favourable occurrence during labour, agreeably to an old adage often quoted in the lying-in chamber, that "sick labours are safe ones:" and inasmuch as it removes from the stomach

* Shivering fits, the forerunners of fever, more commonly happen in long and difficult, than in natural labours.

improper food or drink which are often, particularly among the lower ranks, the exciting causes of this symptom, it is beneficial.

Vomiting is likewise sometimes useful by producing relaxation; thus it is often observed, that pains accompanied with vomiting occasion a greater and more rapid dilatation of the os uteri, than would be produced by the pains alone, without the vomiting.

But vomiting ought to create alarm,
 if it occurs after a long continuance of labour,
 if the os uteri is completely dilated,
 if the pains are suspended, or have altogether ceased,
 if the patient is feverish,
 if the fluid ejected be of a dingy, sanguineous, or blackish hæc.

Perspiration is a natural consequence of labour; but the degree of it depends upon various causes and peculiar constitutions. The relaxation that natural perspiration produces in the system, doubtless tends to facilitate par-

turition; but artificial perspiration brought on by loading the patient with too many bed-clothes; by keeping the lying-in chamber too hot and close; or by giving heating liquors; exhausts the strength, and tends in every instance to delay the progress of the labour.

Rules for the Management of Natural Labour.

1. Natural labour requires but little assistance on the part of the accoucheur. He must recollect that the dilatation of the soft parts will be effected by the natural pains, assisted by the bag of waters gradually insinuating itself through the os uteri and vagina, much more easily and more safely, than by any artificial means that he can employ; of course no attempts ought to be made by him to produce artificial dilatation.
2. During the first and second stages, the patient may be allowed to sit, stand, kneel, or walk about as her inclination may prompt her; if fatigued she should repose occasionally upon the bed or a couch, but it is not expedient during these

two stages that she should remain very long at a time in a recumbent posture.

3. She should be supplied from time to time with mild bland nourishment in moderate quantities. Tea, coffee, gruel, barley water, milk and water, broths, &c. may safely be allowed. Beer, wine, or spirits, undiluted or diluted, should be forbidden : they are very rarely required even when the third stage of labour is nearly terminated, but in the earlier periods, are almost always manifestly injurious.

The attendants in the lying-in chamber frequently object to toast and water, lemonade, oranges, and other subacid fruits, &c. but under many circumstances such articles are highly grateful to the patient, and may be indulged in without hazard.

4. Frequent opportunities should be afforded the patient of passing her water.
5. If costive, the bowels should be opened by castor oil or other mild aperient, or by clysters.

6. It will be necessary for the practitioner to pass his finger occasionally *per vaginam*, in order to judge of the progress of the labour: but this should not be too often repeated, and great care must be taken not to rupture the membranes.
7. The spirits of the patient should be kept up by kind and cheerful conversation. All noisy discourse, all conversation on melancholy or unpleasant topics, should be checked. Particularly no mention should be made of unfortunate cases in midwifery. Reflections on the conduct and behaviour of other practitioners should be discouraged.
8. Towards the end of the second stage of labour the patient should be placed upon the bed properly made up and secured; and in the third stage, as soon as the head of the child begins to protrude through the os externum, the accoucheur should place his hand covered by a soft napkin in such a manner as shall support the perinæum and guard it from laceration.

9. After the head has passed, it is best to wait for another pain or two to expel the shoulders, and not hastily to drag them into the world.
10. After the child has breathed freely and cried vigorously, a ligature may be made upon the navel string at a distance of one or two inches from the belly, and another an inch nearer to the placenta, and the funis should be divided with a pair of scissors between the two ligatures. This operation should never be performed under the bed-clothes. A surgeon-accoucheur not long since included one of the little fingers of the child in the ligature which he had made upon the funis, and cut off the first joint with his scissors. This accident could not have happened had he brought the part to be divided into view.
11. After the child is born, secondary pains come on to separate the placenta; these usually occur in less than twenty minutes,

and the placenta is thrown by them into the vagina, from whence it is easily extracted by the accoucheur.

12. Before the practitioner quits his patient he should

1. lay his hand upon the abdomen, to satisfy himself that the whole contents of the uterus are expelled;
2. feel her pulse, that he may not leave her in a state of faintness;
3. examine that the funis of the child is properly secured.

Labours of the class EUTOICIA do not often last so long as *twenty-four* hours, especially if the woman has already borne a child. Of the last 200 women that I have attended in *natural labour*,

64 were delivered within 6 hours : here were no first children.
 76 12 hours : among these were 11 first labours.
 46 18 hours : among these were 14 do.
 14 24 hours : among these were 7 do.

200

32

****** Should any circumstances arise during the process of parturition that make it more painful, slower, or more difficult than ordinary; that place the mother's life in danger; or that render artificial assistance necessary; such labour must be reckoned as belonging to the class **DYSTOCIA**.

CLASS II. — *DYSTOCIA*.

COMPREHENDS FIFTEEN ORDERS.

Order 1. *Dystocia Diutina* — *Lingering Labour*.

NATURAL LABOUR, No. 3. LINGERING LABOUR.
 SLOW AND PAINFUL LABOUR. Watts. [Smellie.
 LINGERING AND PERPLEXING LABOUR. Cooper.
 TEDIOUS LABOUR. Burns, Class IV.
 DIFFICULT (BUT NATURAL) LABOUR. Hogben.
 DYSTOCIA PROTRACTA. Young's Nosology, Cl. V.
 Order 17, § 6.

Definition.—Labour in which the head presents as in *EUTOCIA*; which terminates without danger to the mother; which is effected principally by the natural pains; but which occupies a space of time exceeding twenty-four hours.

Dystocia Diutina, is usually attributable to one or more of the following causes.

- a. original or accidental weakness of habit in the mother, producing inert,

or irregular or partial action of the uterus.

Dystocia à Debilitate.—Sauvages,
O. 22, § 1.

Tedious Labour. Order 1. Burns.

- b. a rigid and undilatable state of the os uteri, and other parts concerned in the process of parturition.

Dyst. ab Angustia. Sauvages, § 4.
Tedious Labour. Order 2. Burns.

- c. small size of the pelvis, or a very slight degree of distortion.

D. ab Angustia. Sauvages.

- d. the size of the fetus being unusually large, or the bones of the head not easily compressible.

- e. monstrous formation of the fetus.

D. à Mole Fœtus. Sauvages, § 5.
Laborious labour from increased bulk of the infant. Hamilton.

- f. extreme distension of the uterus, from an excessive quantity of the *liquor amnii*.

g. extraordinary thickness of the membranes (*chorion and amnion.*)

h. too early an evacuation of the *liquor amnii.*

i. Sudden and violent affections of the mind.

D. à Pathemata. Sauvages, § 3.

k. the fetus being dead.

D. à Fatu mortuo. Sauvages, § 6.

l. The *funis umbilicalis* being naturally too short, or accidentally shortened by being twisted round the child.

The method of managing women in lingering labour must in a great measure depend upon the cause of the difficulty.

1. In treating difficult labours arising from the first cause enumerated (a), it will be necessary to allow a great deal of time for the parts to develop themselves. The patient's strength must be supported; and this will be best effected by mild nourishment, as gruel,

arrow root, panada, chocolate or cocoa, beef tea, veal broth, &c. If the pulse requires it add a little wine.

Open the bowels by clysters. Avoid fatiguing the patient. Be careful not to keep her too hot, or much oppressed by the weight of the bed-clothes. Change her posture occasionally. Encourage her by a cheerful unembarrassed manner. Promise a safe delivery, but avoid fixing any period for the duration of the labour.

Medicine does not seem capable of doing much good, in such cases: yet sometimes it may be expedient to amuse the patient by giving a few drops of *liq. vol. corn. cervi*,—*spir. ammon. comp.*—*spir. ætheris sulphur.*—or *sp. lavend. comp.* in *camphor julep*, or *aq. menth. virid.*

If there be a want of rest, from m̄x to m̄xx of *tinct. opii.* may be given with great advantage. Much larger doses of opium, namely to the extent of 6, 8, 10 grains of *extr. opii.* have been recommended in this

kind of slow labour with a view to relax spasm, and render the uterine action more perfect; but such herculean doses can very rarely be necessary, and would not always be safe.

2. In labours of the next kind (b) our great resource is to allow time. The *grinding pains* will frequently last for 12, 18, 24, and 36 hours: while these continue, speak of them as only preparatory pains, not as the real pains of labour.

If the teasing irksomeness of the pains prevents the patient from getting rest, give at discretion a dose of laudanum.

Let the patient keep pretty much in an erect posture, but be careful not to overfatigue her. Avoid whatever is likely to produce fever. Let her diet be spare and simple. Her drink should be tea, or toast and water, or milk and water, or barley water. Avoid cordials and stimulants.

Pay great attention to the state of the bladder, that it may not become over distended.

Open the bowels by clysters, or by castor

oil, or by salts dissolved in emulsion or gruel.*

Fomentations to the abdomen have been recommended; but I have not experienced any marked advantage from them. Sitting over the steam of warm water is sometimes beneficial.

Some practitioners are fond of introducing lard or pomatum in order to induce relaxation; but this never does good unless the rigidity is confined to the vagina or external parts; it may then be frequently used with advantage.

* In cases of lingering labour, especially if the pains had become suspended, *Mauriceau* was partial to the practice of giving an infusion of two drams of senna in a small quantity of water, acidulated with the juice of a Seville orange: after this had been taken about two hours, he threw up a stimulating elyster. And from the combined effect of these remedies he frequently experienced great advantage. It has been thought that the griping quality of the senna and orange juice, was the cause of stimulating the uterus to fresh exertions by sympathy with the bowels. I have several times tried *Mauriceau's* remedy with good effect; but a solution of salts or castor oil are, according to my experience, equally useful. The practice of giving aperients by the mouth, is often of use during labour, especially in women habitually costive.

Gardien and other French accoucheurs, inject mucilaginous liquids, (as *infus. althææ vel lini*) into the vagina; and where there is a want of the natural mucus, and much heat and soreness in the parts, this may probably be a useful practice. *Rueff*, who published in 1554, recommends to introduce a composition of oil and the whites of eggs.

In cases of great rigidity, particularly if there be any tendency to inflammation, the abstraction of blood is frequently beneficial. This practice has been carried to a great extent in America, where women have been bled to the amount of 20, 30, 40, 50 or more ounces at a time, for the purpose of producing general relaxation, and consequently a more speedy dilatation of the os uteri and the external organs. But it may be doubted whether patients in general would recover well after so great a loss of blood.

An accoucheur at Paris lately professed to teach a secret, by which all women, even the most deformed, might be easily delivered. His method was to give an emetic to the par-

turient woman, and he expected that the violent straining to vomit would greatly contribute to force the infant through the pelvis. It was soon found that this method was altogether inefficacious in cases of distortion; he was therefore compelled to restrict the practice to cases of slow labour, where the pelvis was well formed; but even in these cases, this plan does not seem to have been productive of much advantage,* and is, I believe, at present, seldom employed.

Upon the principle of producing relaxation, the use of the warm bath has been recommended. This was tried by *Dr. Smith* in America, but excessive hæmorrhage was so often found to be the consequence, that this practice was abandoned. *Gardien* considers that this accident might be prevented, by having recourse to bleeding before the bath was used; but he does not appear to speak experimentally.

Upon the same principle of inducing relax-

* See *Gardien Traité d'Accouchemens*, tom. ii. p. 273—1807.

ation and consequent dilatation of the os uteri, clysters of tobacco were recommended in America; but the alarming symptoms which followed in the single case where tobacco was thus employed, will, I trust, prevent a repetition of this experiment.*

3. The treatment of *dystocia diutina* arising from either of the causes marked (c) (d) (e) must be nearly the same. Much must be trusted to time. If care be taken to avoid all causes of fever and inflammation, and to prevent the patient from exhausting her strength by unavailing strainings, the labour may be suffered to proceed for very many hours without danger; and at length the head of the fetus may be squeezed through the pelvis, very much elongated and compressed: yet the child may be born living, and the mother may have a favourable recovery.

* See "An Essay on the Means of lessening Pain, and facilitating certain Cases of difficult Parturition. By W. P. Dewees, M. D." 1806. And the *Medical and Physical Journal*, vol. xviii.

4. *Dystocia diutina* has very often been ascribed to one or other of the causes marked (f) and (g), but frequently without sufficient reason.

When an excessive quantity of the *liquor amnii*, or an extreme thickness of the membranes is *really* the cause of a slow labour, the obvious remedy is to rupture the membranes: but this requires very great caution; for if rupturing the membranes does not produce manifest advantage, it almost always occasions great inconvenience, increases the distress of the patient, and not uncommonly places her or the child in a state of danger.

It may be safely laid down as a rule, (which will admit of very few exceptions) that the membranes should not be artificially ruptured,

1. while the head of the fetus, or a large portion of it, is above the brim of the pelvis.
2. while the os uteri is undilated, or in a state of rigidity.

3. while the perinæum is thick and firm, or rigid.

These rules are especially to be observed, if the woman is in labour of her first child.

5. The membranes sometimes rupture spontaneously (h) without previous notice, or any explicable cause. When this happens, the *waters* usually escape from the uterus, in small quantities at a time, keeping the woman constantly wet and uncomfortable. This is called the *dribbling of the waters*: and no uterine action comes on till nearly the whole of the *liquor amnii* is discharged; so that frequently 24, 48, or more hours elapse, before any true labour pains are felt. When labour actually takes place, it often terminates as safely as if this accident had not happened: but commonly the pains are more severe and *cutting*.

Very little can be done on the part of the practitioner, except observing the rules, that are applicable to the case of rigidity of the soft parts (b). It is right to examine *per vaginam* early after the *waters* have begun

to drain away, in order that he may be satisfied whether the fetus presents properly: if not, the patient should be frequently visited, and a strict injunction should be given to the attendants to send for the accoucheur, as soon as the pains of labour commence.

It has been proposed to introduce a finger within the os uteri, and lift up the head of the child, so as to allow a more expeditious discharge of the *waters*: but this could not often prove beneficial.

6. Practitioners of all ages have agreed that the action of the uterus is very much influenced by the mental powers (i). Evidences of this are to be found in many medical records; and the fact is presented to our view in many occurrences of common life. It is therefore to be considered of importance, that the mind of the parturient woman should be kept as easy and tranquil as possible.

7. The death of the fetus (k) is not necessarily a cause of lingering labour. The affection of the mother, of whatever nature it might be,

which occasioned the death of the child, may possibly retard the labour, otherwise it will terminate favourably, unless the size of the fetus is increased by putrefaction.*

8. Shortness of the navel string (l) will seldom be a cause of lingering labour, till the head is about to pass through the external parts: it may then be an impediment to the birth by occasioning the head to be retracted after each pain.

We are not however always to conclude, that the retraction of the head is produced by shortness of the funis; for the resiliency of the parts, especially in first labours, occasions a greater or less degree of retraction of the head.

The delay in the labour which shortness of

* "When a child after death becomes putrid, and thence enormously swelled by the included and rarefied air, the birth will be impeded, but the difficulty will arise not from the death of the child, but from its increased bulk."

Bland's Description of the Lever.

the funis occasions, is generally soon overcome. Changing the position of the woman sometimes facilitates the birth.

It has been recommended, after the head is born, if the birth of the shoulders is prevented, by the navel string being twisted round the neck of the child, to introduce a pair of scissors, divide the funis, and thus set the parts at liberty. This operation may sometimes be expedient; great care being taken to guard against doing mischief: but it is proper to remark that *Dr. Denman* relates a case of the death of the infant from dividing the funis under these circumstances.*

Besides the causes of difficult parturition above enumerated, it sometimes happens that incautious practitioners occasion lingering labours, by mismanaging the different stages, and thus interrupting the natural progress of the labour: and this may be effected,

* *Introduction to Midwifery*, p. 288, 4to. edit.

by the injurious practice of giving cordials and strong drinks, under a false idea of supporting the patient's strength ;

by keeping the room too hot and close ;

by letting the patient remain too long in bed ;

by allowing too much company, who fatigue the patient by their noise and talking ;

by urging the woman to exert herself in *bearing down* before the parts are well dilated ;

by injudicious and unavailing attempts to give assistance ;

by prematurely rupturing the membranes ;

by suffering the bladder to become over distended ;*

by not timely opening the bowels.

Whenever from any such cause the progress of the labour is impeded or suspended, it

* This forms "*Complicated Labour.*" Class 7. Order 6. *Burns.*

becomes the practitioner to retrace his steps, and endeavour to place his patient in the same state that she would have been in, had he not indiscreetly admitted of such injurious practice. The rules already laid down for the treatment of *dystocia diutina*, when occurring from natural causes, will be applicable to the cases, which are rendered difficult by artificial causes.

Instances of *dystocia diutina*, including first and all other labours, probably occur as often as *once in 30 cases*: but it is very difficult to form an exact average. They are much more common with first children than with others.*

From what has been remarked respecting this order of labours, it is apparent:

* Among the last 120 women that I have attended in their first labours—

95 were cases of *eutocia* ;

56 being delivered within 12 hours.

39.....in between 12 and 24 hours.

that many causes may produce *dystocia diutina* ;

that in all such cases much delay must necessarily take place ;

that frequently very little progress will be made, though the labour may have lasted for several hours ;

that sometimes many days will elapse before the termination of the labour ;

25 were cases of *dystocia diutina*.

9 were delivered in between 24 and 30 hours.

9..... 30 and 40

2..... 40 and 50

2..... 50 and 60

2..... 60 and 70

1..... 70 and 80

All the above women recovered perfectly from the state of child-bed, and *two* only of the children lost their lives during the labour. In one of the cases where the child died, the mother was only 20 hours in labour: in the other case, the woman was 68 hours in labour.

Six others of the children were dead born, but had evidently been dead several days before the labour came on.

yet it may at length terminate safely both to the mother and the child, without artificial assistance.*

It must however be remembered, that all women are not equally capable of undergoing such long continued sufferings as sometimes occur in this order of labours. Occasionally

* *Mr. Burns*, in his "Principles of Midwifery," first edit. p. 242, quotes from *Dr. Breen's Tables of Labours at the Dublin Lying-in Hospital* :

172 cases of slow labour in women with their first children.

91 in women who had formerly borne children.

In the first class 34 were from 30 to 40 hours in labour.

.....102 40 .. 50 do.

..... 24 70 .. 80 do.

..... 12 90 ..100 do.

And 121 of the children were born alive.

In the second class 28 were from 30 to 40 hours in labour.

..... 48 40 .. 50 do.

..... 6 50 .. 60 do.

..... 9 70 .. 80 do.

And 66 of the children were born alive.

No mention is made of any death among the women, it may be presumed therefore that they all recovered.

it will be found, that cases of *dystocia diutina* will be so long protracted as to bring the patient into a state of exhaustion which deprives her of the power of further exertion: when this happens the case no longer belongs to the order *dystocia diutina*, but comes under the next order.

Order 2. *Dystocia Anenergica*—*Powerless Labour.*

DIFFICULT AND PERILOUS LABOUR. Cooper.
 LABORIOUS LABOUR. Order 2. Hamilton.
 LABORIOUS, OR INSTRUMENTAL LABOUR. Burns.

Definition.—Labour of long but indefinite continuance, in which the pains becoming weak and inefficacious, or being entirely suspended, and the patient exhausted by her sufferings, it becomes necessary to afford artificial assistance to terminate the labour.

D. Diutina and *D. Anenergica* may be distinguished from each other by the following symptoms :

Favorable Symptoms constituting Dystocia Diutina.

1. A regular recurrence of uterine action.
2. Perceptible progress in the labour, however slow.

3. The patient's strength being unimpaired.
4. Her mind being tranquil.
5. A disposition to quiet sleep in the intervals of her pains.
6. The absence of fever or inflammation.
7. The vagina and os uteri feeling cool and moist.
8. The patient possessing the power of voiding her urine.

, While these symptoms are present, the labour may be safely trusted to nature.

Unfavorable Symptoms indicating Dystocia Anenergica.

1. Severe shivering fits unconnected with dilatation of the os uteri, or of the passage of the head through the os externum.—See p. 9.
2. Frequent or constant vomitings after the os uteri is dilated.
3. The accession of fever.
4. Great restlessness or jactitation.

5. A disturbed and anxious mind.
6. The want of true uterine action, though there may be irregular and unproductive pains, and this happening after many hours of labour.
7. Heat and soreness in the vagina and os uteri.
8. Offensive discharges from the uterus.
9. Violent and continual pain and soreness, or tenderness of the belly.
10. Low muttering delirium.
11. A quick and weak, or low sinking pulse.
12. Clammy sweats.

In proportion to the number and severity of these symptoms will be the danger of the patient, and unless artificial aid be timely afforded, both mother and child will perish.

The assistance to be afforded will generally be that of the *forceps* or *vectis*; for, unless in cases of distorted pelvis, the head of the fetus will have sunk low enough to allow the ear to be felt, before the strength of the patient becomes quite exhausted.

**Order 3. *Dystocia Perversa* — Labour, the
Head presenting in a wrong Direction.**

NATURAL LABOUR, No. 2. Smellie.

VARIETY OF NATURAL LABOUR. . Denman.

PRETERNATURAL LABOUR. Class 3. Order 5. Burne.

The French writers on midwifery enumerate more than twenty kinds of malposition of the head, but it is sufficient for all useful purposes to resolve them into three :

- a. The forehead turned towards the pubes.
- b. the face presenting.
- c. the position of the head altered, by the descent of the hand or arm with the head into the pelvis.

1. The most common of all the wrong presentations of the head, is that of the forehead towards the pubes (a), divided by *M. Gardien* into three species :—

Position fronto-cotyloïdienne gauche.

——— *fronto-cotyloïdienne droite.*

——— *fronto-pubienne.*

Traité d'Accouchemens, tom. ii. p. 307.

This kind of presentation is seldom discovered at the first examination. The accoucheur having ascertained that the head is the presenting part, feels little solicitude about its exact position. The labour, however, being much more severe, or continuing longer than he had expected, because in this position the bones of the fetal head do not readily adapt themselves to the shape of the pelvis, he is induced to make a more accurate examination, and then discovers the wrong position by the following indications: —

The presenting part is not so conical towards the arch of the pubes.

The bones do not *ride* one over the other.

The scalp does not form into a *cushion*.

The hollow of the sacrum is not so completely filled up by the head.

The *anterior fontanelle* is to be felt towards the symphysis pubis.

The sagittal suture inclines towards the back of the pelvis.

This kind of labour is not in general very unmanageable. The head may be longer than ordinary in passing through the pelvis; but if this be well formed, and the pains are strong, it will be at length excluded, and in the majority of cases the child will be born alive.

It is necessary to pay particular attention, to prevent a laceration of the perinæum: for the external parts are excessively stretched when the head passes in this direction. Even women, who have borne many children, have had the perinæum lacerated, under the circumstances of this kind of presentation.

2. The presentation of the face (b), may be known by the general inequality of the presenting part, and by the distinction of the eyes, nose, mouth, and chin.

When the face is the presenting part, the most favourable, and according to *Dr. Den-*

man the most usual position, is with the chin towards the *symphysis pubis*.

The management of this case must in a great measure be left to nature and time, which will gradually effect the delivery: but the bones of the face not being capable of compression, do not yield to the form of the pelvis, and therefore very often many hours elapse with but little perceptible progress. The children are usually born alive, but the features of the face are amazingly distorted, and do not recover their proper appearance sometimes for many days.

We have been directed, to get a finger into the mouth of the child, and to press down the chin upon the breast, or in any other manner, to endeavour to alter the position of the head. There is, however, but little probability of doing good by this manœuvre, and some hazard of doing mischief.

It has been strongly recommended, among others by *Smellie*, *Burton*, and *Cooper*, to turn and deliver footling in face cases: and this practice was enjoined upon the

supposition that the life of the child would be sacrificed, unless the labour was quickly terminated: but experience has shown in this and many other points of practice, that the safety of the child is not always commensurate with the quickness of the labour.

3. Independent of the awkwardness of position, which the head may assume from the circumstance of the hand or arm descending with it into the pelvis (c), there will be so much increase in the bulk of the part, as to render its passage slow and difficult. Yet, if the case be not interrupted by mismanagement, it will terminate favourably; for this complication of presentation seldom happens but in a wide pelvis.

There will be some difference in the difficulty of the labour, according to the manner in which the superior extremity enters the pelvis.

If it be only the fingers or hand coming down in a flattened shape, by the side of the head, the difficulty will not be very great: If the elbow be the part, with the fore-arm bent

back upon the humerus, the difficulty will be increased. And it will be still more perplexing, if the hand and arm have descended before the head, the head resting upon the arm, at the bend of the elbow.

Occasionally it will be practicable, by means of the operator's fingers, to prevent the hand or arm from descending below the brim of the pelvis, till the head has sunk so low as to be clear of the impediment: but in attempting this, care must be taken, not to make the case more embarrassing by drawing the arm down lower, or forcing the head above the brim of the pelvis; for this might convert the case into a truly preternatural labour, and render the turning of the child necessary.

The arm of the child is often very much bruised and tumefied in consequence of this position, and it is sometimes difficult to persuade the attendants that it is not fractured or dislocated. I have not, however, known an instance, in which the arm did not recover itself in a few days.

The rules laid down for the management of labours of the order *dystocia diutina*, are applicable to those of *dystocia perversa*. In both, the labours are painful, difficult, and slow: yet in both, the efforts of nature are usually sufficient to effect the delivery without artificial assistance, or at least, with that assistance, which a single finger may give.

Care must be taken to preserve the patient from fever, to keep her spirits calm and undisturbed, and to husband her strength; she should not be permitted to fatigue herself in vain attempts to force the child forwards, before the parts are properly prepared to let it pass; nor ought she to be kept too much in bed, lest she be weakened by profuse perspirations under a load of bed-clothes. Her bowels must be occasionally relieved, by laxative medicines or clysters, and the urine must not be suffered to accumulate in the bladder.* Under such

* Perhaps there is a particular tendency to suppression of urine in face presentations; at least I have found this inconvenience to happen in several labours of this nature to which I have been called.

treatment the process of parturition may continue for a long time without hazard:

If, however, the *favourable* symptoms of labour before enumerated (p. 36) gradually disappear, and those which are *unfavourable* begin, we must consider this order of labours to be degenerating into *dystocia anenergica*, and must adopt such measures, to insure our patients from danger, as the nature of the case may require.

Order 4. *Dystocia Amorphica* — Labour rendered difficult from Deformity in the Bones of the Pelvis.

DYSTOCIA AB ANGUSTIA. Sauvages, Cl. 7, O. 26, § 4.
 DYSTOCIA AMORPHICA: Young, Cl. 5, O. 77, § 4.
 LABORIOUS OR INSTRUMENTAL LABOUR. Cl. 5. Burns.
 IMPRACTICABLE LABOUR. Cl. 6: Burns.

Distortions of the pelvis may arise—

from *rachitis* in infancy.

from *mulacosteon* in more advanced life.

from *exostosis*.

from fracture or dislocation of the bones of the pelvis.

From whichever of the above causes the deformity proceeds, the capacity of the pelvis will be so much intrenched upon, as to oppose an impediment to the passage of the child, not only in first but in all future labours.

Yet sometimes the efforts of the uterus will

be sufficient to force the child with the head much compressed through the deformed pelvis. Much in such cases will depend upon the smallness and compressibility of the head, and the strength of the pains.

It becomes us to be exceedingly cautious not to suppose upon light and insufficient grounds that the distortion is too great to allow the child to pass without the intervention of instruments; and particularly when there is a question about employing the perforator, an instrument always incompatible with the life of the child, we ought to weigh every circumstance very carefully in our minds, *and if possible procure the opinion of some other experienced practitioner*, before we determine upon having recourse to it. The existence of a human being depends upon our decision, we ought not therefore to decide but with the greatest deliberation and wariness:

Nulla unquam de morte hominis cunctatio longa est.

Juvenal, sat. 6.

The reluctance, which every well-regulated

mind must feel, at employing the perforator even in cases of the greatest necessity, while the infant is yet living, naturally occasions a wish to delay the operation, till there are some indications of the child's death; and these indications are sought for, in certain symptoms, which most writers on midwifery have been careful to enumerate.

These symptoms may be divided into two classes; the first are useful in proving that the fetus has been dead in utero for several days or even weeks.

These symptoms are :

- Severe shivering fits on the part of the mother, followed by
- a sense of coldness in the abdomen;
- a feeling as of a lump, or dead weight, in the uterus;
- a subsidence of the abdomen;
- a want of motion in the child;
- a flaccid state of the breasts;
- a recession of the milk.

D

But this is not what is commonly wanted. The object is to ascertain whether the child, which was known to be living when the labour commenced, has afterwards lost its life from the violence of the pains, or the severity of the labour. And this is to be judged of from the second class of symptoms, which are however more or less fallacious. I shall enumerate several of these, and offer some comments upon them as I proceed:

1. "If the woman be four days in labour, the child scarce escapes."

This is given upon very indifferent authority, that of *Culpeper*, and is never to be relied upon in cases of well-formed pelvis; but when the pelvis is much distorted, a labour of less than four days continuance is often destructive of the child.

2. An evacuation of the meconium during the labour.

Viardel considers this as a decisive proof

of the child's death, but very improperly; since in *nates* presentations, a discharge of the meconium always happens, yet in the majority of cases the child is born alive. Many authors have refuted this opinion of Viardel.

Others have supposed, that when the meconium is discharged in presentations of the head, a pretty certain proof of the child's death is obtained, but many instances to the contrary have occurred.

3. A fetor, and an ill appearance of the discharges from the uterus.

These symptoms are not wholly to be depended upon; but when they accompany others, are not to be disregarded.

4. A want of pulsation in the navel string.

The proof here is conclusive, but opportunities of examining the navel string are comparatively rare.

5. An edematous or emphysematous feel

of the scalp, with the bones of the cranium separated and loose.

These may likewise be considered as conclusive proofs of the child's death.

6. A want of motion in the child is often relied upon, and ought to be enquired about in all doubtful cases, because if the motions of the child are really felt, it cannot be dead. But very often the mother does not feel the child to move for many hours together during labour, and yet it is often born strong and healthy; want of motion therefore, in the child, cannot alone be considered as proving the child's death: but, joined with other symptoms, it will materially assist the practitioner in forming his opinion.

Order 5. *Dystocia Obturatoria*—*Obstructed Labour.*

DYSTOCIA AB ANGSTIA. Sauvages, § 4.

DYSTOCIA AMORPHICA., Young, § 4.

Definition.—Labour rendered difficult, by a mechanical obstruction in the soft parts, to the passage of the child.

- a. by the presence of the hymen, or by a cohesion of the labia, or of the vagina.
- b. by a polypous, steatomatous, or other tumour growing from the organs of generation, and obstructing the passage.
- c. by a diseased ovarium, intrenching upon the capacity of the pelvis.
- d. by a protrusion of the bladder into the vagina.
- e. by a portion of intestine or omentum, forming a hernia in the vagina.

1. All the species of this order of labour are of very rare occurrence. Those of the first kind (a) will not probably occasion much embarrassment to the accoucheur; the action of the uterus will alone be sufficient, in most cases, to overcome the difficulty.* Should it, however, be found necessary to do more, an incision must be made through the obstruction; very great care being taken not to wound or injure any contiguous part.

I have met with *one instance only* of the presence of the hymen during parturition.

2. Tumours growing from the organs of

* Fui ego advocatus ad mulierem parturientem, cui vagina adeo erat angusta, ut nec ego nec obstetrix digiti minimi apicem, poterimus vaginae immittere, maritus a triennio, quo ipsi matrimonio erat junctus, nunquam more solito coitum exercere cum illa potuit. Interim tamen spatio 18 horarum dolores parturitionis vaginam adeo dilatabant, ut partus sine omni rupturâ vaginae, vel genitalium finiretur.

Plench Elementa Artis Obstetricia, p. 113.

generation (b) are sometimes so small and compressible as to occasion little or no impediment to the passage of the child. But, occasionally, they have been found to occupy so large a space as to render delivery impossible without the intervention of art.

Should the case be such as to allow the difficulty to be overcome by employing the forceps or vectis, there could be no hesitation in having recourse to either of these instruments. But if there be no chance of succeeding with any instrument, short of using the perforator, it would be right to pause, and to consider whether to remove the tumour, or to diminish the size of the child, would be most likely to be attended with ultimate advantage; and so much will then depend upon the size, situation, and nature of the tumour, that it is impossible to lay down exact rules upon the subject.*

* See "*Two Cases of Tumours in the Pelvis, &c.*" by P. P. Drew, M.D." in the *Edinburgh Medical and Surgical Journal*, vol. i. p. 20. 1805.

3. Cases of diseased ovarium, intrenching upon the capacity of the pelvis, have been mentioned by several writers on midwifery.* Should the ovarian tumour be occasioned by an accumulation of fluid, it would probably be better practice to puncture the tumour and evacuate its contents, than to diminish the size of the child's head.

It is however of the utmost consequence to be well assured that the tumour is ovarian, and not a protrusion of the *vesica urinaria* into the vagina (d)†, which may be always ascertained by passing a catheter; nor a hernia of the intestines (e), which will be relieved by procuring stools.

* *Denman's Midwifery*, 4to. p. 324.—*Baudelocque's Midwifery*, § 1963.—*Medico-Chirurgical Transactions*, vols. ii. and iii.

† See "*Hamilton's Select Cases in Midwifery*," p. 9. 1795; and a very instructive paper by *Mr. Christian*, in the *Edinburgh Medical Journal*, vol. ix. p. 281.

Order 6. *Dystocia Ectopica* — *Difficult Labour from Displacement of the Uterus.*

UTERUS OBLIQUATUS. Deventer.

HYSTEROLOXIA ANTERIOR — LATERALIS — POSTERIOR. Sauvages.

HYSTEROLOXIA LATERALIS. (*Imperfecta*).

———— ANTICA — POSTICA — (*Perfecta*). Plenck.

Most authors enumerate three species of obliquity of the *uterus*.

- a. The os uteri inclined towards one or the other side of the pelvis.
- b. The os uteri tilted up backwards, so as almost to reach the projection of the sacrum.
- c. The os uteri projected forwards, above the symphysis pubis.

1. The lateral obliquity of the uterus (a) can scarcely prove a cause of difficult labour; an erect posture will, if the pelvis be well formed, speedily rectify this displacement.

2. The os uteri, tilted backwards towards the projection of the sacrum (b), is not a very unusual occurrence in women with wide pelves, and it almost always occasions a slow labour.

Young practitioners are apt to be embarrassed, when they find the uterus thus situated : for upon an examination *per vaginam*, the pelvis at first seems to be filled up by the head of the child making a rapid advance towards delivery. A more accurate examination, however, shows that the part, in contact with the finger, is not the naked head of the child, but the anterior surface of the uterus spread over it. And the os uteri scarcely at all dilated, will with some difficulty be discovered towards the projection of the sacrum, almost beyond the reach of the finger.

This kind of difficult labour is best relieved by time and patience. It has been thought advantageous for the patient to take her pains, lying on her back. The method proposed by some authors, of insinuating a finger into the

os uteri, and drawing it towards the centre of the pelvis, is liable to many objections.

3. The os uteri projected above the *symphysis pubis* is a very rare occurrence. *Deventer* describes this situation of the uterus, but he does not seem to have had a very correct idea of the case. Since his time many authors have denied the possibility of such an occurrence; but there are several cases upon record which prove the fact. It is a retroversion of the uterus continuing to the full period of pregnancy.* Of this case I have known two instances. †

4. Another kind of displacement of the uterus has been spoken of by authors,† but I have never known an instance of it.

d. The os and cervix uteri sunk without the os externum during labour.

* See "*Cautions to Women, respecting the State of Pregnancy, &c.*" By *S. H. Jackson, M. D.*" p. 59. 1798.—Also, "*A Dissertation on the Retroversion of the Womb.*" By the Author of this "*Synopsis.*"

† *Medical Museum*, vol. i. p. 227. 1763.—*Memoirs of the Medical Society of London*, vol. i. p. 213.—*Medical and Physical Journal*, vol. i. p. 154.

Order 7. *Dystocia Transversa* — *Preternatural Labour*.*

DYSTOCIA A FŒTUS SIT. Sauvages, § 7.

———— PERVERSA. Young, § 3.

UNNATURAL LABOUR. Bland.

PRETERNATURAL LABOUR. Burns.

ACCOUCHEMENT CONTRE NATURE.

Baudelocque. Gardien.

———— MANUEL. Capuron.

Definition.—Labour in which any part of the child presents, except the head.*

Authors have enumerated a great variety of preternatural presentations, but they may be all resolved into the following:—

- a. Presentations of the *nates*, or of either hip, or of the loins.

* *M. M. Baudelocque, Gardien, Capuron*, and other French practitioners, do not consider the labour to be preternatural, though the nates, the feet, &c. present, provided that it terminates without the extraordinary assistance of the accoucheur. Unless his assistance is required, it is still according to them unassisted (or natural) labour.

b. Presentations of the inferior extremities.

c. _____ superior extremities.

d. _____ back, belly, or sides.

e. _____ *funis umbilicalis*.

Preternatural labours can only be known by an examination *per vaginam*.

If upon such an examination it should be ascertained that the os uteri is considerably dilated, and the child cannot be felt, this affords reason to suspect that the presentation is preternatural. Should the *liquor amnii* be discharged and the child be out of reach of the finger, the probability of a preternatural position is greater.

Should the membranes be found hanging down in the vagina, not of the usual globular form, but rather conical and small, in diameter, this likewise is a presumptive proof of a cross birth; especially if the part presenting through the membranes be smaller, feel lighter; or give less resistance when touched, than the bulky heavy head."

These, however, are but probable signs; we

cannot positively ascertain the fact, but by accurately examining the presenting part.

Whenever there are presumptive signs of a preternatural presentation, it becomes our duty to be very watchful of our patient, that we may be prepared to give the necessary assistance if it should be required; and when we have fully satisfied ourselves that the child is coming in a wrong direction, we ought to inform some of the patient's friends of the circumstance; but it is best to conceal it from herself as long as possible.

There is sometimes much difficulty in ascertaining what the presenting part is. Yet it is often of the greatest importance not to make a mistake, particularly in the presentation of the extremities. The hazard of a mistake is greatest when only one extremity presents.

The following rules will in general enable us to form a correct opinion:—

The head is known by its globular form,
and hardness.

by the sutures and fontanelles.

The face, by the inequality of its surface.
by the eyes, nose, mouth and chin.

The nates, by the softness, pulpiness, and
globular shape.

by the cleft between the buttocks.

by the parts of generation.

by the evacuation of the meconium.

The foot, by its thickness.

by the heel.

by the great toe.

by the shortness of the toes.

by the ends of the toes forming
nearly an even line.

The hand, by its flatness.

by the length of the fingers.

by the unevenness of the ends of
the fingers.

by the thumb.

by the thumb bending into the
palm of the hand.

The elbow has sometimes been mistaken for the knee or the heel; it may be distinguished by being more pointed than either of these parts.

The shoulder may be known by the clavicle and scapula; but generally when the shoulder presents, the arm is found in the vagina.

1. Of the presentation of the nates (a).

In early labour, this presentation is not always easily distinguishable from that of the head, on account of the globular feel of both parts.

Labours of this kind were formerly very much dreaded, as it was supposed that there was not room for the child in this doubled position to pass through the pelvis. Hence the older accoucheurs attempted to turn the child, and bring the head to present. Afterwards, upon the authority of *Ambrose Paré*, it became the practice to push up the nates, and bring down the feet, thus converting the case

into a feet presentation.* *Burton* strongly recommends this practice, and *Smellie* too often adopted it, but it is never necessary except in cases of distorted pelvis.

The nates may enter the pelvis in various directions; sometimes one hip only descends through the superior aperture, sometimes the child lies with its face towards the mother's belly, and at other times it is turned towards her back, and this is the most favourable position.

The first stage of labour in nates presenta-

* *Partus naturalis et facilis is demum censeatur, quo in caput infans prodit, aquarum effluxus sine mora sequutus: difficilior est quo in pedes procedente foetu fit: reliqui generes difficilissimi.* Itaque obstetrices monendæ sunt, ut quoties neutro commemoratarum partum prodire infantem cognoverint, sed vel in dorso, vel in ventrem, vel in pedes manusque simul, vel in porrectum brachium, *vel quavis alia denique contra naturam forma*, ipsum convertant et in pedes trahant: cui operi perficiendo si ipsæ non sufficiant, chirurgum exercitatum accersant. *Paræi de Hom. Generat. cap. 15.*

This seems to be the first positive injunction to turn and deliver footling in preternatural labours.

tions is frequently very slow, for though the nates and thighs do not take up so much room as the head, yet either they do not readily adapt themselves to the shape of the pelvis, or the action of the uterus is slower or less regular, in consequence of the awkward position of the fetus. No means, however, can with propriety be employed to hasten the progress of the labour; and by degrees the dilatation of the parts is effected, and the nates are forced lower and lower into the pelvis, till at length they protrude through the os externum.

As soon as this has happened, the case becomes precisely the same as a foetling presentation, and is to be managed exactly in the same way. For further rules for the management of nates presentations, see the next section, p. 73.

The danger to the mother in nates presentations is not great, the danger to the child is considerable: but if the case be well managed, the life of the child need not be so often lost as has been supposed. *Paul Portal*, who

was a celebrated accoucheur at Paris from 1664 to 1682, says, that 80 out of 100 children, presenting in this manner, will be born alive. *Portal* gives very judicious directions for the management of this kind of labour; but his instructions were disregarded by subsequent practitioners and writers. His words are, "In such a case as this, you must not be impatient, for though the labour proceeds very slowly, yet it is *not much more difficult* than a natural birth: whence it is that our midwives say by way of proverb, that where the buttocks can pass, the head will follow of course. The position of the child in this case is doubled, with his thighs upon the belly, and the passage being once opened for the buttocks by the reiterated pains, the head follows without much trouble."

I cannot help contrasting these judicious directions with those of our countryman, *Dr. John Hurton*, of York, the cotemporary

* "Complete Practice of Men and Women Midwives, &c. by *Paul Portal*, Sworn Surgeon, and Man-midwife in Paris," p. 23.

and rival of *Smellie*; who says, § 89, "When the buttocks come foremost, it sometimes happens (though very rarely) that it may be brought in this posture, if the child chance to be very small, and the passage large: but yet this is very accidental; for though we may discover the passage to be large, yet we cannot so easily judge of the child's bulk, and therefore we should attempt to bring it forth by the feet, as directed, § 88." The 88th section runs thus, "When the buttocks come foremost, the more it is suffered to advance, the more dangerous and difficult will be the labour: therefore as soon as the operator perceives, by the softness and fleshiness of the parts, what part presents, *he must immediately thrust up against the buttocks with all his strength,* but without committing violence to the child's os coccygis, or its parts of generation, which are often in this case swelled; and as he thrusts up, he must endeavour to turn the child with its belly towards the os uteri, and then search for the feet." *

* "New and Complete System of Midwifery, by John Burton, M. D." 1752.

Were this rough and barbarous recommendation of *Burton* generally followed, the most lamentable consequences, both to mother and child, could not fail of being often experienced.

Many writers on midwifery recommend, in nates presentations, when the buttocks do not readily pass through the pelvis, to insinuate a finger on each side, as high as to the groins of the child, and thus to assist the delivery. This mode of practice is very seldom necessary, and not always safe.

It has likewise been recommended, when the groins are beyond the reach of the finger, to introduce a blunt hook, by which to extract the child: but though in the course of my practice I have attended very many cases of nates presentations, I have never yet found it necessary to have recourse to this expedient.

2. Of presentations of the inferior extremities (b).

This is the most, simple, and probably the safest to the mother, of all the pretermatural positions: but the hazard to the child is considerable, particularly if it be a first labour.

The danger to the child arises principally from the compression of the navel string between its own head and the parts of the mother, as the child passes through the pelvis.

The great object of the accoucheur, then, is to prevent this compression; and this is to be effected, by getting the head of the child through the pelvis, with all proper expedition, as soon as the body of the child is born.

In order for this, it is *not* necessary to hasten the delivery of the body of the child: on the contrary, it is desirable, that the delivery of the body should be effected slowly; for thus the parts of the mother will become more dilated and spacious, and of course there will be less resistance opposed to the passage of the head.

But if attempts are very early made to reach the feet, and to expedite the delivery by drawing them down, and afterwards to extract the body rapidly, it will probably be found, when the head comes to occupy the pelvis, that the soft parts of the mother will be too rigid to let the bulky head pass through them; and thus so much delay will take place, as to destroy the child.

If, therefore, at the beginning of the labour, the membranes should be entire, let great care be taken not to rupture them, till all the dilatation that can be effected by the pressure of the bag of waters is produced.

Or if the membranes should be ruptured, and the feet are felt naked in the vagina, let no hasty attempt be made to extract by them: it will be better to leave the case entirely to nature, till the nates have passed through the os externum; by which time the parts will be dilated as much as circumstances will allow.

But when the nates are born, the attention of the accoucheur is demanded.

In order that the head of the child may pass conveniently through the pelvis, it is necessary, that it be so inclined, as for the forehead to occupy the hollow of the sacrum, after the head has passed through the superior aperture. The long diameter of the head must, therefore, first, be in the direction of the long (or transverse) diameter of the pelvis, and afterwards the forehead will fall into the hollow of the sacrum.

It becomes us, then, carefully to attend to the position of the child; and this is ascertained by examining the feet. If the toes are turned towards either *sacro-iliac synchondrosis*, the child is already in a right direction: for when the forehead has passed through the superior aperture of the pelvis, it will naturally slide into the hollow of the sacrum, and the passage of the head through the pelvis will be much facilitated.

But if the toes point to the *symphysis pubis*, or belly of the mother, the head will come in an unfavourable position: it will not readily adapt itself to the shape of the pelvis: probably in passing, the chin will hitch upon the *ossa pubis*, and it will be difficult to extricate it from this untoward situation.

To guard against this accident, it will be proper, as soon as the nates* have passed through the *os externum*, to take hold of both thighs with a warm napkin; and, when the next pain comes on, to give such an inclination to the body of the child, by guiding it with the hands, as will direct the face towards the mother's spine.

There is no difficulty in effecting this turn, if it be done prudently and cautiously. Much force is not required; nor is it necessary that

* The following rules are applicable, as well to cases where the nates is the presenting part, as where the feet first come down.

the child's body be turned quite round to the mother's back: an inclination towards the back is all that is wanted.

During the pain, which, with the assistance of the accoucheur, produces this turn of the child, it is probable that the whole of the body will be expelled, and nothing will remain in the pelvis but the child's head, with the arms extended on each side above it.

It has been a question much discussed, whether it be best in preternatural cases to finish the delivery, leaving the arms thus extended on each side of the head, or to draw them down by manual assistance, before any attempt is made to bring the head into the world.

It has been given as a reason for not bringing down the arms, that while they are in this situation, the os uteri is prevented from contracting round the neck of the child, and thus impeding the passage of the head. But if the

early part of the labour has been permitted to proceed sufficiently slow, to allow the os uteri to become properly dilated, such a contraction is little to be dreaded; and the arms need not be suffered to remain for this purpose. I believe, that a contraction of the os uteri round the neck of the child, never takes place after the os uteri has once been completely dilated.

Another reason given for not bringing down the arms, is, that while they are thus extended above the head, the navel string is secured from pressure: but I do not understand how the pressure can be diminished, by having the bulk of the parts passing through the pelvis increased.

A far better reason for not bringing down the arms, is, the danger of dislocating or fracturing them; and, if the practitioner will be so heedless and imprudent, as to use undue force and violence in extracting them, this danger will be imminent: but if the attempt

be cautiously and judiciously made, no hazard need attend this operation.

The operation consists in passing the finger over the shoulder of the child as far as to the bend of the elbow, which is then to be gently depressed, and the fore arm commonly passes through the vagina without much difficulty. One arm being brought down, the extraction of the second becomes more easy.

In proportion to the rigidity of the soft parts will be the difficulty of the extraction: should it be found that the operator's finger can not reach the bend of the elbow, or does not readily dislodge the arm, it will be better to defer the attempt, or to give it up altogether, rather than to do injury to the infant. With first children, it will require some care to guard against a laceration of the perinæum, as the arm passes.

When the labour has proceeded so far, that only the head remains to be born, we are to extract this with all the speed that circum-

stances will admit; for if it remains long in this position, the compression upon the *funis* will be so great, as speedily to cause the child's death.

It is of importance to get a finger of the left hand introduced into the child's mouth. This serves two valuable purposes:—

1st. By this means we have it in our power to depress the chin, which alters the position of the head, and adapts it more commodiously to the pelvis.

2dly. By opening the mouth of the child, it will sometimes happen, that a portion of air will make its way into the lungs sufficient to distend them, and partially establish the function of respiration: by which the life of the child may be somewhat prolonged.

If the finger be properly passed into the child's mouth, the arm and hand of the operator serve to support the body of the infant in such a direction as tends to facilitate the expulsion of the head.

The fore finger of the left hand being insinuated into the mouth of the child, the fore and middle fingers of the right hand should be passed over the nape of the neck, one finger resting on each shoulder; and now a moderate extracting force may be employed to bring forth the head. This will sometimes be more conveniently done, if the woman be turned upon her back, and if the operator stands while making the extraction.

It is desirable that this attempt be made during a natural pain, and that the operator cease from his attempt as soon as the pain goes off: but if the case be urgent, the extraction must be made without waiting for the natural pains.

The necessity for hastening the extraction of the head, as has been already remarked, is to preserve the life of the child; but so long as a pulsation is to be felt in the navel string, the child's life is in no danger.

It has happened not uncommonly, that the

eager desire of the operator to save the life of the child has defeated its own purpose; for if he is led to use too much force, he may thereby strain the child's neck, and thus injure it; or, if he keep the parts constantly upon the stretch, he will so completely compress the *funis*, as entirely to interrupt the circulation through it, and of course produce the death of the child: whereas, if he were to desist occasionally from dragging, the pressure on the *funis* would be diminished, and the circulation might be preserved.

3. Of presentations of the superior extremities (c).

There are no presentations more dangerous, or more difficult to manage, than those of the superior extremities; for whether the part presenting be the hand, the elbow, the shoulder, or both hands, it is clearly impossible that a full-grown fetus should pass through the pelvis, unless this position be altered.

It was the practice of the ancients to endea-

your to push back the arm, and bring the head into the pelvis; but this method could seldom succeed, and it was, after a time, laid aside, principally upon the authority of *Ambrose Paré*, who directed that the feet should be sought for, and brought down, in all preternatural presentations.

It seems now universally agreed, that the preferable mode is to turn and deliver footling; for though it is sometimes practicable to return the arm, and bring the head to present, yet the chance of success in this way is very trifling.*

The established practice, then, is for the operator to pass his hand into the uterus, to take hold of the feet, and bring them with-

* *Guillemeau*, however, the pupil of *Paré*, directs the operator first to try to bring the head into the pelvis, and if he cannot succeed in this, to seek for the feet; and *Bracken* speaks of this operation as very easy; but he is mistaken.

out the os externum; thus converting the presentation of the arm into a presentation of the feet.

Though the necessity of effecting this alteration in the position of the fetus is generally subscribed to, and though it is by all admitted, that the turning should be accomplished as speedily as possible; yet it is not always in our power to proceed to the operation, as soon as the nature of the case is ascertained.

A variety of circumstances may be present, in this kind of preternatural position, which will occasion embarrassment to the operator, and add more or less to the difficulty and danger of the case. It is not my intention to enumerate every possible difficulty; but I shall offer a few observations on the method of proceeding in four different cases, which will be sufficient to enable the young practitioner to regulate his method of management in all others.

1st. If it should be ascertained, before the membranes are ruptured and the *waters* discharged, that the arm is the presenting part, it will be right not to attempt to introduce the hand, till the os uteri is sufficiently dilated, to allow the hand to pass with ease into the uterus. For till the membranes are ruptured, no danger exists, and the dilatation of the parts is more easily and conveniently effected by the *bag of waters*, than by any other means.

As soon as the os uteri is sufficiently dilated, (and the more complete the dilatation of this part the more safe will be the delivery), the operator must dilate the external parts artificially, till they oppose no further resistance to the introduction of his hand. Then slowly carrying his hand through the vagina, to the os uteri, he must gently insinuate it through this part in the absence of a pain. He must, now, rupture the membranes by pressing a finger firmly against them; when his hand will immediately come in contact with the body or limbs of the child. He is then to pass his

hand forwards till he reaches the feet, *which he should draw down along the belly, not over the back of the child*, and proceeding slowly he will find, that as the feet are brought lower, the presenting arm will be retracted; and when the nates are brought to occupy the hollow of the sacrum, the arm will be drawn completely within the uterus. The case now becomes precisely similar to a feet presentation, and is to be managed accordingly.

This is the easiest and safest case of turning, for the uterus is kept distended all the time by the *liquor amnii*, which, after the membranes are ruptured, is prevented from passing off by the operator's hand plugging up the vagina and os externum. So that the efforts of the accoucheur to turn, are not impeded by the contraction of the uterus upon the body of the child.

In all cases therefore where it is known, or suspected, that the arm is the presenting part, and the membranes remain entire, it becomes-

us to watch the patient with great assiduity, in order that we may take our own opportunity for turning, before the *waters* are evacuated.

2. Sometimes it will be found, that the arm is lying in the vagina, or without the os externum, the liquor amnii having been some time discharged, the os uteri nearly or quite dilated, and the patient either quite free from pains, or having pains seldom occurring. Here is another case in which it is advisable to proceed without delay to deliver by turning the child: but the turning will not be so easily effected in this, as in the former case, because the uterus will be in a state of contraction on the body of the child. There will therefore be greater difficulty in passing up the hand to reach the feet. Still if there be only the *passive contraction* of the uterus,* the delivery may be effected without much trouble.

* By *passive contraction*, I mean that contraction of the uterus, which always takes place, in consequence of the discharge of the *waters*, and which may be considered "as the exercise of that inherent disposition, by which efforts are made by the

The hand is to be passed cautiously through the *os externum*, care being taken to have this part sufficiently dilated. It must then be insinuated in the most gentle manner through the *os uteri*, and slowly conducted over the surface of the child, till it reaches the feet. These are then to be slowly drawn down into the vagina, and finally without the *os externum*. Should uterine action be excited during the time that the hand is in the uterus, it must be kept in a flattened form close upon the body of the child; or may be a little withdrawn while the pain continues; and when the pain has subsided the hand may again be cautiously carried forwards.

It is generally more difficult in this than in the former case to lay hold of both the feet;

uterus to recover its primitive size and situation, when any cause of distension is removed?" this passive contraction admits of different degrees of intensity.

By *active contraction*, I mean the occurrence of strong muscular action, whether regular as in labour pains, or irregular as in spasm.

See *Denman's Introduction to Midwifery*, 4th ed. p. 440.

we must sometimes therefore be content with one only, but the turning is always much more safely and easily accomplished, when we can command both feet, than when we have only been able to reach one.

3. Again, it may happen, that a superior extremity presents, the liquor amnii is evacuated, and the os uteri but little dilated, perhaps very firm and rigid. In this case it will probably be found necessary to wait with patience till the parts become more relaxed or dilated: for as there would of course be great resistance to the introduction of the hand, it is probable that the attempt to force it into the uterus would excite inordinate or spasmodic action, and a laceration of the uterus or other serious mischief might ensue.

By allowing time, however, the rigidity would diminish, the parts would dilate (slowly and untowardly indeed for want of the mechanical, or wedge-like, action of the bag of waters); yet at length there would be so much of softness and dilatability, as to authorise the practitioner

to proceed to the operation, which must be slowly and cautiously performed, as before described.

4. Or it may happen that the waters have been early evacuated, the os uteri more or less dilated, the pains recurring often, and very strong and forcing. To attempt the turning under such circumstances would probably be unavailing, and might be attended with great hazard to the mother. Here then nothing remains but to watch the patient attentively, and either to wait till the uterus having exhausted its strength in its fruitless endeavours to expel the child, becomes torpid, and incapable of further exertion; or to lessen the vigour of the system by bleeding, or other depleting means, or to diminish the uterine action by a large dose of laudanum. This is the method recommended by *Dr. Hamilton* of Edinburgh, who speaks of it as attended with the most obvious good effects.* The dose that he gives is eighty drops.

* "*Select Cases in Midwifery, &c.* By *James Hamilton, jun. M.D.*" p. 102. 1795.

When from either of these plans the action of the uterus becomes suspended, the earliest opportunity is to be taken of proceeding to deliver.

I am well aware that some practitioners object to delay in either of these last cases, upon the following grounds.

First, They say that where the child is thus placed and there are strong pains, much danger is incurred of rupturing the uterus; for that frequently this accident happens from the head or one of the limbs of the child forming a protuberance, against which the uterus is so forcibly pressed, that at length its fibres give way, and a laceration ensues. Now it is contended that the danger of this occurrence can be prevented by one method only, viz. changing the posture of the child, which must therefore be effected at all hazards.

That the danger of a rupture of the uterus under such circumstances is very great, I shall not attempt to deny; but how will it be

diminished by the means proposed? Will there be less hazard in the efforts of the operator to push forward his hand in opposition to the powerful resistance of the uterus? Nay, is not the attempt to introduce the hand likely to excite the uterus to still more inordinate action, and consequently to increase rather than to diminish the danger?—I doubt not that an appeal to facts will prove, that the danger of a rupture is at least as great from the persevering attempts of the operator, as from the untoward position of the child.

Secondly, It is argued, that if the uterus be not ruptured by its own powerful action, yet that the labour pains will by degrees force the arm, shoulder, breast, and perhaps the head of the child so firmly into the pelvis, as to render it impossible to pass the hand into the uterus, after the pains become suspended.*

* *Dr. Hamilton*, in his "*Select Cases*," gives an instance of this, and has subjoined some very judicious remarks upon the subject.

In the practice of midwifery, as in other branches of the art of healing, we have sometimes only a choice of difficulties, and much must of necessity be left to the discretion and judgment of the practitioner in each individual case that he attends. I am not disposed to think lightly of the hazard that attends having the fetus, thus preternaturally presenting, wedged into the pelvis; yet I am strongly inclined to believe, that there is less danger in this, than in forcing the hand into the rigid, unyielding uterus, in a state of active contraction. Upon the whole, therefore, I am of opinion, that there is a greater probability of doing good by delay, than in persisting to introduce the hand, when the uterus opposes so obstinate a resistance.

I have not attempted to lay down any rules for the position of the patient while the operator is endeavouring to turn the child; because that position which gives him the most free use of his hand and arm is to be preferred, and under some circumstances one position,

under others a different position, will be found most convenient. I generally make the attempt first, with my patient lying in the usual way on her left side, very near the edge of the bed, and use my right hand. Sometimes I have found, that while she was thus placed, I have been able to operate best with my left hand; or if I have preferred using my right hand, I have been obliged to place my patient on her right side. Some practitioners very much recommend, that the patient shall be placed on her elbows and knees, and I have occasionally adopted this posture with advantage. *Smellie* was an advocate for placing the woman on her back, with the breech raised higher than her shoulders, but I am not aware that any particular advantage results from this position during the operation of turning; but when the body of the child is brought into the world, I have sometimes thought, that I have facilitated the passage of the head through the pelvis, by placing my patient on her back.

It would be wrong to finish this chapter

upon arm-presentations, without adverting to a curious phenomenon, first accurately noticed by *Dr. Denman*, and since by other authors. It has occasionally happened, in these presentations, that the labour pains have had the effect of forcing the nates or feet so low into the pelvis, that they have been precipitated through the os externum, and thus the turning of the child has been produced without the interference of the operator. In one or two such cases, the children have even been born alive. This has been called "the spontaneous evolution" of the child.*

The knowledge of this curious fact may, under some circumstances of extreme resistance to the passage of the hand into the uterus, reconcile us to the delay which I have above recommended; but we should never allow it to operate upon our minds, so as to induce us to neglect the proper means and proper time of turning when we have it in our power.

* See *Denman's Midwifery*, p. 446.

4. Of presentations of the back, belly, or sides (d).

Each of these presentations is stated in the report from the *Maison d'Accouchemens* to have occurred *once in 5,833 labours*.

Dr. Bland takes no notice, in his "Calculations of Accidents, &c. in consequence of Parturition," of these presentations.

Dr. Denman says, "I do not mention the marks by which 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."

Introduction to Midwifery, p. 423.

In the practice of my uncle *Dr. Merriman*, and in my own practice, amounting together to very near 20,000 labours, no instance has occurred of either of these presentations except in one or two cases where the mother had

not completed her seventh month of utero-gestation, and in these the children passed doubled through the pelvis.

I have however been informed of a very skilful practitioner in the country who has twice met with a presentation of the *back*.

In such a case it is probable that in the course of the labour the presentation would be changed for that of the nates. If no alteration in the position took place spontaneously, the introduction of the hand would be necessary to bring down the feet.

5. Of presentations of the funis umbilicalis (e).

PRETERNATURAL LABOUR. Order 6. Burns.
 DYSTOCIA A SECUNDINIS ELAPSIIS. Sauvages, § 8.

This kind of presentation appears to have been much misunderstood formerly. It was supposed, when the funis came through the

os uteri into the vagina, or without the os externum, that the child lay across the pelvis, the belly being over the os uteri; and this is the representation of the position given in *Smellie's* plates. This however is seldom or never the case. When the funis presents, there will be found beyond it, either the head, the nates, or one of the extremities.

This is always a case of difficulty, not on account of danger to the mother, but because there is a great probability of losing the child.

Attention must be paid to the pulsation in the funis. If no pulsation is to be felt, the child is already dead; and the case is to be managed precisely as if the navel string were not prolapsed.*

* The death of the child in prolapsion of the funis has been attributed to a congelation of the blood, from exposure to cold; but it is beyond a doubt, that its death is always occasioned, by compression of the funis between the child and the parts of the mother. It is to remove the funis from the effects of this compression that the assistance of the accoucheur is required.

Should there however be a pulsation, we are assured that the child is yet alive; and it becomes us to consider in what way we can best proceed so as to preserve its life.

Three expedients for this purpose have been recommended.

First, To let the labour advance till the head of the child is within reach of the forceps, and then to hasten the delivery by means of this instrument.

Secondly, To remove the navel string out of the way of compression.

Thirdly, To hasten delivery by turning the child and bringing it by the feet.

The first method probably possesses but little advantage beyond what may be gained by trusting the case entirely to nature. In some rare instances, where the mother has had children before, where the pelvis is very wide, the fetus small, and the pains strong and quick,

the child has passed alive without extraordinary assistance. But the probability of this being effected is so remote, that it would be wrong to trust to it, did any other means of affording assistance present themselves. Should it however be found impossible to remove the funis out of the way of compression, or should the child's head have sunk too low into the cavity of the pelvis, or should any other circumstance be present so as to render it hazardous to attempt turning, the application of the forceps might be admissible as the only remaining resource.

The second method would be the most eligible could it always be put in practice; but the means of effecting a reduction of the prolapsed funis are not very easy.

It has been proposed to carry it upon the points of the fingers, or upon a forked piece of cane or whalebone, through the os uteri, and above the head of the child, so as to prevent the funis from being pressed upon, as the head

descends through the pelvis. But this expedient has been often found to fail; for upon withdrawing the fingers, or the forked stick, the funis usually sinks again into the vagina.

Dr. Mackenzie once succeeded, by drawing without the os externum as much of the prolapsed funis as he could bring down, and inclosed the whole in a small bag, which was slightly tied at the neck. This he passed into the uterus beyond the child's head, where it was retained, and the child was born alive. This method seems deserving of farther trials, but *Dr. Mackenzie* never succeeded in it but once.*

Dr. Croft has related two cases in which he succeeded by carrying the prolapsed funis through the os uteri, and suspending it over one of the legs of the child. In both these cases the children were born alive.†

Mr. Hogben has succeeded by introducing

* *Denman's Midwifery*, 4to. p. 559.

† *London Medical Journal*, vol. vii. p. 38. 1786.

a piece of sponge into the uterus by means of a hollow tube with a piston affixed to it, somewhat in the manner of a syringe for injecting fluids into the uterus; but he has had only one opportunity of trying this experiment.*

Mr. Hopkins likewise speaks of the advantage of sponge in keeping up the prolapsed funis. The patient being placed upon her back, with her breech raised higher than her head, the operator must pass his hand into the vagina, raise the head of the fetus, and return the funis; after which he must introduce "a piece of new sponge shaped as the case requires, first wetted in warm water and squeezed as dry as possible: as the sponge swells, it prevents the funis from re-entering into the cavity of the pelvis, till the head is got below it."†

Any of the foregoing methods that appear practicable in particular cases, may be

* *Hogben's Obstetric Studies*, 4to. p. 62. 1813.

† *Hopkins's Accoucheur's Vade Mecum*, p. 193.

attempted ; but there is reason to fear that they will frequently fail.

The third method proposed, *viz.* the hastening of the delivery by turning the child *in utero*, and bringing it by the feet, can only be resorted to under certain favorable circumstances. It is to be recollected that no possible advantage can accrue to the mother by turning the child ; it is the benefit of the child alone that we have in view. In case then of a want of pulsation in the navel string, which is a certain indication of the child's death, turning ought on no account to be attempted. Or should there be any circumstances in the case, rendering it very improbable that the child could be preserved even if it were turned, it would be injudicious practice to attempt the operation. For as turning the child *in utero* is an operation always more or less hazardous to the mother, it is not justifiable to put her to this hazard, unless there be a well-grounded expectation of saving the child. If however there should be a tolerable probability of effecting this desirable object by turning, the

mother ought not to refuse to risk something in favor of her infant.

What has been said hitherto, applies chiefly to the presentation of the funis along with the head: when it presents together with any other part, the accoucheur will be guided in his practice by the peculiarities of the case. If the arm and funis should present together, turning must of course be had recourse to, for this operation will then become necessary, not because the funis presents, but because the arm has sunk into the vagina.

Order 8. *Dystocia Gemina* — Labour of
Twin (or more) Children.

ANOMALOUS LABOUR. Order 3. Denman.
PRETERNATURAL LABOUR. Order 7. Burns.
DYSTOCIA GEMINORUM. Young's Nosology.

It is seldom possible to ascertain that there are twins, till after the birth of the first child. Yet sometimes it is known during the first labour, by the membranes of each child being felt at the same time in the vagina; and sometimes different parts of the two children come down together.

Each of the twins is commonly smaller than a single child: this often occasions the birth to be rapid, and gives to the practitioner the first idea that he is attending a case of twins.

At other times, though it is evident to the

touch that the child is small, and that there is plenty of room for it to pass, yet the pains, though frequent, do not propel it; hence the attendant is led to suspect, that the uterine action is impeded or interrupted by another child occupying the *fundus uteri*.

Whenever there are good reasons for suspecting twins, it becomes the duty of the accoucheur fully to satisfy himself upon this point, before he quits the lying-in chamber. Generally, he may do this by laying his hand upon the abdomen, or introducing a finger or two into the vagina; but rather than to remain in doubt, he had better pass the whole hand.

Much diversity of opinion has prevailed among practitioners of midwifery, respecting the best method of managing twin cases: but this difference exists only with regard to the second labour; for the first requires to be conducted precisely as if it were a single child.

Thus, if the fetus presents naturally, the

case is to be left to nature, as in **EUTOCIA**; if it presents preternaturally, or if any other circumstances occur, constituting difficult labour, it will require the kind of management directed in the various orders of **DYSTOCIA**: should, however, the case be of such a kind, as makes turning necessary, the operator must take care not to mistake the parts of the two children, lest he bring down a limb of each, and add greatly to the embarrassment of the case.

But after the birth of the first child, the question to be resolved, is, whether the birth of the second shall be left to nature, or terminated by art?

It is very well known, that repeated instances have happened, where the second child has been retained many hours or days* after the

* In the Medical and Physical Journal for April, 1811, vol. xxv, p. 311, a case of twins is related, in which the second child was retained for fourteen days after the birth of the first; and the author of that communication states that another case had come to his knowledge, in which six weeks had elapsed between the births of the twins.

birth of the first, and no mischief, nor danger, nor much of inconvenience has followed. Hence some have concluded rather hastily, that the birth of the second may always be safely trusted to nature, and that the interference of art is very seldom, if ever, necessary.

Others have alledged that very dangerous, and not unfrequently, fatal consequences have arisen, from allowing the second child to be long retained after the first is born: these have therefore argued, that it is always proper to accelerate by art the birth of the second child.

Others, again, steer a middle course, and teach us to wait a *moderate* or *reasonable* time before we interfere by art to effect the second delivery; and it seems to be the opinion of some authors of great reputation and judgment, that about four hours is the proper time to wait.

It will hardly be denied, that some time ought to be allowed to recruit the woman's strength, and to give an opportunity for the

second labour to come on spontaneously; but there will often be a difficulty in determining what space of time is to be considered as reasonable. There are, I imagine, many cases, in which it would be unadvisable to wait so long as four hours, before the birth of the second child is artificially excited; as,

1st. Where circumstances have made it necessary to employ artificial aid in bringing the first child into the world.

2dly. Where the second child presents in a preternatural position.

3dly. Where convulsions, or hæmorrhage, or any other accident has occurred in the interval between the two labours.

In either of these events, no doubt can, I imagine, be entertained of the expediency of finishing the labour long before the expiration of four hours.

And even when the first labour has been

favourable, and the second child is in a proper position, it may be doubted whether any advantage is likely to accrue from letting it remain four hours before an attempt is made to facilitate the delivery. In general, indeed, under these favourable circumstances, the secondary pains come on shortly after the first birth, and expel the child; but should this not happen, it may be prudent to excite them by rupturing the membranes in a much shorter space of time than four hours: it has seemed to me, upon various occasions, when so long a period as this has been permitted to elapse, that the pains of the second labour have been more severe, than they would have been had the action of the uterus been earlier excited.

I should be very unwilling to appear the advocate of precipitation in any part of the practice of midwifery; but it has so happened, that I have known more than one instance of mischief, arising from the delay of bringing the second twin into the world, and therefore think myself justifiable in recommending an opposite mode of conduct, though somewhat

different from that which other practical accoucheurs have taught.

The following is an outline of the practice which I have been in the habit of adopting in *dystocia gemina*:—

1. When both the children present naturally, and the labour of the first terminates without artificial assistance, and without much fatigue to the patient, I wait for the spontaneous occurrence of the secondary pains; but should these not come on soon, or in a *reasonable* time,* I rupture the membranes, and then commonly find, that the second child passes with comparative ease through the pelvis, the

* Much objection has been made to the terms *reasonable* or *moderate*, because they are indefinite: but this is, in fact, one of the advantages of using these words. The proper time must always be determined by the attending practitioner, according to the circumstances of the case. The *reasonable* time will frequently be less than half an hour; sometimes one or two hours; occasionally, perhaps, four hours.

parts having already undergone sufficient dilatation.

2. If the first labour has been natural, and the second child presents in a wrong direction, I have generally deemed it expedient, with very little delay, to extract it by the feet.

3. If the first labour has been preternatural, or very difficult, or dangerous, this has always seemed to me an additional reason for terminating the second as expeditiously as circumstances will admit. Whether in this case it will be sufficient merely to rupture the membranes, or whether it may be preferable to bring down the feet, or to assist in any other manner, the accoucheur in attendance must determine.

It is an established rule not to acquaint the mother that there are twins, till both are born; for as it is known, that sudden emotions of the mind have been productive of ill consequences during labour, so it has been thought that some mischief or inconvenience might ensue from the

apprehension with which she might contemplate the second labour. But though it is proper to conceal this circumstance from the mother, if possible, yet it is right to acquaint the husband, or some friend of the patient, of the real nature of the case, as soon as it is certainly known to the practitioner.

* * The rules which are applicable to twin cases, will equally apply to cases where there are three or more children.

* † It very commonly happens in *dystocia gemina*, that the labour occurs before the full term of nine months.

A greater number of twin children, on an average, die during infancy, than of single children; and this remark applies still more strongly to triplets.

† * † There seems to be a very extraordinary variety in the averages of twin and triplet births, in different countries, and under different circumstances. Thus

it has been estimated, that the average of twin births has been—

At the British Lying-in Hospital.....	1 in 91.
At the Westminster Dispensary.....	1 in 80.
At the Dublin Lying-in Hospital.....	1 in 62.
At the Middlesex Hospital.....	1 in 93.
At the Maison d'Accouchemens at Paris.....	1 in 91.

In Germany twins are supposed to occur about *once in 65 or 70 labours.*

Mr. Burns states the average in his practice at *once in 95 labours.*

Respecting triplets, the averages are still less to be depended upon: many accoucheurs, of very extensive practice, have passed through a long life, without once witnessing three children at a birth.

In the first 18,300 women delivered at the British Lying-in Hospital, not a single instance of triplets had occurred: but there were **two** such cases among 17,308 women delivered at the Maison d'Accouchemens at Paris, and three among 21,000 women at the Dublin Lying-in Hospital.

Dr. Bland kept a very exact register of 1897 women delivered at the expense of the Westminster General Dispensary, among which there was one case of triplets; since I have held the office of physician-accoucheur to that charity, about 2500 women have been delivered; among whom I have twice been called to triplet labours.

The averages of four children at a birth, are still less capable of being ascertained, yet several such instances are known to have happened; and there are a few authentic histories of five at a birth: *Borellus* asserts, that about three years before he published his second Century of Observations, the wife of a nobleman in Languedoc was delivered of eight at a birth!!!*

* Anno 1650: Uxor nobilis *D. Darre* unico puerperio octo fœtus enixa est probe conformatos, quod valde in his regionibus insolens est; tres enim tantum vitales simul enixos videram.

Order 9. *Dystocia Laceratoria*—Labour producing, or accompanied with, a Rupture or Laceration of some internal or external Part.

DYSTOCIA LACERATORIA. Young's Nosology.
COMPLICATED LABOUR. Orders 2, 3, 6. Burns.

Lacerations may take place from the violence of the labour pains; from improper exertions, or restlessness on the part of the patient; from mismanagement on the part of the practitioner; and sometimes from causes beyond our cognizance. This order may be divided into five species: *viz.*

- a. Laceration of the perinæum.
- b. ————— of the labia pudendi.
- c. ————— of the vagina or uterus.
- d. ————— of any other internal organ.
- e. ————— of the ligaments of the pelvis.

1. **Laceration of the perinæum (a)**, though seldom dangerous, is always a very uncomfortable accident, and when it extends so far as to divide the septum between the vagina and rectum, and thus to lay both passages into one, is to the last degree distressing; for the unhappy patient has then no power of retaining her fæces, and of course becomes for ever afterwards an object of disgust, both to herself, and to all who are obliged to associate with her.

It would perhaps be asserting too much to say, that this kind of laceration may always be avoided; but unquestionably the practitioner ought, in general, to be able to prevent so unfortunate an accident.

The danger of a laceration of the perinæum is greater in first, than in subsequent labours; but instances have been met with, where the laceration has happened to women who have borne several children before. The danger is always increased, when the head comes into

the world in a wrong direction, as in *dystocia perversa*.

The means of preventing a laceration are,

1. Carefully to abstain from hurrying the head through the os externum.
2. To avoid irritating the vagina and inner membrane of the perinæum, and to guard against removing the mucous discharge naturally secreted for moistening the passage.
3. Occasionally to introduce lard or tallow, to moisten and soften these parts, when they feel dry and harsh, or heated.*
4. To keep the hand covered by a soft napkin against the perinæum, so as to afford a regular and equal support to the parts during the passage of the head.

The cure of a lacerated perinæum is very difficult, in some cases impossible. If, indeed,

* Injections of mucilaginous fluids into the vagina, as recommended by some French accoucheurs, would probably be efficacious. See p. 23.

the rent does not extend through the sphincter ani, the torn parts will sometimes coalesce, so as to form a tolerable perinæum; but when the laceration passes quite into the rectum, a cure is rarely perfected.

It is of importance to keep the parts as much as possible in contact, which gives the best chance of their uniting; for this purpose it has sometimes been the practice to bring the edges of the wound together by suture, but this has seldom, if ever, been attended with good effects; on the contrary, the ligatures have been found to slough away, and the patient has in consequence been left in a worse condition than before. This mode of practice is therefore discontinued.

I have lately seen a case of perineal laceration, in which the surgeon, who was called in by the midwife, took great pains to promote adhesion, carefully drawing the edges of the wound together by means of adhesive plaster, (*emplastrum resinæ*) but his endeavours were unsuccessful; indeed, I believe that this plaster,

by producing suppuration, was injurious, and the patient would have had a better chance of doing well, had the case been left to nature.

Would it be possible, at a more remote period after delivery, the edges of the torn parts being healed, and the patient being free from that irritable and feverish habit which generally accompanies the state of child-bed, — would it be possible under such circumstances to effect a cure by an operation upon these parts, similar to that for the hare lip?

2. Slight lacerations of the labia pudendi now and then take place; but seldom require any other treatment than the application of a soft poultice, a cooling wash, or simple ointment: this is a painful, but not usually a dangerous accident. It is sometimes produced by an extensive tumefaction of the labia, occasioned by an effusion of blood into the cellular substance.

3. I class lacerations of the vagina and uterus (c) together, because there is so great an analogy between the cases, and because

both these parts frequently participate in the same injury: for the place at which the rent happens, is commonly at or near the union of the cervix ūteri and the vagina, and the laceration extends to both parts. Sometimes, however, only the uterus, sometimes only the vagina, suffers.

This accident has happened from a morbid state of the uterus, before the period of uterogestation has been completed, and the fetus having escaped into the cavity of the abdomen, forms what has been denominated an extra-uterine conception of the ventral kind. Sometimes the laceration appears to have been produced from the untoward situation of the uterus in the pelvis: hence ulceration has taken place, and the fetus has been transferred into the cavity of the pelvis, and finally discharged through the vagina or rectum, in a dissolved and putrid state.*

* Consult "*Bartholinus de insolitis humani Partus Viis:*" "*Garthshore on Ruptures of the Uterus:*" and "*A Dissertation on the Retroversion of the Womb; including Observations on extra-uterine Gestation.*"

But more commonly the rupture is occasioned during labour, from the violence of the pains acting irregularly or impetuously against some projecting part of the child, upon which the uterus splits; and this is most likely to happen in cases of distorted pelvis, or of preternatural presentation of the child. Or it may be occasioned by the rude and forcible attempts of the operator to turn the child in utero; or by inconsiderate and violent endeavours to introduce instruments: and sometimes the immense bulk of an emphysematous child, in passing through the os uteri and vagina, has forced these parts asunder.

If the rupture of the uterus has taken place before the full term of gestation is accomplished, and while the os uteri is undilated, it is obviously impossible to afford the patient any kind of manual assistance; the case must therefore be trusted to nature, and under such circumstances, some women have wonderfully recovered; the child, in a dissolved state, having in a few instances, after months or years, made its way through the parietes of

the abdomen by the process of ulceration. The operation of gastrotomy has been recommended to give nature an earlier opportunity of getting rid of the burthen, but the success of such an operation is doubtful.

When a laceration happens during the pains of labour, the following symptoms usually occur : viz.—

a sense of something giving way internally;
preceded by a very severe pain, generally described as a cramp;

a sensation of great languor and debility ;

a speedy, sometimes an instantaneous vomiting of the contents of the stomach ;

a vomiting of a brownish, or coffee-coloured fluid.

a very quick, weak, fluttering pulse ;

a cold sweat ;

great difficulty of breathing ;

an immediate cessation of the labour pains.

If now the patient is examined per vaginam,

it will generally be found that the presenting part of the child, which had before been pressed some way into the pelvis, is retracted, and no longer within the reach of the finger; and if the hand is carried through the os externum, in order to make a more accurate examination, the child will be discovered to have passed either wholly or in part through a rent, into the cavity of the abdomen. There are, however, a few instances in which the child has remained in utero, notwithstanding the laceration.

The mode of practice recommended by many authors, in these unfortunate cases, is to give the patient a chance of recovery, by introducing the hand through the rent till it reaches the feet of the child, wheresoever they are to be found, and extracting the child footling. In a few instances this plan has succeeded in saving the patient's life, but much more commonly all that is done proves unavailing, and death speedily ensues.

The practice here recommended was

countenanced by *Dr. Denman* in his "Introduction to Midwifery," but circumstances have since that time induced him to reconsider this case more particularly, and after much inquiry and reflection he seems to be convinced that upon many occasions the patient would have a better chance of recovering if the case were resigned to the natural efforts of the constitution, than by any operation or interposition of art.*

I must believe that either of these plans is to be preferred according to circumstances. If in a case of this kind it should be found, that the child had only in part escaped into the cavity of the abdomen, I should consider that it was the best practice to bring down the feet, if they were within reach, or to deliver by means of the forceps, if the situation of the head allowed of the application of those instruments. And even if the child had been

* See his "*Observations on the Rupture of the Uterus*," &c. 8vo. 1810.

wholly forced through the rent, that it would be expedient to extract it by the feet provided there was a ready passage for the hand into the cavity of the abdomen, and the accident had not been of long duration; but if some hours had elapsed after the parts had given way, or if there were a difficulty in passing the hand on account of the contraction of the uterus, it would then perhaps be more prudent to leave the event to nature.

Occasionally a rupture or laceration of some part either contiguous to, or more distant from, the uterus, has happened during labour (d); thus the bladder has sometimes burst from over-distension.

This can only happen from neglect on the part of the practitioner, who should be careful to introduce the catheter from time to time if the woman has not the power of voiding her urine.*

* The accoucheur must not implicitly rely upon

Should the laceration allow the urine to escape into the cavity of the abdomen, there can of course be no expectation of a recovery : but sometimes the laceration has been at the cervix vesicæ, opening into the vagina ; this accident is not necessarily fatal ; but the patient will ever afterwards remain in a most uncomfortable state from a constant involuntary discharge of urine.

the reports of the patient or her attendants respecting the discharge of urine, for very often they mistake a discharge of this fluid from the vagina or uterus for urine. Very lately I was called to the patient of a midwife in lingering labour, and inquiring when she had last made water, was told that it ran from her with every pain, so as to keep her continually wet. Not being satisfied with this report, I laid my hand upon the abdomen below the navel, and very distinctly felt the bladder considerably distended, and on passing the catheter drew off *two quarts and half a pint* of very high-coloured urine. This accumulation in the bladder had prevented the full effect of the labour-pains, and consequently rendered the process of parturition much longer than it otherwise would have been.

Sometimes the aorta, or other large blood vessel, has given way;* sometimes the liver has been ruptured;† and others of the viscera have experienced the same accident.

5. When great numbness in the lower extremities continues for a considerable time after delivery, with inconvenience and difficulty in moving the thighs, and pain and tenderness about the groins or hips, it may be supposed that a laceration of the ligaments of the pelvis has happened in a slight degree. More rarely a greater degree of laceration befalls these parts, for sometimes the bones of the pelvis are

* A case of rupture of the internal iliac vein, in the ninth month of pregnancy, is related in the 6th number of "*The London Medical Repository*." The author conceals his name, but the case has every other mark of authenticity.

† See *Memoirs of the Medical Society of London*, vol. iii.

forcibly separated, producing a state of lameness and weakness which months and years very imperfectly overcome.

Order 10. *Dystocia Hæmorrhagica*—*Labour attended with Hemorrhage.*

ANOMALOUS LABOUR. Order 1. Denman.
 COMPLICATED LABOUR. Order 2. Burns.
 DYSTOCIA HÆMORRHAGICA. Young.

A discharge of blood from the uterus during pregnancy is frequently followed by abortion or premature labour; but careful management will sometimes prevent this accident. The plan to be adopted, is, to take away blood from the arm, if the pulse is full and strong; to remove costiveness by saline aperients; to employ, as the symptoms may indicate, refrigerants, sedatives, and restringents; to enjoin quietude and a recumbent posture; and where the degree of hemorrhage is considerable, to have recourse to the topical application of cold.

If a flooding occurs just before, or during

the process of parturition, the life of the patient will often be placed in great danger, and the child will frequently be dead born. Sometimes profuse hemorrhage follows the birth of the child or the expulsion of the placenta, and renders the situation of the patient very hazardous.

Of Hemorrhages During Labour.

The hemorrhages that occur during labour are occasioned by a separation more or less complete of the placenta, and the danger very much depends upon the position of the placenta in the uterus.* If the placenta be properly situated towards the fundus, the separation may produce alarming hemorrhage, but does not very commonly prove fatal: this forms the *first species* (a).

* Labour is sometimes preceded by a sanguineous discharge or *shew* more than usually profuse, which may at first be easily mistaken for the commencement of a flooding. A recumbent posture, the admission of cool air, and perhaps the topical application of cold vinegar and water, speedily relieve this symptom.

If the placenta has originally been placed over the cervix uteri, the danger is much more imminent: this forms the second species (b).

Of the Treatment of the first Species of Dystocia Hæmorrhagica; when the Placenta is rightly situated in the Uterus.

The placenta thus situated is liable to be separated by various accidents, especially by a blow or fall, by overstraining in the act of lifting any heavy burthen, by a violent cough, a sudden spasm, &c. The separation of the placenta from either of these causes may be partial only or entire, and in proportion as more or less is separated will be the danger of the case.

It may happen that the degree of hæmorrhage is much greater than appears externally; for blood may be poured into the space between the uterus and the placenta sufficient to produce syncope, or even death, and yet

there may be very little appearance of discharge from the vagina.*

* The following extract from the *New Medical and Physical Journal* shews not only the possibility of this fact, but likewise, that sometimes the loss of a quantity of blood by no means excessive will produce fatal consequences: "A very singular case of uterine hemorrhage occurred a few months ago in the practice of *Mr. Saunarez*, which was also seen by *Doctors Denman and Dennison*. A lady of a weakly constitution and delicate habit, was attacked in the latter months of pregnancy with a slight discharge of blood from the vagina, not amounting altogether to half an ounce, accompanied with alarming symptoms of exhaustion and debility. The os uteri was scarcely dilated to the size of a sixpence, and was in such a state of rigidity as precluded the possibility of affording any manual assistance. The lady in consequence died; and on examination after death, it was found that a separation of the centre of the placenta from the parietes of the uterus had taken place, whilst its edges were completely adherent, forming a kind of *cul de sac*, into which blood had been poured to the amount of a pint and half, which had become coagulated within the cavity thus formed."—*New Med. and Phys. Journal*, December 1813. No. 38; vol. vi. p. 535.

Whenever hemorrhage happens during labour, there should be no time lost in endeavouring to subdue it by the most active means. The patient should be placed in a horizontal posture, with a very light covering, the windows and doors of the room should be set open, cloths dipped in cold vinegar and water should be applied over the abdomen and pubes, and if necessary, ice should be dissolved in the mixture to make it colder, or pounded ice itself, put into a bag, may be laid upon the belly.

If the patient is costive, a pint of cold water, either by itself, or mixed with salt or a few spoonfuls of vinegar, may be thrown up the rectum; this often succeeds in producing a stool, and it is otherwise useful as a refrigerant applied to parts contiguous to the uterus.

The diluted sulphuric acid may be given freely, either in rose infusion, mint water, weak cinnamon water, or any other convenient liquid.

I place but little reliance upon the other

vegetable and mineral astringents; for though efficacious in cases of chronic uterine hemorrhages, their astringent virtues are not sufficiently active in the sudden and violent hemorrhages which accompany the separation of the placenta during labour.

Bleeding from the arm has been recommended, and was formerly practised in these cases, with a view of making a revulsion from the uterus; and in many cases of floodings *during pregnancy*, where there is a hard, strong, full, pulse, may be advantageously employed; but where the flooding accompanies labour, I consider blood-letting as likely to prove much more injurious than beneficial.

Fortunately in many cases of sudden and accidental separation of the placenta, a disposition to expel its contents is immediately imparted to the uterus, and the expulsion is facilitated by the relaxation which the hemorrhage has produced. The action of the uterus tends likewise to suppress the hemorrhage; if therefore pains come on, if the flooding in consequence diminishes, and if the patient

in some measure recovers her strength and spirits, it may not be necessary to have recourse to any further means of relief; but the patient must still be very carefully watched, for the hemorrhage may suddenly increase, and a very little additional loss of blood may prove fatal.

But should the means employed to suppress the hemorrhage prove unavailing, should no pains come on, or should they be insufficient to restrain the flooding, and the danger of the patient augments, something more must be attempted.

Till the time of *Ambrose Paré* no determinate practice in such cases was established; but we are told by his pupil, *Guillemeau*, that *Paré* taught to turn and deliver by the feet in all dangerous floodings, and he relates several histories in his own practice of the success of this method, and other histories, where, because this plan was not timely adopted, the patients were lost.*

* This method of treating flooding cases was

After *Guillemeau*, *Mauriceau* and his successors pursued this method, and found it to be frequently successful in preserving the life of the mother, if not of the child. Another plan however was proposed by *M. Puzos*, a very distinguished accoucheur at Paris, who died in 1753: this method is less violent than that of introducing the hand and turning the child, yet in *this species* of hemorrhage is not less successful; it consists in piercing the membranes, and evacuating *the waters*, as soon as a disposition to labour comes on; thus the uterus is allowed to contract more completely, which diminishes or stops the flooding, and commonly in a few hours afterwards, the child is expelled by the natural pains.

It has been objected to this method, that it cannot always be depended upon for suppress-

practised by the celebrated midwife, *Louisa Bourgeois*; and she has been supposed to be the author of it. Indeed, from a passage in her work, it might be thought that she claimed the merit of it; but I believe that we are indebted for it to *Paré*.

ing the hemorrhage ; and it is contended, that if this fails, the patient will be placed in a worse condition than before ; because, should it at last become necessary to turn the child, the operation of introducing the hand and bringing down the feet, will be rendered much more difficult, in consequence of the evacuation of *the waters*.

I am not prepared to deny the validity of this objection under particular circumstances ; yet I believe that the plan of peircing the membranes in this species of hemorrhage, will so often succeed, that we are justified in having recourse to it. *Mr. Rigby*, in his very valuable " Essay on Uterine Hemorrhage, &c." has detailed upwards of 60 cases of this kind of flooding, in many of which this method was tried, and was completely successful ; and in my own more limited practice, I have hitherto followed this plan, without a single instance of failure.

*Of the Treatment of the second Species of
Dystocia Hæmorrhagica; when the Pla-
centa is attached over the Cervix Uteri.*

This species of hemorrhage was not generally understood till of late years; when upon examining per vaginam, the placenta was found presenting, it was supposed, that having been accidentally separated from the fundus, it had fallen by its own weight to the os uteri, which it closed up, so as to prevent the child from passing. More accurate observations and dissections have proved, that when the placenta presents, it has been *ab origine* implanted over the *cervix uteri*. Portal* seems to have entertained more correct opinions upon this subject than his contemporaries, but he did not fully understand it.

This species of labour is more dangerous than the former. In the first kind, the coming

* Who lived about 1650.

on of labour pains has the effect of checking at least, if not of stopping the hemorrhage; but in this, as every pain tends to produce more dilatation of the os uteri, and consequently a greater separation of the placenta and an increase of the hemorrhage, so it is not prudent to trust to the pains for effecting the delivery. In all cases then of attachment of the placenta over the os uteri, it is incumbent upon the accoucheur, to make up his mind to the operation of turning the child, and bringing it into the world by the feet.

There are indeed, some cases of women who have not required this operation; for notwithstanding the presentation of the placenta, and the profuse hemorrhage, strong uterine action has been excited, the placenta and fetus have been expelled, and the patient has had strength enough to bear the flooding without undergoing any very imminent danger.

It has likewise sometimes happened, that a small portion only of the placenta has been over the os uteri, and that the hemorrhage has

in consequence been comparatively trifling. These cases have terminated without artificial aid, or with only the assistance of rupturing the membranes.

But either of these are confessedly rare occurrences, and we are not justified in taking rare or extreme cases as rules for practice. Here and there women do well without the interference of art, but much more commonly, nature is unequal to the task, and the patient would be lost for want of timely assistance; so that all the best practical writers are unanimous on this point, that the case of a placenta adhering over the cervix uteri, is not to be trusted to nature.

Though it has been thus decided, that the proper method of practice is to deliver by turning the child, yet it sometimes requires much judgment and discrimination to determine when this is to be effected. If indeed the hemorrhage is profuse, and the os uteri in a state of dilatation, there can be no doubt of the necessity of proceeding immediately to the operation.

for a very short delay may be sufficient to prevent the success which is expected.

But sometimes the hemorrhage may not be so violent as to create any great hazard, or the os uteri may be so thick and rigid as to prevent the introduction of the hand, and this is by no means unusual when the hemorrhage begins as early as the sixth or seventh month of pregnancy; in such cases it is necessary to wait till the os uteri becomes more soft and dilatable, which will happen in a longer or shorter time according to circumstances,* and the usual means for suppressing

* Once more let me remark, that in all cases of uterine hemorrhage during pregnancy, the patient ought to be very sedulously watched by her accoucheur. It may not indeed be possible or necessary for him to wait by the side of the patient during the whole continuance of the flooding, but he should take care to be in the way in case of a sudden alarm, and should give exact directions to some intelligent nurse or attendant how to act in his absence. A sudden gush of blood from a woman previously

or diminishing hemorrhage must in the mean time be employed.

It is scarcely possible to lay down an exact rule, respecting the period at which the operation of turning shall be undertaken; much must necessarily be left to the practitioner's judgment. In order that the performance of the operation shall be as little perplexing as possible to the practitioner, and as little hazardous to the mother, it is necessary that there be a certain degree of softness and dilatibility in the uterus; but this dilatibility is not always to be judged of by the actual dilatation or openness of the part, for sometimes in hemorrhages the os uteri will be very dilatable, very capable of being dilated by art, though it hardly seems sufficiently open to admit a single finger. If under such circumstances we were to wait till the os uteri became so much open

reduced, may very shortly prove fatal. We ought not therefore to consider any woman subject to flooding as safe, particularly if the placenta be over the os uteri, till she is delivered,

as to oppose no resistance whatever to the passage of the hand, it is probable that the operation would be performed too late to save the patient. If however the accoucheur duly considers the case in all its bearings, the quantity of blood lost, the strength or weakness of his patient, and the actual softness or dilatibility of the parts, he will hardly fall into an error, particularly if he recollects, that it is better to operate rather too soon, than to delay it too long; for the danger to the patient does not in general arise from the operation of turning, but from the quantity of blood lost; it is therefore our duty, by timely performing the operation, to prevent such a profuse loss of blood as shall put the patient's life in hazard.

Respecting the method of effecting the turning, it does not differ much from the same operation under other circumstances. The entrance of the hand into the uterus will be opposed by the placenta adhering over the os internum, unless it be a section only of the

placenta, which has been there implanted. Should this last be the case, there will be no difficulty in passing the hand by the placenta, rupturing the membranes, and turning the child. But if the whole of the os internum is closed up by the after-birth adhering to the cervix, the operator must either perforate the placenta with his fingers and hand, and thus get in contact with the body of the child, or he must break down the adhesion between the placenta and cervix uteri, till he reaches the membranes, which he must rupture, and proceed in the usual manner to turn the child.

Of the advantages of these two methods of proceeding, different practitioners think differently. It has appeared to me, that if the membranes can easily be reached, it is preferable to carry the hand into the uterus by rupturing them, rather than to perforate the placenta; but I have sometimes been compelled to have recourse to the one, sometimes to the other method.

It still remains to speak of a *third species*

of hemorrhage (c), viz. that which occurs after the birth of the child. In this, all the usual means of suppressing hemorrhage are to be diligently employed. If the placenta is still retained, the hand must be introduced to separate it, for while it remains in utero, it acts as an extraneous body preventing the proper contraction of that viscus, on which contraction alone, the power of stopping the flooding depends. Should the placenta be expelled, and the hemorrhage be inordinate, in addition to the usual means of subduing it, pressure must be made upon the uterine region by means of the hands, or a broad bandage put round the body, and a sponge soaked in cold vinegar and water, or a lump of ice may be introduced into the vagina. Some writers strongly recommend to plug up the vagina with tow, lint, a handkerchief, or other proper substance, but I have never seen any decided good effects from *the plug*; on the contrary, have had reason more than once to think that it has been prejudicial.

Sometimes large coagula collect in the

uterus, and prevent its contraction: these are then to be considered as extraneous bodies acting like the retained-placenta, and must in like manner be removed by introducing the hand.

Order 41. *Dystocia Syncopalis* — Labour accompanied with Faintings, a Sense of Distress and Oppression about the Præcordia, and Palpitations.

COMPLICATED LABOUR. Class 7. Order 3. Burns.
DYSTOCIA SYNCOPALIS. Young.
HYSTERIA A PARTU DIFFICILI. Sauvages.

In women of a delicate frame, of a nervous, irritable, hysterical habit, faintings during labour sometimes take place.

They likewise occasionally happen to women exhausted by fatigue, by want of proper food, by want of sleep, by apprehension, or any other debilitating cause, among which may very properly be mentioned, the noisy conversation of many attendants in the lying-in chamber, bad smells, and want of ventilation. These faintings partake generally of the nature of hysterical paroxysms; and have been

sometimes mistaken for the true puerperal convulsions.

More dangerous faintings may happen to women who have laboured under disease during their pregnancies, especially if they have had pulmonary complaints or organic diseases.

Syncope, also, always attends profuse hemorrhage.

The method of obviating this unpleasant symptom, is to give light cordials to women of delicate nervous habits, as camphor julep, sal. volatile, sp. ætheris sulph. The room should be kept cool; volatiles or vinegar should be held to the nostrils; and the forehead and temples may be advantageously washed with cold vinegar and water.

If the faintings arise from great fatigue or want of sleep, opiates may in addition be had recourse to; if from want of food—and this is not an unusual thing among the poor women who are delivered at their own habitations, at

the expense of hospitals and dispensaries—beef tea, panado, or some wine or spirits in a little gruel, are required. If brought on by the heat and closeness of the room and the presence of too many attendants, these must be dismissed, and the room be ventilated and cooled.

If the woman has been labouring under any severe disease during her pregnancy, and this gives the disposition to faintness, the above means may still be resorted to ; but should the fainting be of long continuance, or be frequently repeated, it would probably be necessary to hasten the delivery by any *safe* method in our power. And the same may be said of that fainting which sometimes occurs in consequence of the exhausted state of the patient from a long and difficult labour.

Order 12. *Dystocia Convulsiva* — *Labour accompanied with Convulsions.*

COMPLICATED LABOUR. Order 4. Burns.

CONVULSIONS DURING LABOUR. Watts.

DYSTOCIA CONVULSIVA. Young, § 10.

ECLAMPSIA PARTURIENTIUM. Sauvages. Class 4.

Order 18, § 8.

This is a very dangerous kind of labour, and has been so considered by all writers and practitioners.

Dr. Hunter, Dr. Lowder, and other teachers of midwifery, used to state in their lectures that more than half of the women died who were attacked with convulsions in their labours, but so great a proportion of deaths does not now happen.

It is probable that hysterical paroxysms have sometimes been mistaken for the true puerperal convulsions; at least if we may judge

from the rapid cures that have been said to be made by, as it seems, very inadequate means.

The cases alone deserving the appellation of puerperal convulsions, which have fallen under my observation, have borne a very exact resemblance to the epilepsy, and this accords with the description of the complaint by the best authors on midwifery.

The patient, sometimes before any signs of commencing labour have appeared, sometimes with the first pains, at other times not till the labour has made considerable progress, or even after the birth of the child, is attacked with a strong convulsion. The face is violently contorted, every muscle of the body becomes rigid, and a rattling in the throat is heard: this is followed by a sudden relaxation of the muscles, the limbs become convulsed, foam, generally tinged with blood from biting the tongue, issues from the mouth, "a sharp hissing noise" is produced by breathing through the fixed teeth and the foam, the eyes work about in a shocking manner, and altogether the patient presents a most horrid spectacle.

This state of convulsion lasts for an in-

definite time, then gradually ceases, and the patient sinks into a sleep, or rather stupor, during which the breathing is stertorous.

In about half an hour or more, if there be no return of the paroxysm, she slowly recovers her recollection; complains then of great pain in the head, and of soreness in all her limbs; there is a heaviness in her countenance, a different tone in her voice, and a kind of insensibility or stupidity which leads the attendants to be apprehensive of a return of the fit. And this apprehension is generally well founded, for however complete the intermission may be, there is in almost every instance a repetition of the attack.

Sometimes there is no return even to this imperfect recollection: before the first paroxysm is completely over, another comes on, and thus one fit follows another for many hours or days without any perfect intermission.*

* It was first remarked to me by *Dr. Croft*, and I have frequently observed it since, that an uncommon slowness of the pulse precedes each returning paroxysm.

It has been remarked, that the more perfect the return to sense between the fits, the more probability is there of a favourable termination to the complaint; and this, I believe, is generally true; but I have known patients ultimately recover who had no return of recollection in the intervals, and others to die where the intermission was of long duration, and the return to sense unusually complete.

Of the Causes and Method of treating Puerperal Convulsions.

There have been three causes in particular assigned as usually producing this disease:—

1. General irritability of the constitution.
2. Irritability of the uterus from distention.
3. An overloaded state of the system.

And practitioners have been influenced in their treatment of the complaint by the opinions they have entertained of its cause: thus those who have attributed the convulsions to general irritability, have considered opium as the proper

remedy; those who have thought distention of the uterus the cause, have recommended immediate delivery; those who believe an overloaded state of the system to be the cause of the convulsions, employ large bleeding, and other evacuants.

1. Of the use of opium I am not able to speak from experience; for I have never yet met with a case of puerperal convulsions, in which, at an early period of the disease, I could have dared to use this remedy. *Dr. Hamilton* says that he never saw a case where opium was given at the commencement, which did not terminate fatally. I am compelled therefore to believe, that, where opium has been beneficially employed, the disease differed in many respects from the true puerperal convulsions.

2. My experience does not at all countenance the practice which some accoucheurs have adopted, of proceeding at once to terminate the labour, either by turning or by having recourse to the perforator: yet, when the parts

are properly developed, the os uteri dilated, and the head of the child within reach of the forceps, it will probably be right to hasten the delivery by this instrument. But it will often be found, that a moderate delay in using instruments, will give a better chance of preserving the life of the child, without increasing the danger of the mother.

3. Both theory and practice point out the propriety of adopting the third plan recommended. The symptoms indicate an overloaded state of the system. Prior to the attack of convulsions, there is often observed a flushed, or suffused countenance, violent pain in the head, vertiginous affections, drowsiness, heaviness in the eyes, temporary blindness, vacillation of mind, and slight delirium. Frequently, likewise, there will be the usual symptoms of indigestion, nausea, pain in the stomach and bowels, spasms, &c.

In almost every case that I have seen, the evacuations from the bowels produced by cathartics have been dark coloured, heavy,

copious, and very fetid; and I do not recollect a single case in which the blood has not shown an inflammatory crust; and it has often been very much cupped.

These facts will, I conceive, authorize me to recommend, in the first instance, having recourse to the depleting plan; and when the precursory symptoms, above enumerated, begin to appear, the prudent practitioner will do well to bleed, and employ other evacuating remedies, before the convulsions actually take place.

But if no means have been used to prevent the convulsions, the following plan should be adopted on their first occurrence, whether before, during, or after the labour:—

From ten to twenty ounces of blood, according to the strength of the patient, and the state of her pulse, should be drawn from the arm, the jugular vein, or the temporal artery.

If the patient is able to swallow, a pill

containing five grains of calomel should be got down, and this should be followed by a solution of salts every three or four hours, till sufficient stools are procured.

The head should be shaved, and a cold wash should be kept constantly applied upon it.

The kind of lotion which I commonly prescribe is this:—

℞ Liq. ammon. acet. ℥ vi.
Sp. rorisarin, ℥ ij.
Aq. puræ, O i.

M. ft. lotio.

After giving the calomel pill, and more especially if the patient is incapable of swallowing, which is usually the case, a cathartic clyster should be injected, and repeated if necessary.

These means will probably relieve the more urgent symptoms, and both the bleeding and the cathartics will tend to advance the labour, by producing relaxation about the vagina and

uterus. The patient will have pains from time to time, and it will be necessary to examine occasionally what progress the labour makes.

The convulsions will, however, return periodically; and it may, perhaps, be thought requisite to take away more blood, the necessity of which will be determined by the appearance of that already drawn and the state of the pulse, and it may then be taken either by opening a vein, or by applying cupping glasses in the neck.

It will now be for the accoucheur to consider whether it is any longer safe to leave the labour to nature: if it is proceeding quickly, as sometimes happens, it will not, perhaps, be advisable to do any thing; yet I think if the pains are slow, it is generally right, as soon as the child's head comes within reach of the forceps, to apply them, and finish the delivery without further delay.

But if the danger to the mother should evidently increase, should she appear to be

rapidly sinking; rather than that she should die undelivered; it will be justifiable to have recourse to the perforator; yet I have so often had the pleasure, by delaying this dreadful operation, of seeing my patient delivered of a living child, that I cannot too much insist upon caution and due deliberation upon this subject.

It does not usually happen that the convulsions cease upon the termination of the labour; on the contrary, they sometimes increase in violence, and at length produce death. If, however, the intervals between the fits are longer, a more favourable prognosis may be formed; but it will be expedient to continue our exertions in relieving the symptoms.

The application of the cold wash to the head should be persevered in: a blister may be applied to the back, to the insides of the thighs, or calfs of the legs: sinapisms may be applied to the feet: and if the patient can swallow, aperient medicines, antifebriles, and light cordials should be given.

Great attention must be paid to the state of the bladder, as the patient sometimes suffers under an inability of expelling her urine, in which case the catheter should be introduced twice a day.

When at length the patient recovers, she remains perfectly insensible of all that has happened to her; her strength slowly returns, but eventually no trace remains of the disease; and there is not much danger of its recurring in a future labour. I have known two cases of mania occurring as soon as the convulsions ceased, and remaining for some time, but the patients ultimately got well.

I have had few opportunities of examining women after death who have died of convulsions. *Dr. Denman* says, that he has never seen an instance of effusion of blood in the brain, though the vessels were extremely turgid: but has always remarked that the heart was unusually flaccid, without a single drop in the auricles or ventricles; and the same has been noticed by other practitioners. In one

case I have seen an effusion of blood in the posterior part of the cranium, but the quantity was not large.

The plan of treating puerperal convulsions, here recommended, has been employed in twenty-two cases that I have attended, either in my own practice or in consultation.

In 2 cases, the convulsions did not occur till after delivery: both these women recovered; the children were alive.

In 2 cases the women being in labour of twins, the convulsions occurred in the interval between the birth of the two children, and the labours terminated without artificial assistance: one of these women recovered; and three of the children were born alive.

In 5 cases, the delivery was effected by the forceps: all these women recovered; and two of the children were born alive.

In 4 cases, the perforator was used: three of these women recovered.

In 2 cases, the children were turned: one of the women died; and both the children were dead born.

In 7 cases, the children were born without extraordinary assistance: four of these women recovered; and four of the children were born alive.

Thus 16 women recovered	11 children were born alive.
6..... died	13..... dead.

In 18 instances it was the patient's first labour.

Order 13. *Dystocia Inflammatoria*—*Labour accompanied with Local Inflammation, or general Pyrexia.*

DYSTOCIA INFLAMMATORIA. Young.

Fever or inflammation may accompany labour, either in consequence of a previous disease being present when the patient goes into labour; or from improper management, or from some other cause after the labour has commenced.

Thus *pneumonia, catarrhus, pleuritis, peritonitis, variola, rubeola, scarlatina, typhus, &c.* may occur during pregnancy, and many of these complaints will probably bring on premature labour, which commonly rather adds to, than diminishes, the hazard of the patient.

The nature of the accompanying disease will in a great measure influence the treatment of these cases: the means of cure proper for

the specific complaint must consequently be resorted to, modified however, in some degree, by the state of pregnancy.

If improper management has greatly increased the usual febrile state* of the process of parturition, or if local inflammation has been excited either in the uterus or vagina, in the rectum producing piles, in the perinæum, in the urethra, or elsewhere, it will be necessary to have recourse to some of the following means, viz. bleeding, aperients, clysters, antifebriles, washes, poultices, opiates, rest and quietude; and these means having been duly persevered in, the complaint will generally give way, and the labour will terminate safely.

* A degree of fever always accompanies labour, as may be known by the quick hurried pulse, the tendency to shivering, the thirst and loss of appetite for solid food; but as this is usual, it excites little attention, unless the fever rises to an immoderate height. The knowledge of this fact ought, however, to put practitioners on their guard, not to increase by stimulants the already excited system.

Order 14. *Dystocia Relentiva.*

Young, Cl. 5. O. 77. §. 7.

Labour followed by a Retention of the Placenta for more than an Hour after the Birth of the Child.—See p. 2.

The usual causes of a retained placenta, are,
 (a) a want of contraction in the uterus ;
 (b) a partial or imperfect contraction ;
 (c) a morbid adhesion of the placenta to the uterus.

Very different opinions have existed among practitioners of midwifery respecting the management of the placenta.

In the earliest ages, when parturition was a more natural process than it now is, the expulsion of the placenta was probably always left to nature.

When, however, it became customary, or necessary, to *help* women in labour, the assist-

ance was often rudely, or improperly given, and thus the regular process of parturition was interrupted, and a necessity was produced of giving assistance to bring away the placenta.

The means used were, for the midwife to twist the funis about her fingers, and to drag by that, till the placenta was brought away. This hasty, incautious, and dangerous proceeding, often occasioned the funis to be torn away from its attachment to the placenta, and not uncommonly produced a total inversion of the uterus. *Ruysch* informs us, that he was twice in one day sent for to women, to whom this unfortunate accident had happened.

The frequency of these accidents afterwards led to the adoption of another method; this was to introduce the hand into the uterus as soon as the child was born, and at once to separate the placenta from it; and there were many practitioners who supposed that this operation was always expedient, and uniformly practised it in every labour they attended.

The late *Dr. William Hunter*, whose skill and judgment in the practice of midwifery were much esteemed, having a very high opinion of the powers of nature to effect her own work, and probably being acquainted with many mischances, arising from the practice of thus introducing the hand to separate the placenta, taught that the delivery of the placenta was always to be left to nature; and this plan he uniformly followed in his own practice, and recommended it strongly to his pupils and others.

For a long time this method was successful; the placenta was regularly expelled by the secondary pains, sometimes in an hour or two, sometimes not for twelve or twenty-four hours; and upon some occasions the placenta was retained even beyond this period, without any ill consequences supervening. But upon other occasions, the ill effects of not timely removing the placenta were apparent. In the practice of one of *Dr. Hunter's* pupils, a patient retained the placenta thirteen days; it was then expelled in a dreadful state of putrefaction,

and the patient expired the same day. Another woman retained the placenta eleven days, and died without at all expelling it; and among *Dr. Hunter's* own patients, two or three calamitous accidents took place, which led him, towards the latter end of his life, to alter the opinion he had formed of the propriety of always leaving this case to nature.

Experience has now taught us, that if the labour be perfectly natural, and if the operator be not hasty to interfere with his assistance,* the expulsion of the placenta from the uterus, will generally be effected in ten, twenty, or thirty minutes after the birth of the child; all then that is required from the accoucheur, is

* The practice of using force to hurry the shoulders and body of the child through the os externum as soon as the head was born, is now very generally laid aside. There can be no doubt that this imprudent conduct often brought on a retention of the placenta. See *White's Treatise on the Management of Pregnant and Lying-in Women*, where are recorded many cases of death occurring from retention of the placenta.

to remove it from the vagina; and this he may always safely do, if he proceeds cautiously, as soon as it is thrown off from the uterus by the uterine action.

If, however, the secondary pains do not take place within this period of time, it may be proper for the accoucheur to lay his hand upon the abdomen, and gently to rub the part where the uterus is to be felt, or to press it with his hand, provided the pressure be not so great as to occasion much uneasiness. By acting thus, he will frequently be sensible that a contraction of the uterus takes place; and will find, upon examination, that the placenta has fallen into the vagina, completely separated from the uterus.

— This seems all that is right to do for a full hour after the child is born; but that time being elapsed, and there being no reason to expect that the uterine contractions will spontaneously arise, the accoucheur is to consider whether it is prudent to wait longer before he proceeds to extract the placenta, by introducing his hand into the uterus.

And if no bad symptoms are present, there can be no danger in allowing more time to elapse before we proceed to this operation, and more especially, if there is reason to think, that the retention arises principally from the exhausted state of the patient; because it is possible, that a little more delay will recruit her strength, and that afterwards sufficient power may be imparted to the uterus, to enable it to expel the placenta.

Yet, generally speaking, we can have but little expectation that the placenta will be expelled by the natural powers, after it has been retained for a full hour; we may, therefore, consider ourselves justified in interfering to extract it at the end of one hour after the child is born.

It appears then to be a question of prudence or discretion, which every accoucheur must judge of, in the individual case he is attending, whether to proceed to delivery at the end of the hour, or to wait another hour or two before he undertakes this operation. But of

course this only applies to cases where there is no apparent danger; for in cases of profuse hemorrhage, &c. there is no question upon the subject; here the delivery of the placenta is to be immediately undertaken without delay.

The method of proceeding to extract the placenta is as follows:—the patient lying in the usual way on her left side, or upon her back, with the nates very near the edge of the bed, is to have the belly moderately pressed upon by an assistant; but the pressure ought not to be so great as to give much pain. The accoucheur then, having taken off his coat, and smeared his hand and arm with lard, is to take hold of the funis with his left hand, and to carry his right hand into the uterus, making the funis his guide.

The irritation and pain which this will produce, may possibly excite the action of the uterus, and the placenta be cast off; if so, the operation is speedily performed; and if this fortunate event does not take place, it may be right to endeavour to produce uterine action,

by moving the fingers about slightly near the os uteri.

If, notwithstanding, we fail to bring on uterine action, we must proceed to make an artificial separation; and therefore still making the funis our guide, we must pass the right hand on, till we reach the part where the funis is inserted; then, deliberately feeling for the edge of the placenta, we must cautiously insinuate our fingers between it and the uterus, and steadily pursuing our intention, must entirely separate it before we desist; and it is well to keep the hand in the uterus for a few moments, till a contraction comes on.

Of the length of time that it will take to perform this operation, it is impossible to speak with certainty. If no impediments should arise, the whole may be effected in a few minutes; but should there be an irregular contraction of the uterus, forming what has been called the hour-glass contraction; or should the os uteri have become contracted:

and rigid, it may take a very considerable time to dilate and overcome this impediment.

This is one of the operations that is performed more safely, if performed slowly; it is one in which, to use an expression of *Dr. Denman's*, we should "let the head direct the hand."

The average number of times that retention of the placenta may be expected, is very difficult to be ascertained. In well-conducted private practice, it rarely occurs except from a morbid state of the uterus or placenta. But accidental retentions of the placenta, from undue, or irregular, or improper contraction of the uterus, very often take place, among inexperienced or hasty practitioners, from mismanagement. During a period of six years, that I have been physician-accoucheur to the Westminster General Dispensary, I have been called to cases of retained placenta among the patients of that charity, *once in every 77 labours*: in my private practice, retention of the placenta has *not* occurred *often* than *once in 300 labours*.

Order 15. *Dystocia Inversoria—Labour followed by Inversion of the Uterus.*

Young, § 11.

Inversion of the uterus was formerly an accident of frequent occurrence, but since a more judicious method of managing the delivery of the placenta has been adopted, it is comparatively rare.

Whenever this accident does happen, no time must be lost in re-placing the uterus, and *especial care must be taken to have it completely re-inverted.*

Of the Use of Instruments in Midwifery.

It becomes every man, who means to enter into the practice of midwifery, to set out with a determination, that he will not hastily, or without due cause, have recourse to instrumental assistance; for he may assure him-

self, that if he were easily to yield to his own apprehensions, or to the expressions of alarm by the attendants in the lying-in chamber, and in consequence were to try to expedite the delivery by his instruments, he would, on very many occasions, do irreparable injury to the patient, or her child.

Abundance of instances might be produced of women, who, from a hasty and improper use of instruments, have been placed in a state of the greatest possible danger, or have actually lost their lives, or have been left in a state of misery and suffering, worse than death itself. Nor can there be a doubt, that many children's lives have been sacrificed by premature interference with instruments. Now, surely nothing ought to be more dreaded by every practitioner of midwifery, than the reflection, that a loss of life, or a life of continual distress and pain, has been occasioned either to the mother or the child, by his impatience or want of caution.

Yet, though it behoves us all to entertain a

just dread of the improper use of instruments, it likewise becomes us to be careful, that this dread of instruments is not carried too far; for as much mischief may be done by delaying instruments too long, as by using them too soon.

The old adage, *neque temere neque timide*, though trite, is still a good motto for the accoucheur. Let us not be hasty in the use of instruments, so as to do injury by precipitancy; nor let us delay them too long, lest our patient be so much exhausted before they are applied, as to derive no benefit from the operation.

When attending a case of lingering, difficult, or dangerous labour, it is our duty from time to time to consider, what probability there is of a favourable termination; and whether it is safe to leave it longer, and how much longer, to the efforts of nature. And in forming our opinion, we may in a great measure be guided by the favourable or unfavourable symptoms, enumerated at page 36. As the

favourable or unfavourable symptoms preponderate, we may safely draw our conclusions: but if we are not able to satisfy ourselves perfectly upon this momentous point, it will be prudent to obtain the opinion of some of our medical brethren, that we may not incur the censure of having acted rashly.

If, after having carefully considered and reconsidered the case, it appears expedient to have recourse to instrumental aid, we are then to determine upon the kind of instrument that is adapted to the case.

The instruments used in midwifery are of three kinds:—

1. Those which do not of necessity injure either the mother or the child;
 - viz.* the fillet,
 - the forceps,
 - the lever.
2. Those which are intended to mutilate the infant, and the use of which is of

course incompatible with the life of the child;

viz. the perforator,
the blunt hook,
the crotchet.

3. Those which are intended to inflict a wound upon the mother, as in the Cæsarean operation, or the division of the symphysis pubis.

Of the Fillet, the Forceps, and the Vectis.

Modern practice has excluded the fillet, except in cases of preternatural presentations of the child.

Of the merits of the forceps and vectis, different writers and practitioners think very differently; some extol the advantages of the forceps, others of the lever; some consider the forceps as always safe, the lever as always dangerous; others assert that the lever is always equally safe, and contend that it possesses two great advantages over the forceps, because it can

be applied with greater ease, and can be *secretly* introduced.

After having made a very careful comparative examination of these two instruments, I have been led to draw the following conclusions:—

1. That either instrument, in the hands of a cautious operator, and in proper cases, may be safely and advantageously used.

2. That either instrument, improperly applied, is capable of producing very serious mischief.

3. That cases sometimes occur, in which the forceps will effect the delivery better than the lever; and that, in other cases, the lever is capable of effecting the delivery, though the forceps are not.

4. That as the lever is capable of being introduced more easily, and at an earlier period of the labour, much earlier indeed than the case requires or the rules of art allow, it

is more frequently used unnecessarily, and of course hazardingly, than the forceps.

Lastly, I consider that what has been stated, as an advantage in the lever, *viz.* the practicability of using it *secretly*, is one of its worst properties. For I look upon it as a sacred duty, which an accoucheur owes to his patients as well as to himself, never to employ instruments secretly. He owes it to his patients, because there can be no security against the rash and improper use of instruments, unless the practitioner avows his intentions, and explains to the friends his reasons for employing them. He owes it to himself, because if the case requires the aid of instruments, he gains credit and reputation for his proficiency and skill.

Of the Cases that admit of the Application of the Forceps or Vectis.

The cases that principally require the use of the forceps and vectis are those that belong—

1. To the class *dystocia anenergica*, where

the head having passed so low into the pelvis as to allow the ear of the child to be felt, is stopped in its progress, there being no pains, or not sufficient pains, to propel it.

2. To some instances of *dystocia amorpha*, where, though there may be deformity of the pelvis, it is not so great as to keep the ear of the child beyond the reach of the finger.

3. To cases of *dystocia convulsiva*, &c. when the ear can be felt.

No case is to be esteemed eligible for the application of either of these instruments, unless the ear of the child can be *distinctly* felt; by which time it is presumed that the os uteri will be well dilated, and the perinæum somewhat relaxed.

So careful have the best professors of midwifery been to guard against an improper use of these instruments, that it has been laid down as a *rule of practice*, "That the forceps shall never be applied till the ear of the child has been within reach of the operator's finger, for at least six hours."

This is a judicious rule, and ought to be generally adhered to, since very few cases indeed occur (hemorrhage and convulsions excepted) in which it would be unsafe to wait for six hours after the ear comes within reach of the finger: nor should recourse be had to instruments even then, if a probable chance exists of finishing the labour safely without them.

It is not necessary to give very minute directions, in this place, respecting the manner of applying the lever or forceps; but I shall make a few general remarks, premising, that it will be proper first to introduce a catheter into the bladder, in order that we may be sure it contains no urine, and to clear the rectum by throwing up a clyster.

Having then placéd the patient in the position most favourable for our purpose, which will commonly be on her left side, the knees being brought very near to the edge of the bed, we are to pass the fore finger of the right hand to the child's ear: then taking the handle of

the forceps in the left hand, we are to introduce the point of the blade into the vagina, and making the finger of the right hand our guide, are with great caution to carry forward the blade to the child's ear, over which it is to be passed, and gently insinuated beyond it, till the claw of the forceps is brought quite to, or within the os externum.

The first blade being thus applied, is to be kept in its place by the fourth and little fingers of the operator's left hand, while with his right hand he introduces the second blade of the forceps over the opposite ear of the child.

But as he will not be able to feel the opposite ear, he must be guided in some measure, in introducing the second blade, by the position of the first.

Both blades being introduced, the claws are to be brought together and locked, care being taken not to entangle any of the hair, or soft parts, in the lock.

If, on endeavouring to lock the forceps, it should be found that they do not readily come together, they have not been properly introduced: no force or violence, therefore, should be used to bring them together; but the second blade should be withdrawn, and introduced afresh.

When the forceps are locked, if the handles are in contact with each other through their whole length, they are not properly applied; for the bulk of the head is usually too great to allow the handles to touch each other, if the head is properly included within the bows of the forceps.

If the handles are very far apart, the points of the blades probably rest upon the ears; at all events, the head is not properly embraced by the forceps; and, in attempting to act with them, they will slip.

When acting with the forceps, the force at first used should be very moderate, but is to be increased as occasion may require: yet

if the head advances at all, however slowly, with the force first applied, it need not be increased; for as *Dr. Denman* has very truly observed, "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 mother or child."

It is unnecessary to appear very adroit, or to use great expedition in introducing the forceps: it is much better to introduce them slowly and safely, than hastily and dangerously.

The introduction and action with the lever, are subjected to very much the same rules as those of the forceps. Equal care is to be taken not to be precipitate in having recourse to it, not to do mischief in introducing it, and not to bruise the mother, or otherwise to injure her, while acting with it.

Of the Cases requiring the Use of the Perforator.

The cases which require the perforator are those, where the pelvis is so small at the brim, that the child's head cannot pass through it. Other causes do indeed sometimes render the perforator necessary; but the legitimate cause for using this instrument, is distortion of the pelvis.

Cases of distortion of the pelvis frequently occur, yet it is sometimes very difficult to ascertain whether the distortion is really so great as to prevent the head from passing through it undiminished; and under such circumstances it becomes us to be extremely careful not rashly to determine upon having recourse to the perforator.

Various means have been recommended for accurately measuring the dimensions of the pelvis; and the ingenuity of foreign accoucheurs has produced a number of different

instruments, called *pelvimeters*, which are supposed to ascertain this point with great precision.

But there is probably much more of inaccuracy in this mode of admeasurement on the living body, that at first sight may appear; and certainly the inferences drawn from such admeasurements, and the modes of practice recommended, are most grossly unscientific and perilous.

Thus we are taught by *Stein, Plenck*, and others:—

“1. That if the straight or conjugate diameter of the pelvis amounts to *four French inches*,* the labour will be easy, and should be left to nature.

* The *French* inch is divided into *twelve lines*, and it measures about *one line*, or the *twelfth* of an inch more than the *English*. Four *French* inches, therefore, make rather more than four inches and a quarter *English*.

"2. If this diameter amounts to $8\frac{1}{2}$ inches, the labour will be slow, but the child may be born alive;" they consider this as a fit case for the vectis.

"3. If to $9\frac{1}{2}$ inches, the child," they say, "will be dead if the case is left to nature; but it may be born alive if the forceps are applied in time.

"4. If only to $3\frac{1}{2}$ inches, the labour cannot be effected by the pains; and if the forceps are used, the child will be dead;" therefore they recommend to have "recourse to the division of the *symphysis pubis*, if the child be living; and to the perforator, if it be dead.

"5. If the conjugate diameter only amounts to 3 inches, $2\frac{1}{2}$, $2\frac{1}{2}$, $2\frac{1}{2}$ inches, neither the natural pains, nor the forceps, will effect the delivery; therefore, if the child be living, the Cesarean operation is to be performed; if dead, the perforator is to be employed.

"6. If this diameter amounts only to 2 inches, it is probable," they say, "that even if

the child be dead, the perforator cannot be used;" here then they make no hesitation of recommending the Cesarean section if the child be alive.

"7. If the dimensions of the pelvis are as small as $1\frac{1}{2}$ or $1\frac{1}{2}$ inch, the child, whether living or dead, cannot pass, and the mother must undergo the Cesarean section."

Even admitting that these admeasurements could be accurately ascertained, the practice recommended is, to say the least of it, hasty and injudicious; but many instances might be adduced of the inaccuracy of pelvimeters in ascertaining the dimensions of the pelvis.

Dr. Osborn, who took great pains in investigating the best method of procedure in cases of distorted pelvis, considers that a fetus at full maturity cannot pass alive, if the dimensions of the pelvis, from the pubes to the projection of the sacrum, be only $2\frac{1}{2}$ inches; but as it has been ascertained by *Dr. Hamilton*, that children have been born living, though the pelvis in this diameter was "manifestly under

three inches ;" it is necessary that practitioners of midwifery should be very much upon their guard against being deceived in their estimate of the actual dimensions.

In England we are more in the habit of examining the size of the pelvis by our fingers, than by pelvimeters ; and though we are not able, with so much appearance of precision, to state the actual amount of inches and lines, yet perhaps we may judge equally well, whether the case can be terminated without the use of the perforator.*

* " Although the sacrum may project so much, or advance into the pelvis so far, as to reach within two or three inches of the pubes, and consequently the entrance into that cavity would be only of that diameter, if the bones were directly opposite to each other ; yet the pubes being placed something lower than the greatest projection of the sacrum, and opposed to a part of that bone that diverges backward, the real distance between them may be much more considerable than to the touch it may seem to be. Whence it happens, that in cases where the projection of the sacrum has occasioned exceeding great difficulty in the beginning of the labour, op-

In many cases, however, it will be difficult to determine whether the distortion is so great, as to render the delivery of an entire child impossible; and if there is this difficulty, it becomes us to wait, as long as the safety of the woman will admit, before we proceed to the operation of cephalotomia. In other cases the distortion will be so very considerable, as must satisfy us, upon the first examination, of the impossibility of effecting the birth without diminishing the child; but even in this case, a considerable space of time should be allowed to elapse before we proceed to the

posing an almost insuperable bar to the entrance of the head of the child into the pelvis, by directing it too far over the pubes; yet when that direction has been altered by the crotchet, or by any other means, and the head brought into the line of the centre of the pelvis, the conclusion of the labour has been frequently effected with very little exertion or force." — *Bland's Observations on Human and Comparative Parturition*, p. 200, 5th section.

The whole of this section deserves the very attentive perusal of every practitioner of midwifery.

operation; and generally it will be right to have a consultation with some other accoucheur, before the perforator is employed, particularly if it be a first child;

1. Because the operation, by being delayed, will be more easily and safely performed.

2. Because we shall have the comfort of knowing or believing that we did not introduce the instrument while the child was yet living.

3. Because it is our duty to let the patient and her friends be as well convinced of the necessity for the operation, as we are. Now we form our judgment of the necessity, from examining the dimensions of the pelvis: they can only judge, from the undue length and severity of the labour, and even then may still require the sanction of a deliberate consultation.

When it is at length determined upon to proceed to this operation, moderate caution will enable the operator to perform it without danger of injuring the mother. He must take

care to have the os uteri sufficiently dilated, and must let his finger be the guide to the point of the perforator, till it reaches the head of the child. After he has made an incision through the scalp, he must guard the instrument from slipping till he has drilled through the cranium, and enlarged the aperture, by drawing asunder the handles of the instrument.

It will often be advantageous, after the perforation is made, to allow some hours to elapse before an attempt is made to separate the bones of the cranium. But respecting the propriety of this, the practitioner must judge for himself, founding his opinion upon the state of the patient and the length of time that the labour has already lasted.

Of the Cesarean Operation.

This operation has been so generally unsuccessful in England, that we can have but little inducement to recommend it,

It is supposed that the Cesarean operation is more successfully performed upon the con-

minent than in this island, and it is certainly more frequently employed there.

Since the years 1750 there have been about 20 or 22 instances of this operation in England, and only *two* of the mothers recovered; *nine* of the children, however, were born alive.

M. Beaudelocque, in his "Memoir upon the Cesarean Operation," has collected accounts of 73 operations: *thirty-one* of the women recovered, and twenty-seven of the children were born alive; but many of these operations were most rashly resolved upon, since it cannot be doubted, that some of the women would have been delivered with no more than the ordinary assistance, had the cases been left to nature; and others might have been delivered by art without having their lives placed in such imminent peril.*

* It is impossible to read without horror of the shameful ignorance shown by some of the operators who performed and advised these operations. In

I cannot for a moment doubt, that wherever the perforator can be employed, it is a much safer mode of delivery for the mother, than the Cesarean section; yet I must admit, if any credit is to be given to medical records, that cases have occasionally been met with, which presented so great a distortion of the pelvis, as to preclude the possibility of using the perforator, and in which, of course, the only possible chance of saving either the mother or child, lay in this operation; but such instances are *extremely rare*.

many cases there was no distortion of the pelvis!!! in some, the body of the child was born, and the operation was performed to set the head at liberty! in one case, the head was sunk so low in the pelvis, that when the abdomen and uterus were opened, and the body of the child brought through the wound, it required all the strength of a very powerful man, standing on the bed, to drag at the body, while another was forcing the head back with his hand in the vagina, to get the child's head back through the superior aperture or brim, beyond which it had passed into the cavity of the pelvis!!!

On inducing Premature Labour, as a Means of preventing the Necessity of having Recourse to the Perforator.

As there is a paper of mine upon this subject, in the third volume of "The Medico-Chirurgical Transactions," I shall not now enlarge upon it; but shall content myself with extracting, from that paper, the rules, limitations, and cautions, which ought, I think, to guide us in adopting this mode of practice.

"1. As the *primary* object is to preserve the life of the child, the operation should never be undertaken, till *seven complete months* of utero-gestation have elapsed; and if the pelvis of the mother be not too much contracted to allow of it, the delay of another fortnight will give a greater chance to the child of surviving the birth.

"2. The practice should never be adopted, till *experience has decidedly proved*, that the mother is incapable of bearing a full-grown fetus alive.

K

“ 3. It is sometimes necessary to have recourse to the perforator in a first labour, though there may be no considerable distortion of the pelvis; therefore the use of this instrument in a former labour is not *alone* to be considered as a justification of the practice.

“ 4. The operation ought not to be performed when the patient is labouring under any dangerous disease.

“ 5. If upon examination, before the operation is performed, it should be discovered that the presentation is preternatural, it might be advisable to defer it for a few days, as it is possible that a spontaneous alteration of the child's position may take place; particularly if the presentation be of the superior extremities.

“ 6. The utmost care should be taken to guard against an attack of shivering and fever, which seems to be no unusual consequence of this attempt to induce uterine action, and has often proved destructive to the child, as well as alarming with regard to the mother. The

peculiar circumstances under which the operation is performed, and the habit of body of the patient, will determine the accoucheur either to adopt a strictly antiphlogistic plan, or to exhibit opiates, or antispasmodics and tonics.

“ 7. In order to give every possible chance for preserving the life of the child, it will be prudent to have a wet nurse in readiness, that the child may have a plentiful supply of breast-milk from the very hour of its birth.

“ Lastly, A regard to his own character should determine the accoucheur, not to perform this operation unless some other respectable practitioner has seen the patient, and has acknowledged the operation as advisable.”

Various tables have, upon different occasions, been published, of the accidents, extraordinary incidents, deaths, &c. that have occurred during labour; and it is probable that much benefit would result, and certainly some instruction would be gained, by correct statements of this kind. For some time past I have endeavoured to keep a very correct account of the kinds of labours that I have attended; and, since the commencement of my register, have delivered upwards of 1800 women. The result of these labours will be seen in the following table: the number, however, is not sufficiently great to draw very correct averages. It should be mentioned, that this list does not include any patients of the charities to which I belong.

*Table of the Number of Accidents or Deaths
which happen in consequence of Parturition;
taken from the Midwifery Reports of the
Westminster General Dispensary. By
ROBERT BLAND, M. D.*

Of 1897 women delivered under the care of
the Dispensary,

63	(or 1 in 30) had unnatural labours: in
18	of these (or 1 in 105) the children presented by their feet; in
36	(or 1 in 52) the breech presented; in
8	the arms presented; and in
1	the funis. } 9* (or 1 in 210.)
—	—
63	—
17	women (or 1 in 111) had laborious labours; in
†8	of these (or 1 in 236) the heads of the children were lessened; in
—	—
80	8

* In all these nine cases the children were turned.

† Two of these women have since been delivered of full-sized

80	8	
	4	a single blade of a forceps was used ; and in the remaining
	5	in which the faces of the children were turned to the pubes, the delivery was at length accomplished by the pains.
	—	
	17	
	—	
	1	woman had convulsions about the seventh month of her pregnancy, and was de- livered a month after of a dead child, and recovered.
	1	woman had convulsions during labour, brought forth a live child, and recovered.
	*9	women (or 1 in 210) had uterine hemor- rhage before and during labour.
		Of these 1 died undelivered ;
		1 died in a few hours, and
	—	
	91	2

healthy children. A third bore a very small and weakly child, who died in two or three days. A fourth was delivered of a seven-months' child, without mutilating it, which died in its passage. The number of women, therefore, who from error in their conformation were incapable of bearing live children, appears to be very inconsiderable. Of the remaining four I have not been able to get any intelligence.

* In these nine cases, only one child was saved.

- 91 2
 1 ten days, after delivery; and
 6 recovered.

 9

- 5 women had the puerperal fever, of whom
 four died. In one of these the pla-
 centa was undelivered, and continued
 so to her death.
- 2 women were seized with mania, but re-
 covered in about three months. In
- 1 woman a suppuration took place, soon
 after labour, from the vagina into the
 bladder and rectum. This patient re-
 covered, but the urine and stools con-
 tinue to pass through the wounds. Of
- 1 woman the perinæum was lacerated to
 the sphincter ani. A suture was at-
 tempted, but without effect; she re-
 covered, but is troubled with prolapsus
 uteri.
- 5 had large and painful swellings of the
 legs and thighs, but recovered.
-
- 105 therefore of these (or 1 in 18) had pre-
 ternatural or laborious births, or suf-
 fered in consequence of labour. Of
 this number of cases 43 (or 1 in 44)
 were attended with particular difficulty
 or danger; and 7 only (or 1 in 270)

105

died. The remaining 62 were delivered and recovered with little more than the common assistance ; and

1792

had natural labours, not attended with any particular accidents.

1897

100 Labours.

884 girls.

In 1559	hours	constituting	
75	-	-	<i>Eutocia.</i>
20	4	-	<i>Dystocia Diutina.</i>
4	-	-	<i>Perversa, a.</i>
4	-	-	<i>_____ , b.</i>
42	-	-	<i>_____ , c.</i>
23	-	-	<i>Transversa, a.</i>
7	-	-	<i>_____ , b.</i>
8	-	-	<i>_____ , c.</i>
1	-	-	<i>_____ , e.</i>
22	-	-	<i>Obturatoria, a.</i>
1	-	-	<i>Gemina, a.</i>
1	-	-	<i>_____ , b.</i>
1	-	-	<i>Laceratoria, c.</i>
8	-	-	<i>_____ , d.</i>
4	-	-	<i>Hæmorrhagica, a.</i>
13	-	-	<i>_____ , b.</i>
2	-	-	<i>_____ , c.</i>
6	-	-	<i>Convulsiva.</i>
			<i>Retentiva.</i>

bed:

any known cause.

required undelivered.

cases puerperalis.

years old.

e *Hospice de la Maternité*, at Paris.
ens," 1812.)

Num

Kind of Presentation.

occiput towards the left groin.

occiput towards the right groin.

occiput resting on the symphysis pubis.

of the head.

of the head.

hand.

to the left of the pubes.

to the right of the pubes.

h the chin to the sacrum.

h the chin to the right side of the pelvis.

h the chin to the left side of the pelvis.

th the face towards the right sacro-iliac synchondrosis.

th the face towards the mother's back.

th the face towards the mother's belly.

toes turned to the right of the pelvis.

toes turned to the left of the pelvis.

toes to the mother's back.

ing and *belly*.*

1.

ast.

* Quot: I never knew a single practitioner who had ever met with it.

*Table of Presentations at the Maison
d'Accouchemens.*

There have been admitted into the Lying-in Hospital at Paris (Maison d'Accouchemens), between the 9th of Dec. 1799, and the 31st of May, 1809, 17,308 women, who gave birth to 17,499 children: 189 of them have been delivered of twins, and two only of three children. The proportion of twin cases to single births is 1 to 91.

Two thousand of these women were affected afterwards with illness, or some serious accident; 700 died out of the 2000.

Of the 17,499 births, 16,286 were presentations of the *vertex* to the *os uteri*.

No.	Proportions.
215 were presentations of the feet -	1 to 81 $\frac{1}{3}$
296 the breech - - - - -	1 — 59 $\frac{1}{3}$
59 the face - - - - -	1 — 296 $\frac{1}{2}$
52 one of the shoulders - - - -	1 — 336 $\frac{1}{2}$
4 the side of the thorax - - - -	1 — 4374 $\frac{1}{4}$
4 the hip - - - - -	1 — 4374 $\frac{1}{4}$
4 the left side of the head - - -	1 — 4374 $\frac{1}{4}$
4 the knees - - - - -	1 — 4374 $\frac{1}{4}$
4 the head, an arm, and the cord -	1 — 4374 $\frac{1}{4}$
3 the belly - - - - -	1 — 5833
3 the back - - - - -	1 — 5833
3 the loins - - - - -	1 — 5833

1 the occipital region - - - -	1	—	17499
1 the side, with the right hand	1	—	17499
1 the right hand and left foot -	1	—	17499
1 the head and the feet - - -	1	—	17499
2 the head, the hand, and forearm	1	—	8749½
37 the head and umbilical cord - -	1	—	473

Of this great number of women 230 were delivered by art; the rest were natural births, being in proportion of 1 to 76½. 161 were delivered by the hand alone, the children being brought by the feet; 49 were delivered by the forceps, either on account of the small dimensions of the pelvis, the falling down of the umbilical cord, or the wrong position of the head, when the woman was exhausted, or her life was in danger by convulsions, &c.; 13 were extracted by the crotchet after perforation of the head, on account of mal-conformation of the pelvis: in these instances, the death of the child was first ascertained.

The Cesarian operation was performed in two cases, the diameter of the pelvis being only one inch six lines from sacrum to pubes.

In one, the section of the symphysis pubis was performed, the diameter of the pelvis from sacrum to pubis being only two inches and a quarter.

Gastrotoomy was performed once, the fetus being extra-uterine: the child weighed 8lb. 2 oz.

*Table of the average Number of Deaths in
Child-bed in London, taken from the Bills of
Mortality.*

For 4 years ending in 1660—1 in	36.
10 - - - 1670	39.
10 - - - 1680	49.
10 - - - 1690	47.
10 - - - 1700	65.
10 - - - 1710	67.
10 - - - 1720	72.
10 - - - 1730	73.
10 - - - 1740	70.
10 - - - 1750	74.
10 - - - 1760	81.
10 - - - 1770	72.
10 - - - 1780	92.
10 - - - 1790	107.
10 - - - 1800	113.
10 - - - 1810	106.
3 - - - 1813	116.

F I N I S.

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