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OR,

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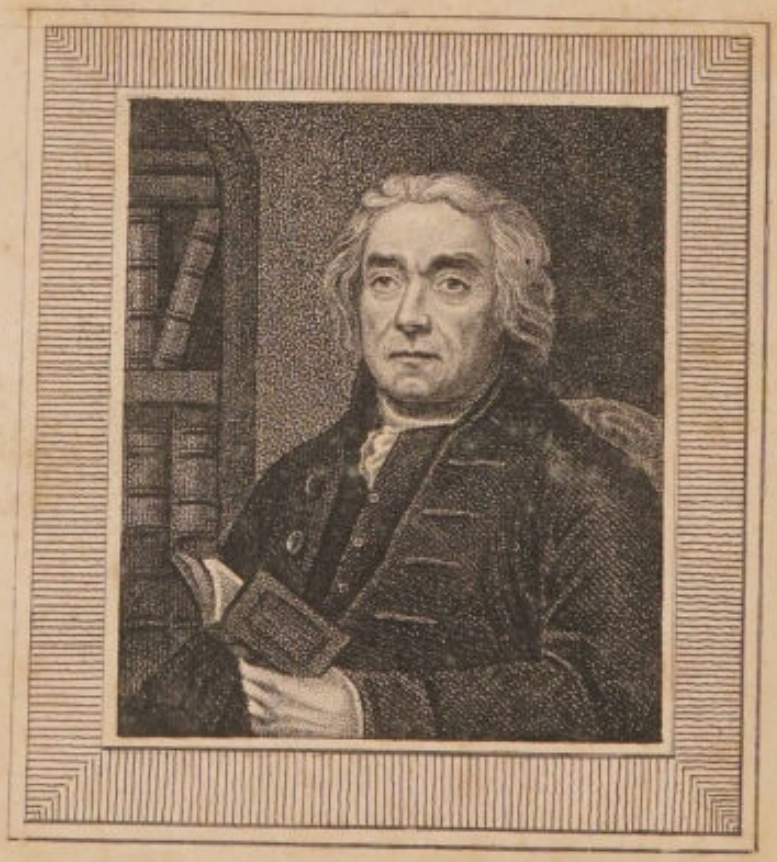

Thomas Denman, M.D.

Published by Eliz. Cox. St Thomas's Street Boro

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ON LABOURS COMPLICATED WITH HEMORRHAGE, CONVULSIONS, ETC., ETC.

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LONDON:
E. COX, ST. THOMAS'S STREET, SOUTHWARK;
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1836.

TO

DAVID D. DAVIS, M.D., M.R.S. L.,

PROFESSOR OF OBSTETRICY AT THE LONDON UNIVERSITY,

OBSTETRIC PHYSICIAN

TO THE NORTH LONDON HOSPITAL, AND TO THE

ROYAL MATERNITY CHARITY:

WHOSE WORKS

HAVE SO LARGELY CONTRIBUTED TO ADVANCE

THE SCIENCE AND PRACTICE

OF THAT BRANCH OF MEDICINE TO WHICH THEY RELATE:

This Volume

IS RESPECTFULLY DEDICATED

BY

THE PUBLISHER.

St. Thomas's Street, Borough,
Nov. 1835.

EDITOR'S PREFACE.

Dr. Denman's Aphorisms on Obstetricy have passed through eight editions. He was the most eminent Obstetrician of his age, and is justly acknowledged as such wherever medicine is cultivated. There never was a physician whose practical opinions were more generally adopted. His works are of standard authority and reference.

The following pages were the result of his extensive experience and careful observations. The principles and practice recommended in them, are most admirable and instructive. The justly celebrated Author, actuated by that modesty characteristic of great minds, offered to the world, in this Work, a partial and imperfect view of his practical conclusions. He had given all his views in his Introduction to the Practice of Midwifery.

In this little Work, he confined his observations to "The Application and Use of the Forceps and Vectis, to preternatural Labours, and Labours attended with Hemorrhage and Convulsions, &c."

So far as the Aphorisms extend, there could be none more judicious or excellent. They are not, however, sufficiently comprehensive, nor could they contain the vast improvements made in the practice of Obstetricy, which have been discovered since the decease of the Author.

The Editor has therefore deemed it advisable to make the necessary additions, and to arrange the Work according to the present state of Obstetricy. He has considered it essential to prefix the anatomy of the pelvis, and the mechanism of natural parturition, without a knowledge of which, no one can perfectly understand the precepts of the Author.

He has given a minute description of the duties of the Obstetrician, male or female, and of the assistance which ought to be afforded during natural and difficult parturition. He has fully described the use of the ergot of rye, which possesses the power of expediting labour, and which was not employed in the time of Dr. Denman. He has also explained the methods of managing the numerous cases in which parturition is retarded, but of which the Author had only given the heads. He has likewise appended copious Notes to the text, where these were required. He has explained more minutely than the celebrated Author, the methods of applying and using instruments, and the numerous cases in which they are required. He has further described the manner of performing all obstetric

operations, as craniotomy, symphyseotomy, gastrotomy, gastro-hysterotomy, transfusion, &c., which were omitted by the Author. He has, on some occasions, differed from the text, as on spontaneous evolution, which all modern Obstetricians consider as the only objectionable and untenable part of Dr. Denman's valuable productions.

In fine, the Editor thought it his duty to add every precept and practice which are now universally adopted, and to render the Work, which he was requested to revise, as complete as the present state of science admits. Whether he has succeeded in executing the task he has undertaken, remains to be determined by his professional brethren. The Publisher has gone to considerable expense in illustrating the Work with beautifully executed copper plates, and offers it to the medical public on the most moderate terms.

This little volume has been designated the "Obstetrician's Vademecum" by the Editor, and contains all the practical precepts in modern Obstetricy. Every medical practitioner who engages in this branch of medicine, will find it a valuable companion at the bed-side; but it by no means supersedes elementary or systematic works on the same subject. It describes, as concisely as possible, every case, and its treatment; but it does not contain the reasonings and facts which have led to practical conclusions. These must be sought for in the larger and more extensive works.

It is scarcely necessary to observe, that it is impossible to include the matter of a large octavo volume in 235 pages duodecimo, nor did the Editor attempt it. His object was to add to the original Work, and render it what it was intended to be, and really is, a pocket companion for the lying-in room, and not a treatise of reference. In further proof of this statement, the reader may be reminded, that Dr. Denman did not intend to supersede his large Work by the publication of the present little volume; as the works are totally different, and do not in the slightest degree interfere with each other. The one is a Vademecum, the other intended for the study, and for deliberate reference. In fine, it is right to observe, that all the editorial additions are included in brackets, and the initials of the Editor added both in the text and notes.

M. RYAN.

Great Queen Street,
St. James's Park, Westminster,
November, 1835.

CONTENTS.

THE

OBSTETRICIAN'S VADEMECUM.

ANATOMY OF THE PELVIS.

[THE pelvis is that portion of the skeleton situated at the inferior part of the trunk, between the spine which it supports, and the thigh bones which support it, and are articulated to it at the acetabula or sockets, by cartilages and ligaments. (See Plate I.)

The adult pelvis is formed by four bones, the os innominatum on each side, consisting of the ilium, ischium, and pubes; the sacrum and os coccygis posteriorly. (See Plate I.)

a. The os innominatum, including the ilium D D, the ischium E E, and the pubes F, forms the hips, the bones on which we sit, and the bony arch in front of the abdomen called the arch of the pubes.

Each os innominatum is united anteriorly or in front, F, forming the *pubic joint*, and an arch called the *arch of the pubes*, and posteriorly to

the upper part of the sacrum, and the union is termed the *sacro-iliac joint*, J J.

b. The *sacrum* is a triangular bone, B, with its base supporting the spine, the union termed the sacro-vertebral, and the prominence formed by it, *the promontory of the sacrum.* This bone is united to a small pyramidal one called the os coccygis, and the union is termed sacro-coccygeal joint, C. The sacrum is concave internally, and its depression is named, in obstetric language, the *concavity* or *hollow* of the sacrum.

c. The os coccygis is loosely united to the sacrum, C, so as to allow a considerable regressive or backward motion of this bone during the pressure of the infant's head, and thus to enlarge the outlet of the pelvis. This joint is sometimes anchylosed or firmly united by bone in some women, especially in those advanced in life, and yields only with pain and difficulty.

DIVISIONS OF THE PELVIS.—All that portion above the ellipsis or cordiform space marked I I I I, in Plate I., is designated the abdominal or *false* pelvis; all below it, the *true* pelvis.

The true pelvis is subdivided into the brim or superior strait, I I I I, the cavity, and inferior strait or opening, B C H H E F, or outlet.

The different parts of the internal surface of the pelvis are measured to ascertain their length, and the lines are termed *diameters of the pelvis.*

The *brim* or *superior strait* of the pelvis is

cordiform or heart-shaped; and the outlet is an irregular oval aperture.

Diameters of the brim.—A line drawn from either sacro-iliac joint or symphisis to the opposite acetabulum (cotyloid cavity) or socket for the head of the thigh bone, measures on a well formed adult woman, from five inches and a quarter, to five inches and a half, and as this is the longest admeasurement of the brim of the pelvis, it is called the *long* or *oblique* diameter of the brim. There are two oblique or long diameters, one on each side.

A line drawn from I I on Plate I., measures from five inches to five and a quarter, and as it passes from one os ilium to the other across the brim, it is called *transverse* diameter or *bis-iliac* diameter.

A line drawn from the upper part of the pubic joint, F, to the first joint of the sacrum, measures from four inches three quarters to five inches, and is termed the *short*, *conjugate*, or *sacro-pubic* diameter.

Diameters of the cavity of the pelvis.—All the space from the brim to the outlet is called the cavity of the pelvis. The depth of the circumference of this space, is about two inches at the pubic joint, F, and between five and six inches from the upper part of the sacrum to the point of the coccyx or os coccygis.

Diameters of the outlet of the pelvis.—The dia-

meters of the outlet are four inches from one tuberosity or prominence of the ischium to the other, E E, and four inches from the inferior edge of the pubic joint, F, to the point of the coccyx, C; but as the last mentioned bone yields to the pressure of the infant's head during labour, and recedes about an inch, the extent from pubes to coccyx is estimated at five inches, and this is called the *long* diameter or *coccy-pubic* diameter of the outlet. The former is termed the *short* or *bis-ischiatic* diameter of the outlet. It is to be recollected that these diameters may, in different sized women, be much smaller or larger, but when of the extent now stated, are sufficiently ample to admit of natural parturition or labour.

These admeasurements are made on the pelvis of the adult female skeleton divested of soft parts, which diminish them considerably. They are, however, sufficiently capacious in the living subject to admit the passage of the infant's head, the usual dimensions of which are about three inches and a half from ear to ear, and four and a half or five from the fore to the hind head, or in the occipito-frontal diameter.

On examining the adult female pelvis as part of the skeleton, it will be found to have an oblique bearing to the trunk; the brim being neither horizontal nor perpendicular, but placed at a very considerable angle,—between thirty-five and forty degrees. In consequence of this position, the gravid or im-

pregnated uterus, after it has risen out of the true pelvis, is thrown forwards against the abdominal muscles or front of the abdomen, and is supported by the brim and hip bones, which are widely separated from each other for the purpose. It is very evident from this disposition of parts, from the oblique or long diameters of the brim being in an opposite direction to the coccy-pubic or long diameter of the outlet from front to back, that the infant cannot fall through the pelvis suddenly, unless this bony cavity is very capacious.

When the brim of the pelvis is very large and capacious, as in large women, the womb is not sufficiently supported on the brim; it falls into the cavity of the pelvis, presses on the bladder and rectum or lower bowel, irritates these organs, and causes them to expel their contents more frequently than in the natural condition.

The relative position of the pelvis to the trunk, leads to other important information—the *axes of the pelvis.*

Axes of the pelvis.—A line passed from the umbilicus or navel to the sacro-coccygeal joint, or apex of the coccyx,—that is, downwards and backwards,—is termed the *axis* of the *brim of the pelvis.*

A line drawn from the upper part of the sacrum through the centre of the vagina, or upper third of the outlet, is called the *axis of the outlet.*

The knowledge of the axes of the pelvis is of

vital importance in practice, as it directs us to adapt that line of motion or traction to that part of the pelvis, brim or outlet, through which the infant is being passed. It is also indispensably necessary in all obstetric operations.

When the infant is above the outlet, it is pressed downwards and backwards; when it has arrived at the outlet, it is pressed upwards and forwards, towards the pubes or abdomen of the mother.

Traction with the hand, or instruments, is made downwards and backwards, when the infant is above the brim or in the upper part of the cavity, and upwards and forwards, when the head or breech is on the perineum, or passing through the outlet and genital aperture.

Admeasurements of the infant's head, shoulders, and breech.—The parts of the infant concerned in delivery are, the *head*, the *shoulders*, and the *breech*.

ā. The head of an infant at birth, when separated from the body, is obstetrically divided into regions; the *vertex*, *summit or crown;* the *base of the skull;* the *face;* and *temporal regions.*

Vertex—summit or crown of the head—is characterized by certain marks, and these are, the *anterior* and *posterior fontanelles*, or *openings of the head*, and the sagittal suture, or separation between the bones, which runs from the forehead to the back of the head.

The *base of the skull* presents when the infant advances by the feet or breech, or when the body is separated from the head.

The *face* possesses signs which can seldom be mistaken.

The *temporal regions* are discoverable by the ears.

The HEAD is measured, like the female pelvis, with a view to compare natural with preternatural labours.

Obstetricians hold that it presents five diameters and two circumferences.

Diameters. *a.* The *occipito-frontal*, from the back of the head to the forehead; this generally measures five inches, and is called the occipito-frontal, or *long diameter of the head.*

b. The *bis-parietal*, or *from one parietal protuberance* to the other across the crown of the head (from ear to ear), which measures three inches and a half; and is also termed the *short diameter of the cranium*, in contradistinction to the former.

c. The *occipito-mental*, or *oblique diameter*, proceeding from the back of the head to the chin, and measuring four inches and a quarter. This will be the presenting part of the head when the infant comes into the world by the feet or breech.

d. The fourth diameter of the infant's head is from the vertex or crown to the base of the cranium, and measures about three inches and a half.

e. The fifth diameter of the head is from one mastoid process or protuberance behind the ear to the other, and measures about two inches and a half.

The longest admeasurement of the head superiorly is from before backwards (the *long diameter*), and the shorter from ear to ear (the *short diameter*).

As the head is composed of several bones, separated by sutures, it may be considerably compressed, as the bones may, and generally do, lap over each other during labour, unless when perfectly ossified, as in the adult, a rare occurrence; and thus the diameters may be less than mentioned.

It is also to be borne in mind that the head may be astonishingly enlarged by hydrocephalus, and, consequently, the diameters of greater extent than are usually observed.

The head of male infants is supposed by some to be about one thirty-second part larger than that of females; and hence the greater mortality of the former during tedious or difficult labours.

f. The two circumferences of the head are:—1. The perpendicular division of the head into two hemispheres: the extent about fourteen or fifteen inches. 2. The perpendicular into two halves, anterior and posterior: the extent of this circumference being from ten to eleven inches.

Movements of the head upon the trunk.—The head of the fœtus may be flexed or bent upon the

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or presenting part of the head, escapes first during labour. Thus we feel the occiput, or back of the head, under the pubes, while the forehead is on the perineum, and the face in the concavity or hollow of the sacrum, for one or more hours before the head is born.

The axes of the pelvis form a curved line, extending from the cavity of the pelvis along the coccyx and perineum towards the pubes and maternal abdomen, the concavity of which is turned towards the pubes and the convexity towards the sacrum; so that the fœtus, in being expelled, follows this line or direction, the occiput, or back of the head, escapes on the pubes; and the obstetrician follows it in every operation. I have fully illustrated the passage of the infant's head through the pelvis in Plate II. of my "Manual of Obstetricy," 3d edition, 1831. (See also Plate IV.)

MECHANISM OF NATURAL PARTURITION, OR LABOUR BY THE HEAD.

Natural parturition, according to British authors, terminates by the presentation of the vertex or crown of the infant's head, the pelvis of the mother being of the natural dimensions.

Parturition may terminate naturally by the *head*, *feet*, *knees*, or *breech*, according to foreign obstetric writers. This last position cannot be doubted.

Natural parturition by the head.—Natural par-

turition may be effected by four positions of the head, which correspond to the oblique diameters of the maternal pelvis, and the adaptation of the long diameter of the infant's head.

First position. Principal relations.—The occiput is turned to the left acetabulum or cotyloid cavity, and the forehead to the right sacro-iliac joint, symphysis, or synchondrosis. The posterior region of the infant is in front and to the left; the anterior is backward and to the right; and the feet are at the fundus or upper part of the uterus.

Mechanism.—Pressed by the contractions of the uterus, the head is flexed or bent upon the chest, and its occipito-mental diameter becomes parallel to the brim or superior strait of the pelvis. Thus the vertex, or crown of the head, presents*. The vertex descends with one ear to the pubes and the other to the sacrum, it gradually sweeps over the concavity or hollow of the sacrum; arrived at the inferior strait, the face is to one side and the occiput to the other. (Plate VI.) It now encounters considerable pressure from the planes of the pelvis, the rami of the ischia, and sacro-ischiatic ligaments, which effect on it a rotatory motion, by which the face is turned into the concavity or hollow of the sacrum, and the occiput to the arch of the pubis. (Plate VII.)

The long diameter of the infant's head is in the

* The term "presents" refers to that part of the infant which descends at or through the brim of the pelvis or outlet.

long diameter of the outlet of the maternal pelvis, and is to be raised towards the abdomen (Plate VII.), so that the crown of the head, the forehead, and face may be elevated towards the pubes and gradually expelled. (See Plate II. of my "Manual of Obstetricy," 1831, and also Plate IV.)

When the face is in the concavity of the sacrum (Plate VII., C D E), the head is advanced more and more, by the contractions of the uterus (labour pains); it gradually distends the perineum and genital fissure, and after each pain ascends into the concavity of the sacrum. Each pain distends the perineum and external genital aperture (vulva, pudenda), and after a longer or shorter interval, the resistance of the external genitals is overcome, and the head escapes externally. At this moment the occiput turns towards the pubes, the face advances along the sacrum and perineum (Plate VII.), and the back and middle of the head having escaped the genital aperture, the perineum (soft parts) expands over the forehead and face, the uterus pressing forcibly, and the head escapes towards the pubes or abdomen of the mother. When the head has escaped, the occiput is turned towards the left groin, and the face towards the posterior and internal surface of the right thigh. By this rotation the shoulders are turned in the oblique diameter of the brim of the pelvis, one descends over the concavity of the sacrum, the other is turned to the pubes, and when they arrive at the

inferior strait or outlet, they are rotated or turned by the inclined planes in the same manner as the head, one coming towards the pubes and the other towards the os coccygis; that is, the long diameter of the infant's body coming towards the long diameter of the outlet of the maternal pelvis. The right shoulder is now towards the arch of the pubes, and the left towards the sacrum. At this moment the head changes its relations; the face is directly turned to the middle and internal part of the right thigh, and the occiput to the internal and middle part of the left. The inferior or lower shoulder receives all the contractions of the uterus, it speedily appears at the genital fissure, while that under the pubes serves as a point of support. As soon as the shoulders are expelled, the body generally follows with rapidity in an oblique direction, to the genital aperture, not from pubes to sacrum, and the hips of the infant being now adapted with mathematical precision to the long diameter of the brim, and also rotated, like the head and shoulders, in the cavity of the pelvis by the planes of the ischia, so that one hip escapes under the pubes, the other towards the sacrum; the longest diameter of the infant being here also adapted to the longest of the maternal bones or pelvis.

Thus it appears that the human offspring comes into the world, its most voluminous parts being adapted to the widest of those of the female parent. It is most essential to comprehend clearly

the mechanism of natural parturition, for without knowing it, no practitioner can act with safety or satisfaction in the numerous difficult cases that frequently present themselves, every one of which is managed in strict imitation of the process of natural labour.

Second position.—The relative positions of the infant and pelvis are the same as the last, but at the other side of the pelvis.

Third position. Principal relations.—In this position the occiput instead of the forehead corresponds to the right sacro-iliac joint or symphysis, and the forehead to the left acetabulum or cotyloid cavity. The posterior region of the infant is directed backwards and to the right, the anterior forwards and to the left.

The head at the superior strait is flexed on the chest, and the occiput descends into the cavity of the pelvis. Arrived at the inferior strait, the head encounters the inclined planes, which impress upon it a rotatory motion, the occiput glides on the right lateral and posterior inclined plane, so as to place itself in the curvature of the sacrum, whilst the face glides on the anterior and left lateral inclined planes, so as to come under the arch of the pubes. The occiput now receives all the contractions of the uterus, it passes over the sacrum, coccyx, and perineum, while the face ascends in the pelvis, and is depressed on the chest.

As soon as the occiput begins to appear at the

vulva or external genital aperture, this part is dilated after every pain, and the occiput re-ascends into the cavity of the sacrum. Finally, the resistance of the external genitals is overcome, the occiput or back of the head passes into the world along the inferior axis of the pelvis, and the face escapes from under the arch of the pubes.

The occiput now corresponds to the posterior and internal part of the right thigh, and the face to the left groin.

The shoulders are obliquely engaged at the superior strait, and pass the cavity of the sacrum. Arrived at the inferior strait or outlet, they encounter the inclined planes, which impress on them a rotatory motion.

The right shoulder is turned into the curvature of the sacrum, the left shoulder is placed under the arch of the pubes. The head now changes its relations: the face looks to the middle part of the left thigh, and the occiput to that of the right thigh.

The lower shoulder, which is towards the sacrum, receives all the contractions of the womb, whilst that which is under the pubes is a point of support.

When the shoulders are expelled, the rest of the body passes without any difficulty, the hips of the infant being turned to the pubes and sacrum of the mother, or the long diameter of the infant being to that of the outlet of the mother. This position may be often reduced to the second.

Fourth position. Principal relations. — The occiput corresponds to the left sacro-iliac symphysis, the face to the right acetabulum or cotyloid cavity. The posterior region of the fœtus is directed backwards and to the left, the anterior region forwards and to the right. The feet are towards the fundus or upper part of the uterus.

Mechanism.—The mechanism of the fourth position is the same as the third, except that the rotation and progress of the infant are in an inverse sense. This position may be naturally converted into the first.

NATURAL PARTURITION BY THE ABDOMINAL EXTREMITY OF THE FŒTUS.

PEDAL PRESENTATIONS.

Positions of the feet.—The feet present in four principal positions, which correspond to the oblique diameters of the brim of the pelvis. The fœtus is placed in these positions, in such a manner that the thighs are flexed or bent on the pelvis, the legs on the thighs, and the heels are applied to the breech.

First position. Principal relations.—The heels correspond to the left cotyloid cavity, (acetabulum,) the toes to the right sacro-iliac symphysis.

The posterior region of the fœtus is directed forwards and to the left, the anterior backwards and to the right.

Mechanism.—Pressed by the contractions of

the uterus, the feet descend with facility into the cavity of the pelvis, and through the outlet. The breech encounters the inclined planes, is rotated, and the left hip is placed under the pubes, and the right in the concavity of the sacrum.

The longest diameter of the infant's pelvis, which is from hip to hip, as already stated, is adapted to the oblique or longest diameter of the brim, and to the antero-posterior, coccy-pubic or long diameter of the outlet. (This adaptation does not occur when the maternal pelvis is very large, as in this case the breech may escape or come into the world transversely, each hip being turned to those of the mother.)

The inferior or lower hip receives all the contractions of the womb, escapes first, whilst that under the pubes is a point of support. The shoulders are engaged obliquely in the brim or superior strait, at the same time that the arms are placed on the sides of the head. When the shoulders arrive at the inferior strait, the inferior one, which is towards the sacrum, escapes first; the body of the infant being raised towards the abdomen of the mother.

The head is now engaged obliquely at the superior strait, and the chin is flexed on the chest. Arrived at the inferior strait, it undergoes rotation, the face is turned into the hollow or cavity of the sacrum, and the occiput is placed under the arch of the pubes.

The chin courses along the concavity of the sacrum, coccyx and perineum, and presents at the vulva. The different parts of the face traverse the sacrum, coccyx, perineum, and escape at the inferior commissure or angle of the vulva, the forehead, crown of the head, and occiput follow on the same parts, and the back of the head is born last*.

Second position. Principal relations.—These are in exactly an inverse sense to those of the first position, just described.

Third position. Principal relations.—The heels correspond to the right sacro-iliac symphysis or joint; the toes to the left cotyloid cavity. The posterior region of the infant is directed backwards and to the right, the anterior forwards and to the left. The head is at the fundus of the uterus.

Mechanism.—The mechanism of this position scarcely differs from the first position, as the same diameters of the fœtus are found to correspond to those of the pelvis of the mother.

Thus the feet, pressed by the contractions of the uterus, descend without difficulty into the cavity and outlet of the pelvis. The breech is rotated by the inclined planes, and has one hip

* During the birth of the head, the body of the infant ought to be supported on the left arm, the fore-finger of the left hand placed in the mouth to depress the chin on the chest, and the back of the infant turned on the abdomen of the mother.

turned towards the pubes of the mother, and another to the perineum, or passes transversely through the outlet when the maternal pelvis is large or the fœtus small or premature.

The shoulders are engaged obliquely at the brim, and descend into the outlet, one being to the pubes of the mother, the other to the perineum. The head is engaged obliquely in the brim of the pelvis, the chin is flexed on the chest, and after rotation, the occiput is turned into the curvature of the sacrum, whilst the face is placed under the pubes.

The occiput traverses the sacrum, coccyx, and perineum, whilst the face ascends into the pelvis; the neck is pressed against the inferior commissure or angle of the vulva, and is pushed downwards; the face disengages itself under the pubes, and the occiput is born last.

Fourth position. Principal relations. — The feet correspond to the left sacro-iliac symphysis, the toes to the right cotyloid cavity. The posterior region of the fœtus is backwards and to the left, the anterior forwards and to the right. The head is at the fundus of the uterus.

The mechanism is the same as in the third position, but in an inverse sense.

This fourth position may be naturally converted into the first.

Positions of the Knees. *Principal relations.*—The knees may present, like the feet,

in four positions. The legs are flexed on the thighs, and these are extended on the pelvis.

First position. Principal relations.—The anterior part of the legs corresponds to the left cotyloid cavity, the anterior part of the thighs to the right sacro-iliac symphysis. The posterior region of the fœtus looks forwards and to the left; the anterior backwards and to the right.

Second position is the reverse of this.

Third position. Principal relations.—The anterior part of the legs corresponds to the right sacro-iliac symphysis; and the anterior part of the thighs to the left cotyloid cavity. The posterior region of the fœtus looks backwards and to the right, the anterior forwards and to the left.

The fourth position is the reverse of this.

The mechanism of the knee, or genual presentation, is exactly the same as those of the feet.

Positions of the breech are the same as those of the feet or knees, unless that the breech presents first.

It is essential to remember, that the hips of the infant ought to be turned to the pubes or abdomen, and sacrum or back of the mother, when passing through the outlet, as already stated in describing the mechanism of presentations of the feet. It is in this relative position that nature places the hips of the infant in natural labour, as already stated.

The breech may present with the abdomen of

the infant to the back of the mother, (see Plate XIV.,) or the reverse, the abdomen of the infant to that of the mother, or either hip of the infant to the sacro-iliac joint of the mother, or either infantile hip to the ilium of the mother, or in the transverse diameter of the brim of the pelvis. In all these cases the rule is to turn the hip of the infant to either sacro-iliac joint of the mother at the brim of the pelvis, and to the pubes and sacrum at the outlet, thus adapting the long diameter of the infantile pelvis to that of the maternal.

Others advise that the abdomen of the infant should be turned to the back of the mother, or that so soon as the body is expelled in the opposite position, the abdomen of the infant ought to be turned to the back of the mother, as in this position the arms and head pass more readily.

When the body is extracted to the arms, the abdomen ought to be turned to the back of the mother, and the arms brought down as hereafter described in the section on version or turning. I have deemed it necessary to prefix the preceding account of natural parturition, according to which all obstetric operations, except the Cæsarean section and transfusion, are performed. I have given the latest views on the subject. M. R.]

ARRANGEMENT OF LABOURS.

FOUR CLASSES.

I. NATURAL.
II. DIFFICULT.
III. PRETERNATURAL.
IV. ANOMALOUS, or COMPLEX.

[Labours may be divided into two classes.
EUTOCIA.—Natural Labour.
DYSTOCIA.—Preternatural Labour. M.R.]

CLASS I. EUTOCIA.—NATURAL LABOUR.

CHARACTER. Every labour in which the process is completed within twenty-four hours, the head of the child presenting, and no adventitious assistance being required.

[Parturition is a function which consists in the expulsion of the fœtus and its appendages from the womb of woman, at the full term of utero-gestation.

Every labour which terminates spontaneously is considered *natural* by continental authors, and every one which endangers the health of the woman or infant is difficult or preternatural.

Labour is *natural* when it occurs at the ninth month of pregnancy, *protracted* when it passes that period, and *precocious* or *premature* when it happens between the seventh and ninth month.]

Varieties.

1. The face inclined towards the sacrum. Plate VII.
2. The face inclined towards the ossa pubis.
3. The head presenting with one or both arms.
4. The face presenting.

That part of a child which descends lowest into the pelvis, is to be esteemed the presenting part.

Circumstances attending Labours.

1. Anxiety.
2. Rigors.
3. Strangury.
4. Diarrhœa.
5. Mucous discharge, with or without a mixture of blood.
6. Pain.

Causes of pain.

1. Expulsatory action of the uterus.
2. Resistance made to the effect of that action.

Distinctions of pain.

1. True.
2. False.

Causes and signs of false pain.
Means of removing them.
Means by which true pains are supposed to be regulated, and their effect promoted.

NOTE.—The pains attending labour are subsequent to the action of the uterus, though in common language the word *pain* and the action of the uterus are used synonymously.

Progress of natural labours.

Three periods or stages.
1st period;—
Dilatation of the os uteri.
Rupture of the membranes.
Discharge of the waters.
2d period;—
Descent of the infant.
Dilatation of the external parts.
Expulsion of the infant.
3d period;—
Separation of the placenta.
Expulsion or extraction of the placenta.

NOTE.—It very often happens that the membranes do not break till the head of the child is on the point of being expelled. This is the natural and most desirable progress of a labour, and it is a negative proof that the labour has been well conducted; that is, not interrupted. But the description given above, will answer the

purpose of impressing a clear, general idea of labours.

The two circumstances which principally require attention in natural labours are, to guard the perineum and to extract the placenta with discretion.

[EUTOCIA.—NATURAL PARTURITION.

DUTIES OF THE OBSTETRICIAN IN THE FIRST STAGE OF PARTURITION;

OR DILATATION OF THE OS UTERI, RUPTURE OF THE MEMBRANES, AND DISCHARGE OF THE LIQUOR AMNII, OR WATERS.

Every obstetrician should attend as speedily as possible, when summoned to a parturient woman, for though he may often arrive prematurely, and have to retire, yet delay is seldom unattended with danger, as the labour may proceed rapidly, there may be some preternatural presentation, flooding, convulsions, or other complications which require prompt and efficient treatment.

He should have in his pocket-case some morphia or sedative solution of opium, a female catheter, a tracheal tube, some ergot of rye, and a lancet.

He should be distinguished for suavity of manners, politeness, humanity, sympathy, and patience.

On his arrival at the patient's residence, he should ascertain all delicate enquiries from the

nurse or female attendant, before he sees his patient. He is to learn the history of the case, the age of the patient, whether she has arrived at the end of pregnancy, is she about to be confined of her first or other infant? the state of her bowels and bladder, the kind of pains she has, and if already a mother the description of labour she has had.

If all his questions be answered in the affirmative, he may in general conclude that parturition approaches, and that the sooner he can see his patient the better. The nurse or some other female announces his arrival, and after some time obtains the desired interview. On entering the lying-in apartment, he should approach the patient with mildness and humanity, and assure her that from all he has heard from the nurse he has every reason to believe her condition favourable, and that she is likely to do well. He next takes a seat near the bed, observes the abdomen, and enters into conversation with the patient and nurse.

After a pain or two, the obstetrician should place his hand over the bed or body-clothes on the abdomen, so as to ascertain if it be prominent, as in the last stage of pregnancy.

It has often happened that women were supposed to be in labour who were not pregnant. I have been called to several such cases. When we apply moderate pressure or percussion on the

abdomen we may readily detect pregnancy, dropsy, tympanites, or some tumour.

This examination is not, however, to be depended on, and an internal one is indispensably necessary.

Delicate and sensitive women revolt at the idea of this second examination, which is made through the vagina, and is popularly termed "taking a pain," and by the French, "the touch." The proposal ought to be made by the nurse, its importance dwelt on, by its enabling the practitioner to conclude if the woman be in labour, if the labour be natural or preternatural, if she be likely to do well.

The earlier the vaginal examination is made the better, as it is desirable to ascertain whether the woman be in labour, the case natural or preternatural.

When the consent of the patient is obtained, it is necessary to place her on the *left side*, though the right side or on the back would be equally appropriate*.

Vaginal Examination.—The obstetric position preferred in this country is on the left side, on a couch or bed, the knees bent and raised towards the abdomen, and the bosom bent towards the knees. The woman lies with her hips as near

* This direction is invariably acted on in other European nations, and there is no scientific or valid reason that one side is preferable to the other.

the edge of the couch or bed as possible, is in her night dress, and is further covered with a counterpane. The nurse or some other woman should be in the apartment, the curtains closed, and the light in a great measure excluded. The obstetrician sits on a chair near the hips of the patient. He covers his knees with a napkin or towel, turns up the sleeves of his coat, and desires the nurse to pin a napkin round each arm. The practitioner now lubricates the index and middle finger of the right or left hand with pomatum, lard, olive oil, or fresh butter, which the nurse has prepared, the nails of these fingers being previously pared very closely.

As soon as the next pain commences, he passes either hand between the knees, along the thighs to the genital fissure, he separates the labia pudendi, introduces the two fingers into the vagina, and directs them downwards and backwards towards the sacrum, within an inch of which will be found the orifice of the womb or os uteri. When this orifice is pushed down during a pain or uterine contraction, and is so dilated as to admit the tip of one finger, it may be considered as dilating, and after the pain has ceased, will vary from the size of a sixpence to that of a shilling. The fingers should now be passed round the lower part of the uterus, so as to ascertain the presenting part; next over the interior of the bones of the pelvis, to discover whether they af-

ford sufficient space in the cavity and at the outlet for the birth of an infant; and lastly, the obstetrician will learn whether there is any solid tumour in the vagina, and whether that canal be dry, moist, or lubricated. All these points having been satisfactorily ascertained, the fingers are withdrawn and wiped, under the bed-clothes, with a napkin intended for the purpose.

This examination enables us to determine is the woman in labour? is the labour natural? are the cavity and outlet of the pelvis sufficiently capacious for the passage of the infant, or diminished by tumours of any kind? and lastly, is the orifice of the womb smooth, flaccid, or thin, or is it rough and thick like a piece of muscle?

The presentation, or presenting part of the infant may often be detected, though with uncertainty in some cases. The head may be distinguished by its roundness, its bulk, and its sutures; the breech by its bulk, the cleft between the thighs, the organs of generation, and often by the discharge of the meconium; the hand by the thumb and length of the fingers; and the foot by the heel and shortness of the toes.

Nevertheless it requires great practice and tact to discover the presentation in the first stage of labour, that is before the orifice of the womb is fully dilated, and the liquor amnii or fluid that surrounds the infant discharged.

The introduction of the fingers is to be effected

as speedily and gently as possible, and with the greatest delicacy and modesty *.

The examination ought not to produce the slightest pain, and removes the dread which many women entertain regarding it, and also of the obstetrician.

It is false delicacy and a proof of want of moral duty and good sense on the part of the patient to oppose it, because it will save her a vast deal of useless suffering and fatigue; and if the labour be preternatural it can be rectified more readily than if the examination were deferred until after the escape of the waters, or until after the patient has suffered severely for hours or days.

Information for the patient and her friends.—As soon as the examination is finished, the obstetrician is expected to give his opinion as to the prospect of an easy or difficult labour.

If the labour is natural, the pelvis well formed, the soft parts relaxed, dilatable, and lubricated, and the vertex or crown of the head presenting, the orifice of the womb rough and thick, and the pains propulsive—the patient may be assured of her safety, that the appearances are most favour-

* Every thing ought to be done under the bed-clothes, for it is the finger and not the eye which ought to direct us in ascertaining the state of the parts. Degorges, one of the best obstetricians of his time, was blind. In this country the apartment is nearly and often entirely darkened during the day, and but a partial light allowed on the bed at night.

able, and that in all probability, or with positive certainty, the labour will be finished with perfect safety both to mother and infant. A confident assurance of safety, and that no operation is required, has the most beneficial effect in quieting the patient's mind, and in facilitating her delivery.

If, on the contrary, there are symptoms of a laborious parturition, we cheer the patient, and impress upon her the propriety of hoping the best.

There is one question, "how long will it be before the patient is delivered?"—which can never be answered with precision. We may reply, "you are going on very favourably, and only require time and patience to be well."

It is imprudent to declare a labour will be over at a certain hour, indeed the most experienced cannot determine the time, and if the promised hour arrives, and there is no sign of delivery, the patient becomes dejected, supposes there is something wrong, and loses confidence in the judgment of the obstetrician. It is easy to conclude that a labour will not be over for a certain number of hours, but impossible to fix upon the exact moment of its occurrence.

If the bowels are confined, a dose of castor-oil or a clyster should be administered.

After the examination, the patient may rise from bed and walk about her apartment.

The obstetrician now directs his attention to the state of the chamber, adjustment of the bed, and to minor particulars, as the procuring of scissars, thread, pomatum or lard, and a flannel receiver for the infant.

State of the chamber.—The apartment should be properly ventilated, and never crowded by several acquaintances; one or two women with the nurse are sufficient, to whom the patient may communicate her anxieties and sorrows. The relation of all bad and frightful stories by the practitioner and other attendants is to be carefully avoided, as it distresses the mind, retards labour, and invariably does mischief. The patient becomes alarmed lest her case be equally untoward, she loses confidence in her own powers, and her labour either lingers or entirely ceases for hours. The bed-clothes ought to be comfortable, and the chamber kept properly cool.

The bed is differently adjusted in the different countries and ranks of life. Among the better ranks, the woman is delivered on a matrass, the part of which corresponding to the hips is covered with a skin of basil leather, over which a folded sheet or blanket is placed, and over all a sheet is pinned to keep them in their places. The object of this contrivance is to absorb the liquor amnii, and to preserve the matrass or palliasse from moisture after delivery. These are

taken away, and a dry sheet passed under the patient in their stead, a few minutes after parturition is completed.

In London it is a common practice among the middle and lower classes, for the nurse to turn the lower half of the bed upon the upper, she then places a skin of leather and a folded blanket and sheet under the hips of the woman on the palliasse or bed-sacking, throws a counterpane or coverlet over the woman, and places her feet against the bed-post or foot-board *.

The position of the patient must be attended to; her legs are bent and placed against the bed-post, her chest inclined towards her knees, and to secure this position a long towel or shawl is to be passed round the bed-post, (against which the feet are placed,) so that the patient may pull by this during each pain and not seize the obstetrician and prevent him from assisting her, while she should also force or bear downwards and backwards. She ought to wear her night dress, the chemise being folded above the hips, and its place supplied by a loose flannel petticoat. Every country, every province, and every family, have a peculiar dress. The obstetrician need not interfere unless he observes the dress too tight, and

* In Germany and Switzerland there are still chairs for delivery; but these are not used at present in any other country in Europe.

an impediment to a free respiration and circulation, as when the ordinary apparel is worn with tightly laced stays. The last ought to be loosened, and in general entirely removed.

A loose dress favours the free use of respiration and the abdominal muscles, and expedites delivery; while a tight dress with stays impedes the breathing, the action of the abdominal muscles, and retards parturition.

Lastly, the obstetrician should desire the nurse or other female attendant to procure some strong gray sewing thread, a pair of sharp scissars, some pomatum, lard, sweet oil, or fresh butter, all of which are to be placed on a table. He then takes three or four threads, knots them at both ends, divides them in the middle, knots the ends, and has them ready to tie the navel string or umbilical cord after the infant has respired or breathed.

The mind of the parturient woman ought to be kept as free from anxiety as the nature of her situation will permit. The conversation should be cheerful, and free from idle observations on the danger of those in similar situations to herself.

The first stage of labour may continue from one to twenty-four hours; and as the obstetrician can afford no assistance until it is completed, he may leave the apartment occasionally, so as to

give the patient an opportunity of evacuating the bowels and bladder; and when the first stage of labour is tedious, he may visit other patients. He can do nothing until the womb dilates to admit the passage of the infant.

The patient may walk about, or recline on a sofa or bed until the rupture of the membranes and escape of the waters; and then, as the labour is considerably advanced, and the infant's head is in the cavity or outlet of the pelvis, she must be confined to bed.

She may have light farinaceous aliment, such as gruel, sago, arrow-root, tapioca, broths, &c.; but no wine or spirit, unless she be really debilitated, which is scarcely ever the case in natural labours. The inferior animals do well without any stimulant. There is no medicine necessary during the first stage of a *natural* labour, unless some castor-oil to open the bowels if required, or an aperient clyster.

When the pains are slight and teazing, without making any expulsory effort, a full dose of morphia, opium, or sedative solution is advisable; and also when there are " false pains," which are distinguished *by the irregularity of their situation and return, and by heart-burn, borborygmi, or diarrhœa.* These are relieved by a proper dose of morphia or the sedative solution of opium by the mouth,—for example, from a quarter of a

grain to half a grain of the first, or from twenty to thirty drops of the latter.

The object in administering the sedative is to allay such false pains, to procure rest which will strengthen the parturient woman, and often be followed by strong natural and expulsatory pains.

During the first stage of labour the obstetrician may institute two or three vaginal examinations, so as to ascertain the progress of the dilatation of the os uteri*.

Frequent examinations, or attempts to dilate the vagina, will cause heat, pain, irritation, or inflammation, and unfit the vaginal canal for the office of parturition.

During the first stage of labour, the practitioner should sit by and watch Nature; she being the best obstetrician.

The obstetrician can neither dilate the orifice of the womb, nor advance the progress of a labour by any manual operation; and let him always remember the axiom, "a meddlesome midwifery is bad." During the first stage of labour, the pains come on at regular intervals and with increased force, the mucus of the vagina is increased, and after some time tinged with blood, and this sign

* M. Velpeau contends that three examinations are sufficient during the whole process of parturition. Some women expect to be examined during every pain, but frequent examinations will irritate the vagina, and do harm instead of good.

is called the "shew" by nurses. The os uteri dilates, and the membranes surrounding the fœtus are pushed through it like a small bag, which is filled by the liquor amnii, and assists dilatation on the principle of a wedge. The pains increase in violence, the abdominal muscles assist the uterus, producing a sense of great bearing down, the bag formed by the membranes bursts, the liquor amnii is discharged, and this is technically termed by midwives "the breaking of the waters." When this occurs, the first stage of labour is completed. The head of the infant is now placed in immediate contact with the substance of the womb, the pains increase considerably, and follow each other with greater rapidity than before; the head is pressed upon the perineum or soft parts, and is soon expelled through them in the manner already mentioned. The body follows, and this completes the second stage of labour. The infant is next separated from the mother.

In a very short period the pains return, expel the placenta and membranes, and thus terminates the third stage of parturition.

DUTIES OF THE OBSTETRICIAN IN THE SECOND STAGE OF PARTURITION;

OR THE PASSAGE OF THE INFANT THROUGH THE PELVIS INTO THE WORLD.

As soon as the second stage of labour commences, that is, after the escape of the waters, the

woman must be confined to bed, as the womb is now dilated and the infant may be born suddenly. British writers advise her to be placed on the left side, so that she may be assisted with the right hand of the obstetrician; and continental authors recommend placing her on the back.

I agree with those who prefer the latter position; I believe it to be the most natural. It is to be recollected, that women have been delivered on either side, the back, on the knees and elbows, on the abdomen, in a chair, and in the erect position.

Whoever studies and comprehends the mechanism of natural parturition, will at once perceive that more assistance can be rendered during labour when the woman is on her back than on either side *.

* When the woman is in the second stage of labour, she ought to remain during the pain on her back with her legs and thighs semi-flexed, and the soles of her feet applied to the bed. This position is so natural, that women will assume it themselves, and will re-assume it on the return of pain. But in the intervals of pain it is ridiculous and cruel to require any certain position, such as reposing on the left side for several hours, without being allowed to bear a single pain on the right or back. In such case, the woman ought to be allowed to place herself on either side. "To deprive her of this resource," says Professor Velpeau, "is real barbarity. The accoucheurs of Great Britain who advise lateral decubitus, pretend that it permits them to support the perineum more efficiently, and to examine *per vaginam* more correctly, a thing which I do not comprehend: many writers of which nation, and Smellie in particular, have preferred the French plan, which is also adopted by Dewees." (Traité Complêt de l'Art des Accouchemens, &c.)

The duty of the obstetrician, when the head is passing through the external genital fissure, is to incline it towards the pubes, while he supports the perineum or soft parts.

After the rupture of the membranes, the second stage of labour has commenced, and two or three vaginal examinations may be necessary to ascertain the descent of the head.

When the head presses upon the perineum, the palm of the hand should be applied to this part, the thumb resting on one tuberosity of the ischium, the ends of the fingers on the other, so that the hand is placed across the genital aperture. The pressure should be chiefly made on the head, so as to direct it toward the pubes, and not forcibly on the perineum, as directed in some works, to prevent its laceration, which has only the effect of retarding the advance of the head.

When the perineum is fully distended by the head, pressure is to be made as above directed with the palm of one hand, while the fingers of the other are applied over the forehead, and the head assisted in the curved line of its transit *.

* Many modern obstetricians consider that supporting the perineum is not only useless, but injurious, and cannot prevent laceration of this part. (Grandchamp, Mende, Schmitt, Siebold, Kilian, &c.,—see Velpeau Traité Complêt de l'Art des Accouchemens, &c., 1835.) I have often been called to parturient women after the head had escaped through the genital fissure without any injury to the perineum. Kilian is of opinion, that the passage of the shoulder, and not of the head, causes the greatest

Sometimes the perineum dilates fully after a pain or two; and at other times not for several hours.

When the head descends into the cavity and outlet of the pelvis, it makes much pressure on the sacral nerves, exciting many sympathetic irritations. Pain in the small of the back, about the region of the sacro-iliac joint, now become severe, and extend down one or both thighs, giving rise to spasm of the lower extremity, and the patient complains of "cramp."

The pain in the back is relieved by pressure with the palm of the hand, and the cramp be mitigated or removed by tying a handkerchief very tightly above the knee on the affected side, which benumbs the superficial perineal nerve—a continuation of the sacral.

The irritation of the sacral nerves extends to those of the rectum and bladder, and excites an inclination to empty these organs, though there may be no real necessity. Vomiting is also sympathetically excited. But all these symptoms are most favourable, as they shew the descent of the infant's head, and the steady progress of the labour. Shiverings or rigors supervene throughout the whole body; but these result from the local irritation, are favourable signs, and require no

number of lacerations of the perineum. I agree, however, with M. Velpeau, that this author has gone too far, but that there is some truth in his assertion.

medicine. Additional bed-clothes and warm drinks, will speedily remove them. When the head presses strongly on the soft parts lining the pelvis, in addition to the several irritations already enumerated, "there is a sense of bearing down, as if all the bowels were about to protrude." This feeling often impels nervous or irritable women to make strong bearing down efforts with the abdominal muscles, in the absence of labour pains, which, so far from advancing the labour, absolutely retard it, and often effect serious mischief, by forcing down the head before the passage is prepared to admit it. The obstetrician should caution his patient against this proceeding, and inform her that she ought always to allow her pain to come on of itself. Many impatient women force down the head, lacerate the soft parts, (perineum,) and cause a most distressing disease. Thus, if the parts be completely torn, the contents of the bowels and bladder will pass through one outlet, and render the sufferer a miserable object, until relieved by proper treatment. This, however, is of rare occurrence.

Partial laceration at the inferior commissure, or angle of the genital fissure, often happens in first labours, but is slight, and easily remedied.

In some rare cases the membranes or bag of waters is so dense as to impede labour. The twisting of this part, or perforating it with the index finger, or a new writing pen or probe, will

very much facilitate labour; but nothing retards labour more, or renders it more tedious and difficult, than premature rupture of the membranes *.

The pains that expel the head are generally severe, and cause a sensation as if the whole bowels were protruding. These usually cease for a few seconds after the head is born; and the feeling of protrusion is such, that the woman often endeavours to force away the head, in the absence of regular labour pains. She may effect this by the power of the abdominal muscles alone, the womb will of course be uncontracted, the next pain will contract it irregularly, in the form of an hour-glass, and this exposes the patient to flooding or hæmorrhage. This formidable disease is also caused by the imprudence of the obstetrician, either male or female, in pulling away the shoulders and body immediately after the expulsion of the head, in the absence of uterine action or labour pain. So far from the patient forcing, or the obstetrician extracting, in the absence of pain, the one should remain quiet, and the other press on the neck of the infant with one hand, and on the womb with the other, to prevent the descent of

* When the membranes are ruptured prematurely, the orifice of the womb is not fully dilated, the waters escape, the hard head of the infant comes in contact with the surface of the womb, causes great contusion of this organ, and retards labour. I shall describe the treatment hereafter.

the shoulders and body, and to excite the uterus to action, by pushing the body and limbs against it.

By thus exciting the uterus to act, it often happens that the same pain which expels the shoulders and body of the infant, will also expel the placenta, or after birth, into the upper part of the vagina. But when the labour is perfectly natural, the pain which expels the head is rapidly succeeded by another which expels the shoulders and body, and by another which throws off the placenta.

When the shoulders are being passed, the perineum ought to be supported against the pressure of the lower one, and the head and neck raised at the same time towards the abdomen of the mother; or in that curved line on which the head passes in natural parturition.

As soon as the shoulders are expelled, the obstetrician, in imitation of nature, will turn the body obliquely, so as to adapt one infantile hip to the sacro-iliac joint at the brim, and the other towards the acetabulum of the opposite side, thus adapting the long diameter of the infant to that of the brim of the pelvis. The infantile pelvis rapidly descends into the cavity of the maternal, one hip is turned towards the sacrum, and the other to the pubes of the mother, thus adapting the widest part of the infant to the largest of the outlet or passage of the mother.

When the infant is born, its back ought to be

turned to the genital aperture of the mother, as there is generally, but not always, a gush of water from the womb, which might suffocate the infant*. If the hand be now applied to the abdomen, the uterus will be found contracted beneath the navel, and about the size of an infant's head.

Separation of the infant from the mother.—The obstetrician now separates the infant from the mother, by first tying with two ligatures, the umbilical cord or navel string, and then cutting it between them. As soon as the infant breathes freely or cries, one ligature, composed of thread, as already described, is to be applied about two inches and a half or three inches from the infant's abdomen, drawn tightly, and secured with a double knot. Another is to be placed nearer the mother, and the navel cord is divided between them with a pair of scissars. The ends of the ligature or threads on that portion of the cord near the infant, are to be cut short, the infant removed, placed in a piece of flannel called "a receiver," and handed to the nurse. The nurse now, or often while the navel string is being tied, puts a flannel cap on the head, which is a useless piece of dress, and no preventive of cold, as was formerly and is at present too generally supposed. As soon as the infant is separated from the mother, which is effected in a minute or two, a warm napkin is folded and ap-

* Dr. William Hunter describes a case of suffocation from this cause.

plied to the genital fissure, and a table-spoonful of brandy in half a wine-glassful of warm water, is administered to the mother. The obstetrician examines the abdomen, for the purpose of ascertaining whether the uterus is contracted, as already described, or whether it contain a second infant.

If it is found contracted, the wet clothes, consisting of the skin of leather, &c., are now withdrawn from under the pelvis of the woman; a warm sheet or blanket replaces them; some additional bed-clothes are put on, as shivering or a sense of coldness is often experienced after the birth of the infant. The woman is made comfortable, and allowed to rest for a few minutes until pains return, which is generally from a quarter of an hour to an hour, and these contract the uterus and expel the placenta.

DUTIES OF THE OBSTETRICIAN IN THE THIRD STAGE OF LABOUR;

OR EXPULSION OF THE PLACENTA.

The action of the uterus, or after-pains, come on in a few minutes after birth of the infant, when the labour has been perfectly natural. They may not, however, come on sooner than half an hour, an hour, or even longer. The navel string is to be coiled round two fingers of the left hand and gently put on the stretch, and two fingers of the right passed along it into the vagina; and if the

root or insertion of the navel string can be felt, the placenta is separated from the uterus. If the patient cough or bear down, the placenta will descend, and its edge may be hooked on the finger, when the whole of it will readily follow if traction be made through the centre of the vagina or axis of the outlet.

When the placenta is being passed through the external genital aperture, it should be brought in the axis of the outlet, that is, through the centre of the vagina, twisted round so as to bring the membranes attached to its edge and raised towards the abdomen of the mother, in the same manner as already directed for the management of the head, shoulders, pelvis, and limbs of the infant. In fact, the placenta ought to be directed in the axes of the brim, cavity, and outlet of the pelvis as it passes through these parts.

As soon as the placenta is expelled, it ought to be placed on a napkin under the bed-clothes, withdrawn, and examined on both its surfaces, so as to ascertain if it have passed entire. When it is perfect, it is placed in a basin or chamber utensil; a warm napkin is applied to the genital fissure, and some brandy or other spirit, or wine and water, ought to be administered to the patient.

If after-pains do not come on, some warm drink may be given, and gentle friction made with the hand on the lower part of the abdomen over the uterus, for the purpose of exciting contraction

of that organ; the patient is to bear down, cough, the hand of the male or female obstetrician being pressed on the patient's abdomen while she makes the effort,—or sneezing may be induced by the use of snuff. All these motions expedite the expulsion of the placenta, by causing the abdominal muscles to press on the uterus; and, for the same reason, the patient is advised by the nurse "to blow on the back of her hand, or into an empty bottle, or to laugh heartily."

After the placenta has come away, the patient enquires as to her safety, and being assured of it, she usually returns thanks to Heaven in emphatic language for her delivery.

The danger of retained placenta is flooding, and no labour can be said to be completed until the after-birth has passed. If the uterus is contracted in a round hard tumour, there can be no dangerous hemorrhage, though the placenta is retained, but it ought to be extracted in an hour after delivery, whether there be hemorrhage or not. Secale cornutum, or ergot of rye, will always effect this object.

The finger should be introduced into the vagina after the expulsion of the placenta, to remove all clots of blood and ascertain if the uterus be inverted or the perineum lacerated.

A bandage is now tightly passed over the chemise around the abdomen. This is recommended by some during all the stages of labour, but in my

opinion is unnecessary, and by pressing tightly on the abdominal muscles retards their action. It is seldom used until after delivery at present, and most women are delivered and do well without it.

It is of use to support the abdomen after the birth of the infant, and is almost invariably employed.

Lastly, enquiries are made as to when it will be proper to adjust the bed, or "put the woman to bed." The woman ought not to be disturbed for an hour, and never sit up while the bed is being arranged, as syncope, flooding, or prolapsus uteri might follow. She is to be raised on a sheet between two or more persons, and be kept in the horizontal or lying position, or she may remain on one side of the bed while the other is adjusted. She may also be moved on a sofa covered with a blanket and placed near the bed.

The apartment should be kept dark, quiet, cool, and well ventilated, and the patient advised to speak as little as possible, and all visitors excluded.

An anodyne draught, composed of twenty-five or thirty drops of laudanum, or the sedative solution of opium, or a proper dose of morphia, ought to be given; and as soon as the infant is washed and dressed, it ought to be enveloped in flannel and placed on its side with its mother.

Management of the new born infant.—The chief duties of the nurse towards the new born

infant are, to wash, dress, and feed it, unless the mother has breast-milk, which is the most proper aliment for it.

Washing and cleaning the infant.—The whole, or many parts of the skin, are generally, though not invariably, covered with a whitish unctuous substance at birth. It is most abundant in the groins, between the thighs, under the arms, in the creases of the neck, and other parts, and also behind the ears. This substance obstructs the pores of the skin, would irritate them, and cause them to gall or inflame, and ought to be removed by ablution or washing. The common domestic animals remove a similar substance from their young. The vulgar sometimes allow it to remain on the head to strengthen the opening in that part; but this is a ridiculous error. The washing of the infant should be performed in an adjoining chamber to that in which the mother is placed, as most nurses make too much noise and bustle while engaged in it. Many of them handle the infant too roughly, and twist it about too suddenly while dressing it; they cause it to cry during the whole process, affording proof of their inexperience, and at the same time harrowing the feelings of the mother and disturbing her. It is essentially necessary that the mother should be kept quiet and tranquil, and talk as little as possible.

The manner of washing a new born infant is simple. A lather of mild soap is gently applied

to the head with a piece of soft flannel or sponge, care being taken not to allow the eyes to be irritated by this fluid. Spirit of any kind is unnecessary, though frequently employed by nurses, except when the scalp is tumefied. The eyes should be washed with tepid water only (or with mild soap), and should not be exposed to the light of a candle or fire, as is usually the case. The head and ears are now dried by means of a soft old napkin, and a flannel cap is put on. The neck, body, limbs, with all their creases, should be thoroughly washed; and, when the sebaceous or unctuous matter is very adherent, the affected part may be rubbed with some olive oil, lard, fresh butter, or any fresh grease, to facilitate its removal. In performing the task, it is desirable that it should be done as quietly as possible, and all hasty or violent movements or turnings of the infant should be carefully avoided. The infant should not be washed with, or plunged into cold water, under any circumstances.

Sometimes the infant is immersed in a warm bath, imitating the position which it had in the amniotic fluid, or that which surrounded it before birth. When the infant is delicate or feeble, the addition of a small quantity (a tea-spoonful) of wine, brandy, or other ardent spirit, forms an excellent tonic bath, which strengthens and reanimates the new being when in a languishing or dying condition. Care must be taken not to add

too much spirit, or the delicate, soft, and tender skin will be excoriated or inflamed, or convulsions, apoplexy, or death induced. The body is now to be wiped dry with a fine soft napkin, the groins, internal surfaces of the thighs, neck, behind the ears and armpits, powdered with fine hair powder, or finely powdered starch, and the body is then examined to ascertain its proportions, or deformities, and then dressed as soon as possible.

Swathe and dress of the infant.—The proper mode of dressing a new born infant deserves particular attention. The first part of the dress of an infant is applied to the remains of the umbilical cord in the following manner:—The nurse takes a soft piece of old linen, about two inches square, cuts a small circular hole in its centre, through which she brings the remaining part of the navel-cord, and then envelopes it. She next turns it towards the chest of the infant, and places a small flannel bandage over it, and round the body. This should be secured by tapes. The object in dressing the navel-cord is to prevent it irritating the skin of the infant. Some writers recommend a small pad over the dressing, but this is seldom applied in this country. The bandage should not be too tight nor too loose, as in the first instance it is intended to secure the navel-cord, and secondly, to prevent the starting of the navel, hernia, or omphalocele.

The dress of a new born infant is plain and

simple. As a general rule, all compression of the chest or abdomen is highly injurious: it renders the respiration difficult, prevents the return of blood from the head, causes congestion, apoplexy, or hydrocephalus, derangement of the digestive organs, hiccough, vomiting, griping; the development of the body is arrested, the action of the muscles, including the motion of the limbs, is impeded; the body becomes curved according to the direction of the pressure, the spine and limbs become deformed, or, to use a popular phrase, "grow out," or are ricketty, while the vigour and beauty of structure are diminished or destroyed.

The Asiatics, Turks, Africans, and all people who allow the free development of the body, chest, shoulders, back, and limbs, are remarkably large and vigorous. In fact, the custom of swathing or swaddling is totally abandoned in all civilized countries, unless among a small portion of the lower orders.

Another cruel practice is adopted by nurses, and that is, "squeezing the breasts of infants to get out the milk." This proceeding is useless, and often produces inflammation and suppuration of the injured part. It is true that compression causes a slight discharge of a thin fluid, and if resorted to at all, it must be with gentleness. Most infants do well without such an operation.

Almost every part of the infant's dress should open on the back, and be fastened by tapes or

buttons, and pins ought to be entirely laid aside. The absurd practice of tightening the cap-tapes under the chin, to make " the baby look well," is highly condemnable. The infant should be at ease, and enjoy perfect freedom of motion of its superior and inferior extremities. It therefore follows, that the triangular doublet or napkin placed round the lower part of the abdomen, fastened in front, and then the remaining angle of it brought between the lower limbs, and tied to the former part, should not be too tightly applied, as it would prevent the free motion of the lower limbs. *It never ought to be pinned.*

When the infant is dressed, it is enveloped in flannel, the face being uncovered, and placed on its right side in its cot, which is preferable to the bed of the mother, as this is too warm in summer, and predisposes it to catarrh, or cold, or snuffles, which will prevent it from sucking. But maternal affection leads to the violation of this precept. Every mother longs to gaze upon her infant, and must be gratified, and ought to have it in her bed in winter.

The first dress is generally too long, gets twisted about the limbs, and impedes their motion and growth. The long clothes are injurious on this account, and need not extend more than four or six inches beyond the feet. They need not be worn longer than three or four months, especially in warm weather.

It is an absurd practice to give butter and sugar, treacle, syrup of violets, almond or castor oil, to a new born infant to carry off the meconium or dark-coloured contents of the bowels, as the first milk, called *colostrum*, is sufficiently aperient for this purpose. The infant ought to be applied to the breast as soon as it is dressed, provided the mother have milk; but when she has not, some mild aperient, such as half a teaspoonful of castor oil, may be given, and repeated in three or four hours if necessary.

It is a law of nature that all mammiferous animals should suckle their young. All inferior animals perform this function, and woman is the only exception. Every woman in health is bound by nature, instinct, and the laws of society to suckle her infant. The milk of any other woman, or of any animal, is inferior to that of the mother.

The infant may be applied to the breast so soon as the woman has recovered from the fatigues of delivery, and ought to be suckled every second hour while awake.

Breast-milk differs in quality and quantity according to the age, temperament, peculiarity of constitution, and aliment of the woman who supplies it. The diet and medicine taken by a wet nurse, affects the breast-milk, and therefore she should be cautious in the selection of food and medicines.

When a woman is delicate, or has not milk, a

wet nurse ought to be provided, and she should be nearly of the same age as the mother whose infant she is about to nurse, and have been delivered about five or six weeks. She ought to be healthy, careful, cleanly, good tempered, fond of children, watchful at night, and not likely to suffer from being disturbed; she should also be patient, sprightly, cheerful, active, and have a good supply of milk, and a healthy infant. The health and happiness of the tender being committed to her care, depend upon her attention and kindness, and for these she is morally responsible. When the mother has no milk, and a wet nurse cannot be procured, the best food for a new born infant is composed of five parts of new cow's milk, with one of tepid water, sweetened with loaf sugar; and the quantity for each repast is about three table-spoonsful. Water gruel, arrow root, and pap, are generally substituted, but are inferior to milk of any kind.

When the infant is still-born, as it is termed, or apparently dead at birth, in consequence of compression, it may in general be recovered by proper management.

The best mode of resuscitation is to establish respiration, by inflating the lungs. This may be done by closing the nostrils, pressing the larynx on the œsophagus against the spine, and then blowing into the infant's mouth. When the lungs are inflated, pressure is to be made on the ribs

with the hand, so as to expel the air, and this artificial respiration continued for half an hour, or an hour, until the breathing is established. While the artificial breathing is being made, the face and chest are to be rubbed with ardent spirit, brandy, whiskey, &c., for the purpose of exciting the nerves of both parts, which are essential to respiration. The infant may also be immersed in a warm bath.

If the face be purplish, there is congestion of the brain, and the navel cord ought to be allowed to bleed from a tea-spoonful to two table-spoonsful, as apoplexy is present.

Unless pressure be made on the neck, or the œsophagus, the stomach, instead of the lungs, may be inflated.

The *tracheal pipe* may be used as follows: pass the fore-finger of the left hand into the mouth of the infant, depress the tongue, and feel the opening of the glottis. The tube is now to be passed along the left fore-finger into the wind-pipe, the finger withdrawn, the nostrils closed, and inflation commenced. An assistant should press on the trachea and chest as already directed.

After a longer or shorter period the heart begins to pulsate, and respiration commences. Care must be taken not to injure the delicate lining of the windpipe with the tube. The former method of resuscitation is more simple, and, according to my experience, equally efficacious.

MANAGEMENT OF THE MOTHER AFTER DELIVERY.

The obstetrician ought to visit his patient in twelve hours after delivery, enquire how she has rested, the state of the lochial discharge, milk, breasts, bowels and bladder. If the pulse is under 100, the skin cool, the bowels regular, the urine evacuated, and the milk secreted, or the breasts tumefied, she is going on as well as can be expected.

If the bladder has not been evacuated, clothes wrung out of warm water, or a decoction of poppy heads and chamomile ought to be applied over the lower part of the abdomen, and if the fomentation does not relieve the bladder, the catheter will be necessary.

It is usual to open the bowels after delivery, but this should not be done until the secretion of milk has taken place, which may not be for two or three days. The diet of the woman forms little feculent matter; and it is to be remembered, that when it is desired to prevent the formation of milk in those cases in which the infant is dead, the administration of purgatives effects it, by irritating the intestinal canal, and arresting the determination of blood from the uterus to the mammæ.

The diet of a woman after delivery ought to consist in water gruel, arrow root, tea, coffee, and light pudding; but when she is delicate,

chicken broth, beef tea, eggs, and animal jellies, with a small quantity of wine, may be allowed.

When after-pains are troublesome, the anodyne draught ought to be repeated.

All wines, spirits, and fermented liquors, are injurious to the healthy woman, and may predispose her to fever or inflammation. About the fourth or fifth day she may be placed on a sofa, drawn near the edge of the bed, while the latter is being adjusted, but she should never sit up, or walk about, until the lochial discharge is about to cease, or is very trifling, and that is generally about the ninth or tenth day, but in delicate women, much later. She may repose on a couch at this time, and gradually sit up for two or three hours; but she must be careful to guard against the extremes of heat or cold. At the expiration of three weeks or a month, she may take an airing in a carriage. Women in the lower ranks, rise and walk much earlier than the time above stated, they often do well, but more commonly suffer from prolapsus uteri, leucorrhœa, dyspepsia, and hysteria.

While the lochial discharge continues, the womb remains enlarged, and if the woman walk or stand, it will fall from its weight into the pelvis, and lay the foundation of the above-named diseases.]

Class II. Dystocia.—Difficult Labour.

[Laborious, mechanical, or artificial labour, &c.]

Character. Every labour in which the process is prolonged beyond twenty-four hours, the head of the child presenting.

[Dystocia, is defined difficult or preter-natural labour, when some other part besides the crown of the head presents. M. R.]

Note. Some objections may be made to this definition taken from time, but it will be found to apply to practical uses better than if it was taken from circumstances.

[The term dystocia, employed by Hippocrates, Sauvages, Merriman, Desormeaux, Velpeau, myself, and others, comprises all those cases that require the resources of art, and is now considered a generic term. It is better to base on nature those causes which render labour difficult, as Merriman and Desormeaux have done, as this arrangement presents incontestable advantages. Others who have not adopted it, lead to great confusion: thus they place hæmorrhage among different orders, as preter-natural, laborious, complex, mechanical, manual, mixed, &c. M. R.]

It would often be extremely difficult to say with precision when a labour actually begins, because of the number of concurrent changes. But in general some progress must be made, before we can allow a labour to be commenced.

FOUR ORDERS.

ORDER I.

Labours rendered difficult from the inert or irregular action of the uterus.

CAUSES.

1. Too great distension of the uterus.
2. Partial action of the uterus.
3. Rigidity of the membranes.
4. Imperfect discharge or dribbling of the waters.
5. Shortness of the funis umbilicalis.
6. Weakness of the constitution.
7. Fever, [or inflammation in the head, chest, or abdomen.]
8. Want of a due degree of irritability.
9. Passions of the mind.
10. General deformity.

ORDER II.

Labours rendered difficult by the rigidity of the parts to be dilated.

1. First child.
2. Advancement in age.
3. Too early rupture of the membranes.
4. Oblique position of the os uteri.
5. Fever or local inflammation.
6. Extreme rigidity of the os uteri.
7. Uncommon rigidity of the external parts.

ORDER III.

Labours rendered difficult from disproportion between the dimensions of the cavity of the pelvis and the head of the child.

1. Original smallness of the pelvis.
2. Distortion of the pelvis.
3. Head of the child unusually large, or too much ossified.
4. Head of the child enlarged by disease.
5. Face inclined towards the ossa pubis.
6. Presentation of the face.
7. Head presenting with one or both arms.

ORDER IV.

Labours rendered difficult by diseases of the soft parts.

1. Suppression of urine.
2. Stone in the bladder.
3. Excrescences of the os uteri.
4. Cicatrices in the vagina.
5. Adhesion of the vagina.
6. Steatomatous tumours.
7. Enlargement of the ovaria.
8. Rupture of the uterus.

NOTE. The disturbance of the natural progress of labours, more especially the premature rupture of the membranes, is the most general cause of difficulties in parturition.

Women are to be relieved in difficult labours,

1. By time and patience.
2. By encouragement to hope for a happy event.
3. By regulating their general conduct.
4. By lessening or removing the obstacles to the effects which should be produced by the pains.
5. By the assistance of instruments.

[The causes of dystocia include hæmorrhage, convulsions, syncope, prolapsus of the umbilical cord, asthma, hydrothorax, ascites, deformity of the spine or pelvis, aneurisms, hernia, displacements of the womb, bladder, or vagina, by the pressure of tumours; diseases of the fœtus, excess of volume, dropsies, different tumours, twins or a plurality of infants, union of two at different parts, transverse presentation of the body, &c. M. R.]

Intentions in the use of instruments.

1. To preserve the lives both of the mother and child.
2. To preserve the life of the mother.
3. To preserve the life of the child.

Instruments contrived to answer the first intention.

1. Fillets. 2. Forceps.
3. Vectis or Lever.

Three things are to be considered with respect

to the Forceps or Vectis, and to the use of instruments in general.

1. To make an accurate distinction of those cases which require their use.

2. Of those cases which allow their use.

3. Of the manner in which they ought to be used.

[I shall now describe the treatment of the various causes which retard parturition.

CAUSES WHICH RETARD PARTURITION.

Numerous causes, both moral and physical, retard the process of parturition. Fear, anxiety, and depression of spirits, are the most common moral causes. The physical causes that relate to the woman, may be divided into those which produce unusual resistance to the passage of the infant; and into those which arise from defect of the powers of expulsion.

Rigidity of the genital organs, either of the external or internal, is one of the most common causes of resistance in a first labour, especially in very young or very old women. There is a deficient or no vaginal discharge, the parts are hot and painful, and there is fever. This is called " a dry labour."

Treatment.—The patient should be bled from the arm, have the external genitals fomented, the bowels regulated by an aperient or an enema, and

then an anodyne draught. These means will abate pain, cause rest, and favour dilatation.

Dr. Hamilton found venesection the best remedy in plethoric young subjects, and a starch and opiate enema in delicate women. I have observed the efficacy of both remedies in a large number of cases.

Some writers advise a free use of lard, butter, &c., to dilate the genitals, but these means do not possess any such power. They do good by cooling and lubricating the vagina.

The obstetrician ought to avoid making frequent vaginal examinations and take great care not to rupture the membranes. The ergot of rye would be highly improper under such circumstances.

Another cause of tedious labour is a *disproportion between the size of the head and the pelvis.* This case occurs when a small woman brings forth an infant begotten by a large man. The head will be larger than usual; or its sutures may be so completely ossified that it cannot be compressed in the ordinary shape for its passage through the pelvis. Lastly, the head may be greatly enlarged by hydrocephalus.

Treatment.—Time and patience are necessary in cases of disproportion; the patient's strength must be supported by nutritious aliment, and the bladder and rectum should be evacuated. In

slight degrees of disproportion, nature may overcome the difficulty; but in the majority of examples, instrumental aid will be necessary. If the labour-pains be strong, and the head firmly pressed against the internal surface of the pelvis and unyielding perineum, the woman may die undelivered, or be so contused, that sloughing will supervene soon after delivery, or the perineum may be lacerated. In such cases the forceps, lever, or perforator is required.

If the head be enlarged by hydrocephalus the fluid should be drawn off, when the bones of the cranium will close, and the infant will readily pass through the pelvis.

Premature rupture of the membranes is a frequent cause of protracted labour. In such case "the bag of the waters" does not act as a soft wedge in dilating the os uteri, the waters escape in a great measure before the mouth of the womb is so dilated as to allow the head to pass through it, the hard head now presses on the soft parts of the pelvis, causing excessive pain, irritation, inflammation, and gangrene.

Treatment.—The same as in rigidity of the soft parts, bleeding, fomentations, and anodynes. Time and patience are requisites in this kind of labour.

Rigidity and toughness of the membranes containing the liquor amnii, or waters, may retard parturition. This state exists when the mem-

branes do not rupture, though the uterus appears sufficiently dilated. This state is usually combined with a *redundancy of the liquor amnii*, which distends and enfeebles the uterus.

Treatment.—In rigidity of the membranes, they ought to be ruptured with the end of the finger, a piece of wire, or a probe, as soon as the uterus is sufficiently dilated; the waters will then escape and the uterus will contract and act more efficiently.

It is necessary to ascertain the presentation before rupturing the membranes, so that if preternatural, the operation of version or turning may be performed.

The presentation cannot always be ascertained, but more especially when there is a large quantity of fluid placed between the fœtus and the uterus; and should the infant present tranversely after the escape of the waters, it is to be rectified by version as hereafter described.

Hydramnios, or dropsy of the amnios, may distend the uterus and render it inert and powerless. This is termed redundancy of the waters.—Puncturing the membranes and allowing the fluid to escape is the treatment for this cause of retarded labour.

False waters may distend the uterus and are ascribed to hydatids, transudation of the amnios, accumulation of fluid between the chorion and

amnios, dropsy of the decidua or true hydrometra, or dropsy of the chorion. One or more pints of fluid may escape months before delivery, and the membranes rupture as usual during labour.

When this dropsy is complicated with parturition, rupture of the membranes would cause the uterus to evacuate it.

Inaction of the uterus is another cause of tedious labour. When the uterine contractions or labour pains are feeble and of short duration, having no propelling power, the ergot of rye is useful, provided the presentation and pelvis be natural. Warm diluents are also beneficial, as hot tea, or weak brandy, or other spirit and water in small quantity.

"The *Ergot of rye*, in large doses, is a very active irritant, causing serious accidents, gangrene, convulsions, &c.; in small doses it stimulates the uterus and causes contractions of that organ. It is used in tedious parturition caused by inaction of the uterus, and in hæmorrhages from atony of that organ. When it is administered to hasten labour, its use ought never to be commenced till the natural pains of parturition have ceased or are very feeble, and the os uteri is somewhat dilated.

"The ergot of rye should never be administered during labour, unless the case be natural, the pelvis capacious, and the infant's head presenting by the vertex, or the foot or feet coming down.

The maximum dose is ʒiss. Spiraini, Brera, and other Italian physicians have employed this remedy as an astringent, in epistaxis, hæmoptysis, hæmatemesis, hæmaturia, &c., in doses of three grains every three hours, with success. Dr. Negri and I have not only used it in these cases, but also in leucorrhœa with the most decided effects at St. John's Hospital. We also employed it in some cases of gonorrhœa with advantage. I am in the habit of ordering it daily at the Western Dispensary, and a numerous class of students can attest its efficacy. It is not to be procured genuine from one druggist or chemist in a hundred; and hence its apparent inefficacy. It should be preserved in closely-stopped bottles, and not exposed to air or moisture, or it speedily becomes effete. I have used it to promote uterine action in tincture, ℥ ij to Oj of proof spirit, ℥ j in three doses; in decoction ʒ iss in ℥ vj of water, boiled down to ℥ iij, in a close vessel, and seldom exceeded this quantity, given in three doses mixed with milk and sweetened, a quarter of an hour elapsing between each dose, and a longer interval if the uterine action increase. The essence of this remedy and the liquor may also be used with effect. These are, I believe, watery decoctions, and vary in strength according as they are procured, from different shops, so that I am unable to state a positive dose. In my opinion, the ergot of rye is an efficient ocytocic remedy, or

possesses the power of exciting parturient action at any period of utero-gestation. I feel convinced that it only fails when effete; and I could mention several instances in proof of this statement. A single dose of the decoction has roused uterine action; and then the rest should be left to nature. The practical obstetrician is well aware of the fact, that the parturient action may suddenly increase, without any remedy, after an absence of hours, and terminate the function of parturition very rapidly. He will therefore be content with one or two doses of this remedy when labour pains increase, and leave the rest to nature. He also knows that there is a great danger of hæmorrhage in slow and lingering labour, on account of the want of uterine contraction after the birth of the infant; but a judicious use of the ergot will prevent this dangerous and often fatal occurrence. It will effect this by contracting the uterus and the expulsion of the placenta. If given prematurely, or in full doses, it will excite a powerful uterine contraction, impel the head of the fœtus against the undilated or rigid parts of the genital aperture, and destroy the infant. The scientific obstetrician who has watched Nature, knows, that the genital aperture is slowly and gradually dilated by the pressure of the infant's head during each labour pain, and, consequently, that it would be wrong to anticipate or force the process of Nature by an injudicious exhibition of

any remedy, or under any circumstances. It is scarcely necessary to observe, that the premature administration of the ergot, before the infant's head has descended into the cavity of the pelvis, or before the presenting part of the infant can be ascertained, would be rash and dangerous practice. The presentation, to use the obstetric term, might be transverse, the infant might be across, and exciting powerful parturient action in such cases, would be followed by the destruction of the life of the infant, or rupture of the uterus, which is a most dangerous disease at all times, and most commonly destructive to the woman. The medicine should never be given before the labour is advanced, and its nature ascertained. It would be destructive to the lives of the parent and offspring, if the former were so deformed that the latter could not be born without instrumental aid; and yet a writer in one of the periodicals declaims against the remedy, because it did not effect delivery in two cases of highly deformed pelvis. As a general rule, the medicine ought not to be given unless the outlet of the pelvis is unobstructed by bony or soft tumours, and the head or feet of the infant the presenting parts."*

Another remedy for powerless labour is compression of the abdomen by means of a broad bandage gradually tightened during each pain.

* Ryan's Formulary, pp. 292—95.

I think it of use in over distension of the abdomen, or in obliquities of the uterus, but of little, if of any value in a preponderating number of parturitions.

The only occytocic remedy or one that is really capable of expediting parturition is the ergot of rye. Borax has no such effect according to my observation. Amulets, relics, &c., may tranquillize the mind, but can have no other effect in exciting or increasing the contractions of the uterus, or in expediting labour. Nevertheless they still continue to be employed in this and every other country by women in labour. I have often found them in the chambers of lying-in women, sometimes worn as rings or as amulets.

Mental depression retarding labour.—Depressing passions of the mind are to be quieted by consolation, sympathy, inspiring confidence in the goodness of Divine Providence and the powers of nature, and stating the immense number of women that do well on the face of the globe without any medical assistance.

Painful or partial contractions of the uterus also impede labour. Plethoric women are subject to them, and are relieved by bleeding from the arm.

When the contractions of the uterus are excessively painful, or the pains extremely severe, they depend upon an exalted sensibility, natural or accidental, of the whole genital organs. When

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the neck, to ascertain if the cord be twisted round it; and if we feel the cord, and that the labour does not advance, it ought to be put on the stretch, or divided as soon as it is within reach.

Distension of the bladder or rectum will also retard labour, by narrowing the cavity of the pelvis. The pressure of the infant's head will contuse both parts, and in a few days after delivery both may slough, forming vesico-vaginal and recto-vaginal fistulæ.

Treatment.—Catheterism and enemata are the obvious remedies.

Descent of one or both arms along with the head, will retard parturition. In such cases the hand or hands may be easily returned in the absence of pain; but if the pains are urgent or incessant, delivery will take place, though it will be protracted. The woman ought not to be informed of the nature of the case, and it may, in general, be remedied without her knowledge.

REMARKS ON NATURAL PARTURITION.

The process of parturition may be completed in an instant, or may be protracted for five or more days. When the orifice of the womb feels rough and soft, like muscular tissue, it will dilate rapidly; and when smooth, like glove leather, it will dilate slowly. It is impossible to determine

when any given labour "will be over" or completed.

The pains differ in the stages of labour.

In the first stage the pains return every half hour; after some time, every twenty, fifteen, ten, five, or two minutes, they increase in severity and duration, and the woman moans, frets, or bears in silence.

In the second stage, after the rupture of the membranes and the escape of the waters, the head presses forcibly on the soft parts within the pelvis, the pains become more severe and straining: the woman becomes more impatient, screams aloud, holds in her breath, or bears in silence.

When the head, shoulders, and body of the infant are passing through the outlet, the woman feels as if her whole bowels were protruding, she screams aloud, or is perfectly silent.

After the infant is born, the pains either cease entirely for ten, twenty, or thirty minutes, and then return with less severity. These are termed *after-pains*, and are caused by the contraction of the uterus for the expulsion of the placenta and membranes.

Labour pains are termed weak, strong, small, short, regular, irregular, mild, sharp, true, false, spurious, bearing down, lingering, rapid, violent, fierce, thundering, &c.

Labour may be quick, slow, tedious, lingering, difficult, severe, dry, wet, sick, sleepy, strong, weak, good, bad, manual, or instrumental.

In multiparous, plural, or twin labour, the treatment is the same as in natural parturition, or when the infant presents by the head, feet, or breech, and it seldom happens in such cases that version or instruments are necessary.

As many as six infants have been born at one parturition. A certain provincial physician had lately, in his eightieth year, four living infants at one birth.

I have also known a woman delivered of one infant on Monday, and of the other on the following Thursday, without a bad symptom during the interval, and both infants were born alive. Thirty-six hours elapsed between the birth of a first and second infant in another case; but the latter was born dead.

Lastly, labour is rendered difficult when different parts of two or more infants are united, as two trunks to one head, two heads to one trunk, two full grown infants attached by the chest, as the Siamese twins, or by the back, as the Hungarian sisters, and the case at Exeter, which I have described, and is now being exhibited in London.

In plural labours there are in general different placentæ and umbilical cords, and each of these last requires different and double ligatures. Both

cords are sometimes inserted, in twin cases, in one placenta, and therefore more imperiously require a double ligature on each as already recommended. After the birth of the first infant, the membranes of every other are to be ruptured. M. R.]

DIRECTIONS FOR, AND ADMONITIONS IN, THE APPLICATION AND USE OF THE FORCEPS.

SECTION I.

1. It has long been established as a general rule, that instruments are never to be used in the practice of midwifery; the cases in which they are used are therefore to be considered merely as exceptions to this rule.

2. But such cases can very seldom occur in the practice of any one person; and when they do happen, neither the forceps nor any other instrument is ever to be used in a clandestine manner.

3. The first stage of a labour must be completed, that is, the os uteri must be dilated and the membranes broken, before we think of applying the forceps.

4. The intention in the use of the forceps is, to preserve the lives both of the mother and child, but the necessity for using it must be decided by the circumstances of the mother only.

5. It is meant, when the forceps is used, to supply with it the insufficiency or want of la-

bour pains; but so long as the pains continue, we have reason to hope they will produce their effect, and shall be justified in waiting*.

6. Nor doth the cessation of the pains always prove the necessity of using the forceps, as there may be a total or temporary cessation of the pains.

7. In the former, the pulse, the countenance, and the general appearances of the patient indicate extreme debility, and resemble those of a person worn out with disease or fatigue.

8. But in the latter there are no alarming symptoms, and the patient often enjoys short intervals of refreshing sleep.

9. A rule for the time of applying the forceps has been formed from the following circumstance; that, after the cessation of the pains, the head of the child should have rested for six hours in such a situation, as to allow the use of the forceps before it is used.

[Others say the labour should have continued twenty-four hours. Though these are good general rules, it appears to me that the forceps may

* [This rule is liable to exceptions. The pains may be strong, the head impacted for hours, and making mischievous pressure on the bladder, rectum, or soft parts within the pelvis, and lastly, endangering rupture of the uterus. In such circumstances, the obstetrician would not be justified in waiting, no more than he would when hæmorrhage, convulsions, fainting, or sinking of the vital powers was present. In such cases, immediate delivery is now almost universally recommended. M. R.]

be required sooner than six hours, and may be used with great advantage. M. R.]

10. But this and every other rule intended to prevent the rash and unnecessary use of the forceps, must be subject to the judgement of the person who may have the management of any individual case.

11. Care is also to be taken that we do not, through an aversion to the use of instruments, too long delay that assistance we have the power of affording with them. [The woman may die in a few hours unless delivered. M. R.]

12. The difficulties which attend the application and the use of the forceps are far less than those of deciding upon the proper time when, and the cases in which, they ought to be applied.

13. The lower the head of the child has descended, and the longer the use of the forceps is deferred, the easier will in general their application be, the success of the operation more certain, and the hazard of doing mischief less.

[The forceps ought never to be applied unless there be real necessity, of which the patient and her friends ought to be informed, so as to give them an opportunity of procuring additional advice if they should think proper.

It is not used by good practitioners oftener than once in two hundred cases.

The ergot of rye will supersede it in many in-

stances. It ought never to be used to anticipate or expedite the efforts of Nature, on the ground of saving the obstetrician's time. This would be interfering and deranging the progress of a natural function, voluntarily exposing the puerperal state to untoward complications, and unnecessarily incurring a chance of injuring the woman. M. R.]

14. The forceps should always be applied over the ears of the child; it must therefore be improper to apply it when we cannot feel an ear.

15. But when an ear can be felt by a common examination, the case is always manageable with the forceps, if the circumstances of the mother require its use *.

16. The ear of the child which can be felt, will be found towards the ossa pubis, or under one of the rami of the ischia. (See Plate VIII.)

17. The ears are not turned to the sides of the pelvis till part of the hind head has emerged under the arch of the ossa pubis, when the use of the forceps can very seldom be required †.

* [The forceps can only be applied to the head when the crown descends, as in natural labour, or when the body of the infant is born, and the base of the skull presents at the outlet of the pelvis. It is always to be remembered, that the use of the forceps is to diminish the bulk of the head, which it effects without injury to the life of the infant, as the sutures between the bones are unossified, and the bones will readily overlap each other.

† As often as possible the blades or sides of the forceps ought to be placed on the sides of the head over the ears, in the di-

18. When you have determined on using the forceps, and explained the necessity of using it to the patient and her friends, she is to be placed in the usual position on her left side, near to the edge of the bed; and the instruments, warmed in water and smeared with some unctuous application, are to be laid conveniently by you *.

NOTE. Women, impelled by their fears and their sufferings in difficult labours, will very frequently implore you to deliver them with instruments long before you will be convinced of the necessity of using them. In many cases I

rection of the occiput and chin, as in Plate VIII. When there is any embarrassment or doubt, it would be prudent to conduct them along the lateral parts of the pelvis. There is an exception in the right occipito-iliac position, for which we place the blades on the occiput and forehead, and the left hand branch of the instrument ought to be placed first, as it is, which will be undermost. In whatever way the instrument is applied, its convexity ought to be finally brought towards the concavity of the sacrum or towards the back, and its concavity towards the abdomen of the mother. If the occipito-frontal diameter be seized, and that it cannot, on descending, turn of itself, we may leave it to nature at the inferior strait, so as to apply the forceps, if necessary, in the other direction. M. R.]

* [The woman is placed on the back in continental Europe and in America, which position I also prefer. She may be situated near the foot or side of the bed, with her lower extremities flexed, separated, and supported on a chair. The obstetrician sits between them, and does not expose the patient. There is more difficulty in applying the instrument when the woman is placed on the side, and more inconvenience experienced in using it. M. R.]

have found it expedient and encouraging to them to fix upon some distant time when they should be delivered, if the child were not before born; six, or eight, or twelve hours, for instance. [It would in my opinion be most prudent not to specify any particular time, for if this period be so long as eight or twelve hours, the patient will in general become dejected, or lose confidence in her own powers, and not unfrequently in the practitioner. M. R.] In some cases of great apprehension I have also shewn them, upon one of my knees, all that I intended to do with the forceps.

The following rules are given on the presumption that the head of the child presents with the face inclined or verging towards the hollow of the sacrum, and that the common short forceps is intended to be used; but if any other kind of forceps should be preferred, the rules must be adapted to the instrument.

[The bladder and rectum should be evacuated by the natural efforts, or by catheterism and clysters, before the use of any obstetric instrument.

The forceps ought to be brought as near the temperature of the body as possible before its introduction, by being immersed in warm water or held near a fire, and then smeared with some oily substance, as pomatum, lard, &c. M. R.]

SECTION II.

1. Carry the fore finger of the right hand to the ear of the child.

2. Then take the blade of the forceps to be first introduced *, by the handle in the left hand, and conduct it between the head of the child and the finger already introduced, till the point reaches the ear.

3. The further introduction must be made with a motion resembling a slight degree of semi-rotation, and the point of the blade must be kept close to the head of the child, by gently raising the handle as the instrument is advanced.

4. The blade of the forceps must be carried up till the lock reaches the external parts, near the inferior edge of the ossa pubis.

5. Should any difficulty occur in the introduction of either of the blades, we must withdraw them a little, to discover the obstacle, and never strive to overcome it with violence.

6. When the first blade is introduced, it must be held steadily in its situation, as it will be a guide in the introduction and application of the second blade.

* [When the woman is placed on the back, the left hand blade ought to be introduced, according to MM. Velpeau, Hatin, Duges, &c. M. R.]

7. The second blade of the forceps must be conducted upon the fore finger of the left hand, passed between the head of the child and the perineum, in the same cautious manner as the first, till the lock reaches the perineum, or even presses it a little backward.

8. When the second blade is properly introduced, its situation should be opposite to the first.

9. In order to lock the forceps, the handles of which are at a considerable distance from each other, the blade first introduced must be brought down and carried so far back that it will lock with the second blade, held in its first position.

10. Care should be taken that nothing be entangled in the lock of the forceps, by carrying the finger round it.

11. It is convenient to tie the handles of the forceps together, when locked, with force sufficient to keep them from sliding or shifting their position. (See Plate IX.)

12. If the blades of the forceps were introduced so as not to be opposite to each other, they could not be locked.

13. Should the handles of the forceps when applied come close together, probably the bulk of the head is not included between them, and therefore, when we acted with them they would slip.

14. If the handles when locked are at a great

distance from each other, they are not well applied, and will probably slip.

15. But in these estimations allowance is to be made for the different dimensions of the heads of children.

16. The forceps will never slip if judiciously applied, if the case be proper for its use, and we act circumspectly with it.

NOTE.—The difficulties in the application of the forceps arise, from attempting to apply them too soon; from passing them in a hurry, or in a wrong direction; or from entangling the soft parts of the mother between the instrument and the head of the child. Of course, we are always to be guarded against these circumstances.

SECTION III.

1. There is no occasion, and it would be hurtful to attempt to change the position of the head, when the forceps is applied, before we began to extract.

2. For if the action with the forceps be slow, the head of the child will turn in the same manner, and for the same reasons, as in a natural labour.

3. Therefore the forceps being fixed upon the head must also change its position according to its descent, and the handles be gradually turned from the ossa pubis and sacrum, where they were

first placed, to the sides of the pelvis. (See Plates V., VI., VIII., and IX.)

4. The handles of the forceps likewise, though originally placed far back towards the sacrum, that is, in the direction of the cavity of the pelvis, will be gradually turned, as the child advances, more and more towards the pubes, that is, in the direction of the vagina [and towards the abdomen].

5. The first action with the forceps must be to bring the handles, firmly grasped in one or both hands, slowly towards the pubes, till they come to a full rest.

[Traction is always to be made in the axes of the pelvis, and when the head approaches the outlet, the forceps should be moved at first from side to side, and when the vulva becomes distended, the handle of the instrument is to be lowered to allow the occiput or hind-head to escape under the pubes and then raised towards the abdomen, the perineum being properly supported at the same time. M. R.]

6. After waiting till the pains return, or an imaginary interval if there should be a total want of pain, the handles are to be carried back in the same slow and cautious manner till the lock reaches the perineum, using at the same time a certain degree of extracting force.

[It is always to be remembered that the peri-

neum dilates gradually and slowly in natural labour; and that the example of nature is to be exactly imitated. When the head presses on it, the forceps ought not to reach it, but be in the centre of the vagina and when the occiput has cleared the pubes, the handles of the instrument are to be raised towards the abdomen. If traction were made against the perineum as here recommended, this part may be lacerated. M. R.]

7. The subsequent actions must be from handle to handle, or occasionally by simple traction; but the action of that blade which was towards the pubes, must be stronger and more extensive throughout the operation, than the action with the other blade, which has no fulcrum to support it.

8. By a repetition of these actions, always directed according to the position of the handles, with their force increased, diminished or continued, according to the exigence of the case, we shall in a short time perceive the head of the child descending.

[The traction should always be made slowly and cautiously, in the axes of the pelvis, so as to avoid contusing or lacerating the soft parts appended to it. M. R.]

9. When the head begins to descend, the force of the action with the forceps must be abated,

and as that advances, the direction of the handles must change by degrees more and more to each side, and towards the pubes.

10. The lower the head of the child descends, the more gently we must proceed, in order to prevent any injury or laceration of the perineum or external parts, which are likewise to be supported in the same manner as in a natural labour.

11. In some cases, the mere excitement occasioned by the application of the forceps, or the very expectation of their being applied, will bring on a return or an increase of the pains sufficient to expel the child without their assistance.

12. In other cases we are obliged to exert very considerable force, and to continue it for a long time; so that one operation may be safely and easily finished in twenty minutes, or even a less time, and another may require more than an hour for its completion, and the repeated exertions of very considerable force.

13. In some cases it happens also, that the obstacle to the delivery exists at one particular part of the pelvis, and when that is surmounted, the remainder of the operation is easy; but in other cases there is some difficulty through the whole course of the pelvis.

14. Before the exertion of much force, we are always to be convinced, that a small or a moderate degree of force is not equal to our purpose.

15. In every case in which the forceps has been applied, it is not to be moved before the head is extracted, even though we might have little or no occasion for them.

16. When the head of the child is born, the forceps is to be removed, and the remaining circumstances are to be managed as if the labour had been natural.

NOTE. The general arguments against the use of instruments have been drawn from their abuse: it appears, however, that necessity will, in some instances, justify the use of the forceps; that when such necessity exists, their use is not only justifiable, but often highly advantageous; that delay to apply them, and slowness in their application and use, will secure, as far as is possible, both the mother and child from untoward accidents; but that mischief cannot be prevented if they are applied too soon, or the operation with them be performed in a hurry.

[It is perhaps impossible in the present state of science to determine the exact proportion of cases that require the forceps. Clarke, of Dublin, states there was but one case requiring the forceps in 728; Smellie, one in 125; others, one in 158, 188, and 333; Merriman, one in ninety-three; Burns, one in fifty-three; Hagen, ninety-three in 350; Nægèle, one in fifty-three; at the Hôtel Dieu in 1829, one in 280; at l' Hôpital St. Louis in 1828, one in 240; at Liege, in 1808, two

in 216; at Strasburgh, in 1825, two in eighty-five; at Froeyes, two in 1262.

Richter employed it in fifteen cases in 2571 at Moscow, and thirty-four in 624 in his private practice; Carus, in nineteen in 220, in 1827; Siebold, in fifteen in 137; Kluge, in fifteen in 268; Kilian, in 120 in 12,000; Riecke, in 2740 in 220,000; Hart, in one in 398; Cusack, in three in 313; Ciniselli, in one in 94; and Merrem, in fourteen in 157. The judgement of the obstetrician must determine the necessity of using the forceps or performing any obstetric operation. M. R.]

It would be a very desirable thing that every student should have an opportunity of seeing the operation with the forceps performed before he goes into practice; but that is not always possible. Yet if he has been properly instructed in the principles of the application and use of the forceps, reflects seriously before he determines on performing the operation, and proceeds slowly but not timidly in it, he can hardly fail to succeed. Hurry, in any operation, is a very common sign both of want of information and of fear; and attention is to be paid to the order of the rule in Celsus, 1. *tutò*, 2. *citò*, 3. *jucundè*.

[When the practitioner is properly instructed and observes the application of the forceps on the obstetric machine and human fœtus covered with leather, he can scarcely mistake in using it on the living subject. M. R.]

[POSITIONS OF THE HEAD AT THE OUTLET OF THE PELVIS, WHICH REQUIRE THE FORCEPS OR LEVER.

1. When the occiput is turned to the pubes, (*occipito-anterior*,) see Plate VII. 2. When the occiput is turned to the sacrum, (*occipito-posterior*,) Plate X. 3. When the occiput faces the ischium, (*occipito-ischiatic*, right or left,) and 4, *fronto-ischiatic*, right or left. The positions are, when the occiput or forehead is turned to the pubes or sacrum, or when either is turned diagonally at the outlet to the ischium.

1. *Occipito-anterior*—back of the head to the pubes.—Forceps applied as advised in the text, (see Plate VII.)

2. *Occipito-posterior*—face to the pubes.—Forceps applied as in the last, occiput extracted first according to some authors, chin according to others, (see Plate X.)

3. *Occipito-ischiatic*—convexity of forceps towards the face, this last turned into the cavity of the sacrum, as in the first, or occipito-anterior presentation, (see Plate IX.)

4. *Fronto-ischiatic*—convexity of forceps towards the occiput; this last turned into the cavity of the sacrum, and the head extracted, as in second or occipito-posterior position.

POSITIONS OF THE VERTEX AT THE BRIM OR SUPERIOR STRAIT OF THE PELVIS.

These are direct and diagonal, as at the inferior strait. In this country, the long forceps or lever is recommended, on the Continent version is preferred, unless the pelvis is contracted by malformation or accidental deformity, (see my Manual of Obstetricy, p. 554.)

The forceps is applied in the same relations to the head and pelvis, as at the inferior strait, and the handles rest on the inferior commissure of the genital fissure, or in the axis of the brim. When the head is adapted to the pelvis, and brought into the cavity, or on the outlet, the handles of the instrument are in the centre of the vagina, or axis, of the outlet, (see Plate IX.)

IMPACTION OF THE HEAD AT THE SUPERIOR STRAIT OR BRIM OF THE PELVIS.

The forehead, or occiput, is to the pubes or sacrum; the long diameter of the head is to the short of the pelvis, (see p. 3.)

The positions may be changed with the hand, long forceps, or lever. When the forceps is employed, it should correspond to the pelvis, as in the positions of the vertex at the brim, (see p. 90.)

When the head cannot be adapted to the pelvis, craniotomy is performed in this country. When

the forehead or occiput corresponds to the right or left side of the brim of the pelvis, the same rules apply as in presentations of the vertex at the brim, or superior strait of the pelvis. The object is, to adapt the long diameter of the head to the long of the pelvis, (see pp. 3—9.)

In these cases, the occiput or forehead corresponds to the right or left ilium, that is, in the line from hip to hip. These cases are of very rare occurrence; and the promontory of the sacrum, or sacro-vertebral angle, the coccyx and perineum, will not permit us to apply the forceps over each ear, as generally advised; nor could we use the instrument in the axis of the superior strait. In these cases, it has been strongly recommended to apply the forceps over the forehead and back of the head, and so soon as the head is brought into the cavity of the pelvis, to remove the instrument. This will require the greatest circumspection and caution.

Professor Capuron, and others, prefer returning or raising the head, and then applying the branches over each ear. Experience has convinced me, that the head cannot always be returned or raised; that the former mode of applying the forceps must be adopted in some cases; but that M. Capuron's method is practicable and preferable, whenever it can be adopted.

The adaptation of the forceps, the head of the infant to the pelvis, must be regulated, in all cases,

in the manner recommended in describing presentations at the outlet and brim of the pelvis.

POSITIONS OF THE FACE AT THE INFERIOR AND SUPERIOR STRAITS OR APERTURES OF THE PELVIS.

The face may present, like the head, in six different positions; two direct, and four diagonal.

The indications of treatment are, 1, to adapt the head to the pelvis, or to bring down the feet, as in the operation of version. If the former fail, it is the practice, in this country, to perforate or open the head; and in Continental Europe, to bring down the feet. In my opinion, the latter operation is preferable, and ought always to be attempted before the destructive one of perforation is performed.

Presentations of the face may be rectified by the lever. When the head is rectified, the labour may be left to nature.

POSITIONS OF THE FACE AT THE INFERIOR STRAIT.

The face presents, in six positions, at the inferior strait or outlet of the pelvis. The forehead is turned to the pubes, (see Plate X.,) or sacrum, the occiput to the reverse. The manœuvres are the same as when the head presents at the outlet,

except that one blade of the forceps is applied over the forehead, and the other over the occiput. The occiput is lowered, and the forehead placed in the cavity of the sacrum. The handles are now loosened, and the blades applied over the ears, or the blades are withdrawn and applied as in the first direct position of the vertex, the occipito-anterior, (see p. 90.)

When the forehead faces the sacrum, (Plate XI. gives an idea of it,) the forceps is applied, with its convexity, towards the sacrum, the face is raised under the pubes by elevating the handles of the instrument, and the rest of the operation is performed as in the second direct position of the head at the outlet, the occipito-posterior, (see p. 90.)

Diagonal positions of the face at the outlet.— The forehead corresponds to either cotyloid cavity or acetabulum, (see Plate XII.,) the occiput to the opposite sacro-iliac symphysis. The forceps is applied over the ears, or occipito-frontal diameter. The face is to be turned into the concavity of the sacrum, or to the pubes, if over the forehead and occiput, and the blades of the forceps, they being first withdrawn, are applied over the ears.

In the third diagonal presentation, the occiput is turned to either sacro-iliac symphysis, and the forehead, to the opposite acetabulum. The for-

ceps is to be applied as in the first. The face is to be turned into the second direct position, (see p. 93.

The fourth diagonal position is managed the reverse of the third.

THE POSITIONS OF THE FACE AT THE SUPERIOR STRAIT.

The positions are the same as at the inferior strait, except that the parts are less engaged. In these cases, the head is to be adapted to the pelvis.

APPLICATION OF THE FORCEPS ON THE HEAD, THE TRUNK BEING EXPELLED FROM THE UTERUS.

When the face is in the cavity of the sacrum, the forceps is to be applied over the ears, the body of the infant is to be raised towards the abdomen of the mother, and traction made by raising the chin towards the pubes, so that the back of the infant is applied to the abdomen of the mother. When the face is to the pubes, the traction is to be made as in the occipito-posterior position at the outlet, (see p. 90.)

When the diagonal positions are to be treated, the face is to be turned into the cavity of the sacrum, or to the pubes, and the operation terminated as in the occipito-posterior, or occipito-anterior position at the outlet.

POSITIONS OF THE HEAD AT THE SUPERIOR STRAIT OR BRIM OF THE PELVIS, THE BODY BEING EXPELLED FROM THE UTERUS.

The positions are the same as at the outlet—two direct, and four diagonal. 1. The occiput is turned to the pubes, the forehead to the sacrum. —2. The reverse.—3. The forehead is turned to either of the two sacro-iliac symphyses, the occiput to the opposite acetabulum, or cotyloid cavity.

1. *The occipito-anterior position.*—The head is to be turned with the hand, long forceps or lever to either sacro-iliac symphysis, that is, into the long diameter of the brim or superior strait of the pelvis. The occiput will be to the opposite acetabulum. The head rapidly descends into the cavity of the pelvis. The obstetrician now places his index and middle finger of the right hand on each side of the neck, close to the base of the skull, the fore finger of the left being placed in the mouth, with which the chin is depressed towards the chest, the body of the infant resting on the left arm. The obstetrician, during the next parturient pain, raises the body of the infant towards the abdomen of the mother, and the chin towards the pubes; when the forehead, vertex, and rest of the head readily escape through the genital aperture, the back of the infant being brought in contact with the abdomen of the

mother. This traction is cautiously made in the course of the curved line, formed by the axes of the brim, cavity, and outlet of the pelvis, (see p. 11,) on which the head passes in natural labour, (see p. 12,) and on which traction with the forceps, lever, or craniotomy forceps is also made.

Occipito-posterior position.—When the face is turned towards the pubes, the body of the infant is also supported on the left arm, the fore finger of the right hand is passed against the lower jaw, to close the mouth, the occiput is raised towards the pubes, and the abdomen of the infant is brought in contact with that of the mother.

Some practitioners advise the face to be turned into the cavity of the sacrum, if possible, and the labour terminated as in the former position, (occipito-anterior,) the body of the infant being managed as in the last position. If the face can be turned into the cavity of the sacrum, in the absence of labour pain, the operation will be much more readily performed than as above recommended.

The diagonal presentations, which are four in number, like those of the vertex, are to be made occipito-anterior or occipito-posterior, either with the hand, forceps, or lever, adapting the long diameter of the head to that of the pelvis, (see p. 11.) M. R.]

SECTION IV.

ON THE APPLICATION AND USE OF THE VECTIS OR LEVER.

1. We shall have a just idea of the vectis, by considering it as one blade of the forceps, a little lengthened and enlarged, with the handle placed in a direct line with the blade, that is, without any lateral curvature.

2. The general condition and circumstances of labours before stated, as requiring and allowing the use of the forceps, will hold equally good when the vectis is intended to be used.

3. In the application of the vectis two fingers, or the fore-finger of the right hand is to be passed to the ear of the child.

4. Then taking the vectis by the handle, or with the blade shortened, in the left hand, conduct it slowly till the point of the vectis reaches the ear, however that may be situated.

5. The instrument is then to be advanced, as was advised with the forceps, till according to your judgment the extremity of the blade reaches as far, or a little beyond, the chin of the child.

6. Then grasping the handle of the instrument firmly in the right hand, wait for the accession of a pain.

7. During the continuance of the pain raise the handle of the instrument gently but firmly towards

the pubes, drawing at the same time with some degree of extracting force.

8. When the pain ceases let the instrument rest, and on its return repeat the same kind of action, alternately resting and acting in imitation of the manner of the pains.

9. By a repetition of this kind and manner of action the head of the child is usually advanced, and the face turning gradually towards the hollow of the sacrum, the position of the handle of the vectis will be altered, and the direction of the action with it of course should be changed.

10. When the head is perceived to descend, we must proceed more slowly and carefully, according to the degree of descent, in order to prevent any injury to the external parts, which is to be prevented, as was directed when the forceps are used.

11. But if by the continuance of the moderate force before recommended, the head should not descend, it must be gradually and cautiously increased till it becomes sufficient to bring down the head.

12. In the action with the vectis the back part of the instrument must rest upon the symphysis of the ossa pubis, or upon the ramus of the ischium, according to its position, as upon a fulcrum, for its support.

13. By passing the flat part of the hand to the back of the blade of the instrument when in ac-

tion, we shall be occasionally able to lessen or take off this pressure, which must otherwise be made upon the parts of the mother *.

14. Some have recommended the vectis to be used when the head of the child was higher up in the pelvis than is before stated, as justifying the use either of this instrument or the forceps.

15. They have also recommended the vectis when the head of the child was firmly locked in the pelvis, and have asserted that by its use there is often obtained a very good chance of preserving the life of a child, which must otherwise be inevitably lost.

16. Others have by frequent use acquired such dexterity, as to be able to extract the head of a child, in the situation first stated, with a single sweep of the instrument.

17. Some have also advised the introduction of the vectis between the sacrum, or sacro-sciatic ligaments, and the head of a child, from a belief that it could be equally or more advantageously used in this position than in that first stated †.

18. But having ever considered the use of all instruments as a thing to be lamented, and when

* [Pressure upon the parts of the mother ought to be avoided as much as possible in all cases, and the hand of the practitioner may in general form the fulcrum. M. R.]

† [When the face is in the cavity of the sacrum, and the head does not advance, the introduction of the lever over the forehead, face, or chin, enables the operator to make traction towards the pubes, and to expedite delivery. M. R.]

I did use them, esteemed the safety of using them as my principal object, I cannot deviate from these principles, or enter upon a discussion of points of practice, of which, as far as I am competent to judge, I cannot approve.

NOTE. Before, and immediately after the publication of my second Essay on Difficult Labours, several gentlemen, with whom I converse, and to whom I ought to pay great respect, reprehended in very decided terms what I have advanced with regard to the forceps and vectis. Some maintained that the forceps is an instrument far superior to the vectis, of which I was accused of speaking too favourably. Others, of equal respectability, accused me of speaking with timidity, or restraint, of those advantages which, they asserted, the vectis had over the forceps. This very strong evidence could only be invalidated by its contradiction, but the very respect which I bear to the witnesses, compelled me to pass over their evidence, and to rely upon my own experience and judgment.

I did not speak of the mechanism of the instruments, or of the operation performed when we had applied, and acted with them, as these have hitherto been very imperfectly and often erroneously explained. The subject came under consideration in the ordinary course of the work, and having frequently used both the instruments, I stated the matter equitably, according to the

best of my abilities, and in such a way, that I thought students, who were principally concerned in the discussion, being left with the choice of either instrument, according to the doctrines of the particular professors whom they might attend, could not be misled. It is not to be expected that men versed in practice should change their opinions or alter their practice, or, in short, pay much regard to disputes about instruments, if any were disposed to raise them.

It then was, and yet remains my opinion, founded, as I before observed, on my experience with both instruments, that the superior excellence which has been attributed to each of these instruments, ought chiefly to be ascribed to the dexterity which may be acquired by the habit of using either of them. It is also my opinion that we may, in general, either with the forceps or vectis, effectually and conveniently give that assistance which is required in cases of difficult parturition, allowing and justifying their use. In particular cases it may perhaps be proved that one instrument is more commodious than another.

But if the vectis be depreciated by those who have never used it, and are not expert in its use, because they prefer the forceps; or if the known properties of the forceps be not allowed by those who do not use them, because they prefer the vectis; the proper inference would not be, that either of the instruments ought to be condemned,

but that we are in possession of two instruments well adapted to answer the same purpose, if they are prudently used; or, that neither of them ought to be used.

In those cases, in which the face is turned towards the pubes, or in which the face of the child is the presenting part, it is generally more convenient to deliver with the vectis, or with one blade of the forceps, than with both blades *.

[The lever is used to depress the occiput when it is turned towards the back of the infant in face presentations. It may be applied at the inferior or superior straits or apertures of the pelvis. It is usually placed on the occiput, temple, forehead, mastoid process, or chin. Traction ought to be made with it in the axes of the pelvis. It is generally considered to be a dangerous instrument to the mother and infant, and is seldom employed at present. The forceps is generally preferred in this and other countries.

The blunt hook.—This instrument is occasionally, though very rarely, applied under the arm of the infant in natural presentations, and over the hips when the breech descends, or when the pelvis of the infant is passing through that of the mother. (See Plate XIV.)

* [The forceps is generally preferred by all modern practitioners, though all consider the lever a valuable instrument. Ford, Douglas, Sims, Croft, Denman, and others, preferred the lever. M. R.]

Fillets.—Bands of different sorts were applied over each thigh, and on the foot and wrist, in former times, to assist in bringing down the infant. They are scarcely ever used at present. Some modern practitioners advise a silk handkerchief to be passed over and round each thigh in breech cases, to expedite labour. This proceeding will be unnecessary if the obstetrician turns one hip of the infant to the pubes of the mother at the outlet. (See p. 16.)

Symphyseotomy. Sigaultian operation.—When the pelvis is deformed, some foreign obstetricians cut through the symphysis pubis with a scalpel or saw, to enlarge the cavity of the pelvis. The sacro-iliac joints are distended, or sometimes lacerated, by the expansion of the pelvis, after symphyseotomy: the woman may die of inflammation, or be lame for life, after this operation. It is not performed in this country: craniotomy is preferred.

Cæsarean section. Gastro-hysterotomy. Hyerotomokie.—This operation consists in making an incision along the linea alba through the abdomen and uterus, to extract an infant. Hence it is termed *gastro-hysterotomy.* There is a modification of the operation, which consists in making an incision through the vagina and uterus, and this is denominated *vaginal hysterotomy.*

Gastro-hysterotomy is never performed in the British dominions unless when the pelvis is so

contracted that it is impossible to extract an infant through it by craniotomy.

It is performed on the continent of Europe and in America, to save the life of the infant, and in cases in which craniotomy would be performed in this country. In extreme cases of pelvic deformity, craniotomy is considered to be as dangerous to the woman as gastro-hysterotomy.

There is a full history of this operation in my "Manual of Obstetricy," which would occupy too much space in a work of this extent. Moreover, the operation is very seldom required.

The first successful case in this country was recorded in the "Edinburgh Medical Essays," Vol. I., and the operation was performed with a razor by an ignorant midwife in the county Tyrone.

The second successful case is recorded by my distinguished friend, Mr. Barlow, of Blackburn.

Vaginal hysterotomy is required in those cases in which the uterine orifice is scirrhous, in obliquities of the uterus, and in extra-uterine gestation. It is very rarely necessary, and seldom performed.

Gastrotomy, is advisable in extra-uterine pregnancy, and in rupture of the uterus, when the fœtus escapes into the abdomen and cannot be extracted through the natural passages. It is scarcely ever performed, and I shall there-

fore refer to systematic treatises for a full account of it.

Induction of premature labour.—When the pelvis is so deformed that an infant cannot be born at the full period of pregnancy without craniotomy, it is the general opinion in this kingdom that labour ought to be induced after the seventh month, as the infant is viable and may be reared at this age.

In 1821, Dr. Hamilton, of Edinburgh, had saved twenty-three out of twenty-seven infants. The operation is performed to save the life of the infant, and not to destroy it, as in criminal abortion. Macauley, Hamilton, Barlow, Blundell, D. Davis, Ramsbotham, &c. M. R.]

CLASS III.

PRETERNATURAL LABOURS.

CHARACTER. Labours in which any part of the child presents, except the head.

TWO ORDERS.

ORDER I.

Presentations of the breech, or inferior extremities.

ORDER II.

Presentations of the shoulder, or superior extremities.

SECTION I.

1. The presentation of children at the time of birth may be of three kinds. i. With the head. ii. With the breech, or inferior extremities. iii. With the shoulder, or superior extremities.

2. Presentations of the first kind are called natural, those of the second and third kind, preternatural.

3. Preternatural presentations have been subdivided into a much greater variety, but without any practical advantage.

4. The presumptive signs of the preternatural presentation of children are very uncertain, nor can it ever be determined what the presentation is, till we are able to feel the presenting part.

5. When any part of a child can be felt, we may form our judgment of the presenting part by the following marks.

6. The head may be distinguished, by its roundness, its firmness, and its bulk.

7. The breech may be known, by its bulk, by the cleft between the buttocks, by the parts of generation, and by the discharge of *meconium*.

8. The foot may be distinguished, by its length, by the heel, by the shortness of the toes, and the want of a thumb; and the hand, by its flatness, by the thumb, and the length of the fingers.

SECTION II.

On the first order of preternatural presentations.

1. In this kind of presentation, the breech, one hip, the knees, and one or both legs, are to be included.

2. In these presentations, it was formerly supposed necessary, as soon as they were discovered, to introduce the hand to bring down the feet, and to extract the infant with expedition.

3. But, according to the present practice, such labours are not to be interrupted, but allowed to proceed as if the presentation were natural; unless the necessity of giving assistance should arise from some circumstance independent of the presentation *.

* [In all these cases the largest part or diameter of the presenting part should be adapted to that of the cavity or outlet of the pelvis, as described in the Section "Natural Parturition by the Abdominal Extremity of the Fœtus," p. 16. Thus, if the long diameter of the infantile pelvis present in the short of the outlet, there would be more difficulty than if one hip of the infant was turned towards the pubes and the other towards the perineum, that is to say, when the long diameters of the mother and infant would be adapted to each other. M. R.]

4. By acting on this principle, when the breech of the child is expelled by the pains, the parts are sufficiently distended to allow the body and head to follow without any danger from delay.

5. But if the feet of the infant were to be brought down in the beginning of labour, the difficulty with which it would be expelled or could be extracted, increasing as it advanced, the infant would probably die before the woman was delivered, and she would be in danger of suffering mischief.

6. In cases of this kind there is also equal reason, when the breech is on the point of being excluded, for our guarding the perineum from the hazard of laceration as in presentations of the head.

7. In first labours, the infant, unless it be small, will not unfrequently be born dead when the breech, or inferior extremities, present; but in subsequent labours they will usually be born living, if there be no other impediment than that which is occasioned by the presentation.

8. The injuries which the presenting part of the infant, especially the penis and scrotum, may sustain will often be alarming, and appear dangerous, but by soothing and gentle treatment they are soon recovered.

9. Should there be reason to think the infant dead, or the powers of the mother insufficient to

expel it, we must then give such assistance as may be required.

10. This assistance must be given with the hand, or with a blunt hook or crotchet, hitched in the groin of the child; or, which I prefer, by passing a ligature round the bent part of the infant at the groin, with which we can hardly fail to extract it.

11. But every assistance of this kind must be given with discretion, and we must first be convinced of the necessity before we interfere*.

12. Should an infant presenting with the breech advance, though slowly, it is better to be satisfied with this slow progress; or, we might break, without much force, the neck of the thigh-bone, or separate the bones of the pelvis of the infant; by either of which accidents future lameness would be occasioned.

[*Version. Turning.*—The term version, or turning, is applied to the operation of passing the hand into the uterus, seizing one or both of the infant's feet, and extracting them out through

* [Great care and caution are necessary in using the blunt hook over the groin, and the instrument ought to be covered with a silk or muslin handkerchief. When this precaution is neglected, the groin may be very much contused or lacerated, and even the hip-joint seriously injured. The forceps has also been applied over the infant's hips, but must never contuse the loins or abdominal viscera. It is seldom used, but may be with safety. M. R.]

the vulva. There are two species of version, one in which the feet, and the other in which the head, is made to descend first.

In all cases in which any part of the infant, from the base of the skull to the breech, presents, that is, when the infant is transverse to the pelvis, or presenting across the passage of the mother, the operation of version is required. The operation consists in passing the hand into the uterus, grasping one or both feet, bringing them through the pelvis, and adapting the trunk, arms, and head of the infant, as in pedal or breech presentations. (See p. 16.)

Version ought not to be attempted until the orifice of the womb is so dilated or dilatable as to admit the passage of the hand. It would be better to have the membranes unbroken, as in that case, when they are ruptured, the wrist of the operator being in the vagina, the waters cannot escape, and there will be no difficulty in general in seizing one or both feet of the infant. The operation is easily performed before the rupture of the membranes and discharge of the liquor amnii.

In all cases when the membranes have ruptured and the waters discharged, the operation ought to be performed as soon as possible after the labour-pains have been suspended by a large opiate, bleeding, &c., as hereafter advised. The most favourable time for version is while the

membranes are entire and the mouth of the womb sufficiently dilated or dilatable.

Either hand may be used, but the palm should be towards the body of the infant. The object is to bring the feet with one hand, press up the body of the infant with the other, and adapt the largest parts of the infant to those of the pelvis of the mother.

Version is also performed when the head is in the right or left occipito-iliac positions, in presentations of the face and other parts of the head, by foreign obstetricians. They consider version much safer for the infant than the application of the forceps or lever.

Version should never be attempted until the bladder and rectum are evacuated and the labour-pains suspended or absent.

It may occupy an hour or two to pass the hand into the uterus, more especially if it be commenced when labour-pains return on the attempt at introduction. Of this more fully hereafter.

Cephalic version is required when the occiput is turned to the left side (left occipito-iliac position) or the reverse. The object is to raise the head into the iliac fossa; press on the abdomen with the other hand, incline the uterus to the side, and bring down the feet. The head has been brought into the natural position by pressure on the abdomen, by Wigand and Velpeau. It is,

however, so difficult to effect this, or even adapt the head to the pelvis, that version must be resorted to, and the hand must be passed along the neck, back, or sides, and thighs, to the feet.

Face presentations, require the chin to be bent towards the chest, the head adapted to the pelvis, which can seldom be accomplished, or the operation of version. But when the face presents at the outlet, delivery may happen spontaneously, or be accelerated by the use of the forceps, lever, or perforator. (See Plates XI., XII., XIII.)

When the head presents anormally at the brim of the pelvis, as the occiput to the sacrum or pubes; when the ear, the face, throat, neck, chest, back, abdomen, umbilical cord, genitals, front of the thighs, shoulder, arm, hand, heel, or hip presents, the operation of podalic version, or turning by the feet, is required.

In malpositions of the head and face, the practice in this country is to attempt to adapt the head to the pelvis with the hand, long forceps, lever, and if these fail, to perforate the head. It is manifest that version is preferable. M. R.]

VERSION.—TURNING.

SECTION III.

Of the second order of preternatural presentations.

1. In this kind of presentation are included the shoulders, the elbows, and one or both arms.

2. In all these presentations we shall be under the necessity of turning the infant, but as they may be attended with circumstances widely different, it is necessary to make the following distinctions.

3.—i. When the os uteri is fully dilated, the membranes unbroken, or the waters lately discharged, a superior extremity being perceived to present, before the uterus is contracted.

4.—ii. When the membranes break in the beginning of labour, the os uteri being little dilated.

5.—iii. When the os uteri has been fully dilated, the membranes broken, and the waters long discharged, the uterus being at the same time strongly contracted, and the body of the infant jammed at the superior aperture of the pelvis.

6.—iv. When, together with any of these circumstances, there is a great disproportion between the size of the head of the infant, and the dimensions of the cavity of the pelvis.

[The operation of version or turning cannot be performed with safety while labour-pains or ute-

rine action continues, and to allay this, bleeding in full subjects, and when this fails, a large dose of the sedative solution of opium or morphia, ought to be given, so as to tranquillize the action of the uterus.

If these means fail, we may nauseate with tartarized antimony; and if uterine action returned after the use of this remedy on the introduction of the hand, and that the infant was dead, the tobacco enema might, I imagine, be resorted to. See my Manual of Obstetricy, 3d Ed. 1831. M. R.]

SECTION IV.

On the cases which come under the first distinction.

1. Whenever there is a necessity of turning an infant, the patient is to be placed upon her left side, near the edge of the bed; or sometimes, when we expect or find much difficulty, in a prone position, resting upon her elbows and knees.

2. All the advantage to be gained from any particular position of the patient is, to allow us the free and dextrous use of our hands; the situation of the infant not being altered by the position of the patient *.

* [The best position is on the back, as in natural parturition, as already stated, p. 12. M. R.]

3. The os externum is then to be dilated with the fingers reduced into a conical form, acting with a semi-rotatory motion of the hand.

[The fingers and hand must be previously lubricated with pomatum, lard, olive oil, &c., as in natural parturition, and very slowly and gradually introduced in the form of a cone, so as not to excite pain or uterine action. In some cases an hour may elapse before the hand can be introduced into the vagina, more especially primiparous women or those confined for the first time. It would be rash and dangerous to persevere in attempting to pass the hand when the womb is contracting strongly or violently. M. R.]

4. The artificial dilatation of all parts must be made slowly, in imitation of the manner of natural dilatation. [See Natural Parturition, p. 16.]

5. The os externum should be amply distended before the hand is carried farther, or its contraction round the wrist will be an impediment in the subsequent part of the operation.

6. When the hand is passed through the os externum, (genital aperture,) it must be slowly conducted to the os uteri, which being wholly or sufficiently dilated, we must break the membranes by perforating them with a finger, or by grasping them firmly in the hand, or twisting them.

7. The hand must then be passed along the sides, thighs, and legs of the child, till we come to the feet.

8. If both the feet lie together we must them firmly in our hand; but if they are distant from each other, and we cannot conveniently lay hold of both feet, we may deliver by one foot without much additional difficulty *.

9. Before we begin to extract we must be assured that we do not mistake a hand for a foot.

10. The feet must be brought down, with a slow waving motion, into the pelvis; when we are to rest and wait till the uterus begins to contract, still retaining them in our hand.

11. When the action of the uterus comes on, the feet are to be brought lower at each return of pain, till they are extracted through the external orifice, and the labour may then be finished, partly by the efforts of the mother, and partly by art.

12. If the toes are turned towards the pubes, the back of the child is towards the back of the mother, which is an unfavourable position.

[It would be extremely difficult, and often impossible, to extract the arms in this position, and is to be avoided as often as possible. M. R.]

* [Mr. Radford, Lecturer on Obstetricy at the Manchester Medical School, contends that it is most prudent to bring down but one lower extremity, as in such case there is less volume in the pelvis of the fœtus, than when both extremities are extracted at the same time. I agree with him in opinion; but would caution the young practitioner to be careful, as he will be much more likely to injure the hip joint of the infant when he extracts one instead of both extremities. M. R.]

13. But if the toes are towards the sacrum, the back of the infant is towards the abdomen of the mother, which is proper; and all other positions of the infant must be gradually turned to this as the body is extracting *.

14. Yet this position of the infant is only advantageous when the head comes to be extracted.

15. When the feet of the infant have passed through the os externum, wrap them in a cloth, [napkin,] and holding them firm, wait till there is a contraction of the uterus, or a pain, during the continuance of which gently draw down the feet.

16. When the pain ceases we must rest, and proceed in this manner through the delivery, assisting the efforts of the patient, but not making the delivery wholly artificial.

17. When the breech comes to the os externum, the infant must be extracted very slowly through it, and in the proper direction, or there will be danger of lacerating the perineum.

18. When the infant is brought so low that the

* [The foot or feet of the infant should be extracted obliquely through the external genital fissure, so that the hip of the infant may be towards the sacro-iliac joint of the mother, (See Plate I.,) and at the outlet towards the pubes; and the other to the perineum, as described in Presentation of the Abdominal Extremity of the Fœtus. See p. 16. If the feet be extracted with the toes to the back of the mother, the long diameter of the infant's pelvis will be to the short of the mother's, and much unnecessary difficulty encountered, unless the infant be small in proportion to the pelvis, or the parturition be premature. M. R.]

funis reaches the os externum, a small portion of it is to be drawn out, to slacken it to lessen the chance of compression, or to prevent the separation of it from the body of the infant, or of the placenta from the uterus; and from this time the operation should be finished as speedily as it can with safety.

19. But if the circulation in the funis be undisturbed there is no occasion for haste, as the infant, we are then assured, is in safety.

20. The infant may be extracted without much difficulty if we act alternately from side to side, by making a lever of its body, and sometimes by pressing it from the ossa pubis with the fingers *.

21. If the infant should stick at the shoulders, the arms must be successively brought down. [There is great danger of the infant losing its life by pressure made by the head and outlet on the navel cord under these circumstances. The cord must be drawn down, and delivery accelerated. M. R.]

22. This is to be done by raising the body the opposite way, and by successively bending them at the elbow very slowly, lest they should be

* [In these cases the finger, blunt hook, forceps, or fillets, are sometimes placed over the hips to facilitate delivery, and the application of these means has been already described. The body should be pressed towards, and not from the pubes. M. R.]

broken, and the hand must be cleared toward the pubes *.

23. When both the arms are brought down, the body of the infant must be supported upon our left hand placed under the breast, the fingers on each side of the neck, and the body supported upon our left arm.

24. Then placing the right hand over the shoulders, and pressing with our fingers the head towards the sacrum, we must ease the head along, gradually turning the body of the infant as it advances toward the abdomen of the mother †.

25. If the head should not come easily away, we must introduce the fore-finger of the left hand into the mouth of the child, by which the position of the head will be rendered more convenient ‡.

26. When the head begins to enter the os ex-

* [The body is to be raised towards the pubes or abdomen of the mother, and two fingers passed over the shoulder and arm of the infant to the elbow joint, which is to be drawn forwards. The operator must be most careful not to injure the shoulder or elbow joint, and not to contuse or fracture the arm. M. R.]

† [The fore and middle finger of the right hand ought to be placed on each side of the neck, at this point of the operation, and close to the base of the skull. M. R.]

‡ [The left fore-finger placed in the mouth, will enable the operator to depress the chin on the chest, and by this movement expedite the descent of the forehead and head; while the back of the infant is raised towards the abdomen of the mother, with the left arm, two fingers of the right hand being placed on the neck, close to the head, as in the preceding note. M. R.]

ternum, we must proceed very slowly, and support the perineum, by spreading the fingers of the left hand over it.

27. In some cases there may be a necessity for speedily extracting the infant in order to preserve its life, but we must also recollect, that the infant is often lost by endeavouring to extract it too hastily.

28. When an infant has been extracted by the feet, the placenta usually separates very soon and very easily; but in the management of this we are to be guided by the general rules.

SECTION V.

On the cases which come under the second distinction.

1. We are first to ascertain the presenting part, and if, together with the arm, the head is perceived by a common examination, there may be no occasion to turn the infant, such case only constituting the third variety of natural labour.

2. But if the case should be such as to require the infant to be turned, it might be doubted whether it were proper to dilate the os uteri by art, or to wait for its spontaneous dilatation.

3. Perhaps neither of the methods can be constantly followed, but we may generally say, that there is under these circumstances neither danger

nor increase of difficulty, from waiting for the spontaneous dilatation, which is therefore in general to be preferred.

4. But if more speedy dilatation should be required, whatever is done by art should be done slowly, and in imitation of nature.

5. The os uteri is always to be considered as completely dilated when we judge it will allow of the easy introduction of the hand.

6. When we have fixed upon the proper time and begin the operation, the os externum must be dilated in the manner before advised.

7. The hand must always be introduced into the uterus, on that side of the pelvis where it will pass most conveniently; and there is usually most room at that part which will lead to the feet *.

8. It is generally most convenient to pass the hand between the body of the infant and the ossa pubis, the feet being most commonly found lying toward the belly of the mother.

9. In cases which come under this distinction the uterus is seldom contracted very strongly upon the body of the infant, but always in some degree.

10. But the difficulties which may occur in the

* [In all cases the position of the feet ought to be determined before commencing the operation. Some prefer the right, others the left hand, but we should employ whichever we can use most conveniently. M. R.]

operation of turning the infant in these cases, will be fully explained under the following distinction.

SECTION VI.

On the cases which come under the third distinction.

1. The difficulty in the management of these cases depends upon the degree of contraction of the uterus, and upon the distance or awkward position of the feet of the infant, but chiefly upon the former circumstance.

2. The uterus is in some cases contracted in a globular, and in others in a longitudinal form.

3. It is always easier with an equal degree of contraction to turn the infant when the uterus is contracted in a globular, than in a longitudinal form.

4. When we are called to a case of this kind it is better not to form, or to give a hasty opinion, nor to attempt to deliver the patient immediately, but to deliberate upon it, and then to make a second examination.

5. If the second examination should confirm our first opinion, we may prepare for the operation

6. We shall be able to judge in what part of the uterus the feet of the child lie, if we consider whether it be the right or left hand which presents,

which may be known by the direction of the thumb and of the palm of the hand.

7. But the contraction of the uterus is the principal difficulty to be surmounted, and the danger in turning the child is in proportion to the difficulty.

8. The danger in turning a child when there is a strong contraction of the uterus, is a single danger, that of rupturing the uterus.

9. The contraction of the uterus is of two kinds; first, the permanent contraction, in consequence of the waters having been long drained off, which may occur when there has been little or no pain.

10. Second, the extraordinary contraction arising from the action of the uterus, returning at intervals, and always attended with pain.

11. The hand must be introduced with a degree of force sufficient gradually to overcome the permanent contraction of the uterus, or the operation could never be performed.

12. But if we were to attempt to overcome the extraordinary contraction, it must follow, that we can, or cannot overcome it.

13. In the first instance we should be in danger of rupturing the uterus, and in the second the hand would be cramped, and we should be unable to proceed with the operation.

14. The deduction is therefore clear, that we ought not to proceed in our attempts to turn

the *infant while the uterus is acting with violence.*

15. The action of the uterus is rendered more frequent and strong by the generally increased irritability of the patient.

16. Before we attempt to deliver, it will be prudent to endeavour to lessen this irritability, in many cases by bleeding, by clysters, and by an opiate, which, to answer this purpose, should be given in two or three times the usual quantity.

17. When the opiate takes effect, and the patient becomes disposed to sleep, we must consider this state as extremely favourable, and proceed without loss of time to the delivery*.

18. There never can be occasion to separate the arm which presents from the body of the child, and when this has been done, instead of facilitating, it has impeded the operation†.

19. Without regarding the arm, the right or

* [When the woman is under the influence of a large opiate, there is scarcely any muscular action, except that causing respiration and circulation, and consequently the uterus, which, according to most writers, is muscular, is also deprived of action. It often happens, however, that the introduction of the hand excites its action, and this is beneficial, when the hand is in the cavity of the uterus, and can readily seize one or both of the infant's feet. M. R.]

† [The infant is transverse or across in such cases, and the removal of the arm cannot change its position. It ought never to be removed, unless when so congested as to fill the os externum and prevent the introduction of the hand, and this rarely hap-

left hand, as may be most convenient to ourselves, must be introduced in the manner before directed, and conducted slowly into the uterus if there be sufficient room.

20. But if the child be jammed at the superior aperture of the pelvis, the hand cannot be introduced.

21. We must then fix our fore-finger and thumb in the form of a crutch in the armpit of the child, and pushing the shoulders towards the head, and towards the fundus of the uterus, we must by degrees raise the body of the child till there be room for the introduction of the hand.

22. If while we are introducing our hand we perceive the action of the uterus come on, we must not proceed till that ceases or is abated.

23. The hand, when introduced, is also to be laid flat during the continuance of the action of the uterus, lest the uterus be injured by its own action on the knuckles.

24. When the action ceases or is abated, we must renew our attempts to carry up our hand to the feet of the infant.

pens, unless after the infant has been dead for hours or days. The amputation of the arm during the life of the infant is never performed, except by those who are grossly ignorant of medical knowledge; and it is never so swollen during life as to require removal, and very rarely even after the death of the infant. M. R.]

25. In this manner we are to proceed, alternately resting and exerting ourselves, till we can lay hold of one or both feet.

26. There is sometimes much difficulty in getting to the feet, and sometimes in extracting them, especially when the uterus is contracted in a longitudinal form.

27. In such cases it is often convenient, when we can reach the knees, to bend them cautiously, and to bring down the legs and feet together.

28. But before we begin to extract we should examine the parts we hold, and be assured they are the feet; and we must extract slowly and steadily.

29. If we hurry to bring down the feet they may slip from us, and return to the place from which they were brought.

30. We must then carry up the hand again, and grasping the foot or feet more firmly, bring them down in the cautious manner before advised *.

31. When the feet are brought down, if there

* [The practitioner must be careful not to injure the ankle, knee, or hip joints, by powerful traction, and for this reason it is safer to grasp both than one lower extremity, though the extraction of one limb forms a smaller cone than that of both, and passes more readily. If one lower extremity be brought down as advised by Radford, the other will be bent on the abdomen, and will descend in that position. It is unnecessary to re-introduce the hand to bring it down separately, or to hook or hitch the finger on the groin for this purpose. M. R.]

be difficulty in extracting them, we must endeavour to slide a noose, first formed upon our wrist, over the hand to secure the feet, by which the hazard of their return will be prevented, and the succeeding part of the operation much facilitated.

32. When the noose is fixed over the ankles, we must pull by both ends of it with one hand, and grasp the feet with the other, but we must not attempt to proceed hastily.

33. When there is afterward much difficulty in extracting the infant, it is probably owing to its body being jammed across the superior aperture of the pelvis.

34. It will then be proper to pass the finger and thumb as directed at 21, to raise the shoulders and body of the infant towards the fundus of the uterus, with one hand, and with the other extract at the same time with the noose.

35. When the breech of the child has entered the pelvis, we must proceed with deliberation, but there will be little farther difficulty, except from the smallness of the pelvis, of which we shall speak in the next section. [See Natural Parturition, by the Abdominal Extremity of the Fœtus, p. 16.]

SECTION VII.

On those cases which come under the fourth distinction.

1. The disproportion between the head of the infant and the dimensions of the pelvis, may be added to any of the circumstances mentioned under the preceding distinctions.

2. But as the management of these has been already directed, there is now occasion to speak only of the peculiar difficulties arising from that cause.

3. The degree of difficulty in these cases is greater or less according to the degree of disproportion; but the difficulty of extracting any part of the body of the infant is little, compared with that which attends the extraction of the head *.

4. We will therefore suppose the body of the infant to be brought down, but that the head cannot be extracted by any of the methods before recommended.

5. The force with which we endeavour to extract must then be increased, till it is sufficient to overcome the difficulty or resistance.

6. But as the necessity of using great force can only be known by the failure of a less degree

* [I can conceive no difficulty in extracting the head when it is of ordinary size, the pelvis natural, and if directed in the curved line towards the pubes. M. R.]

to produce the desired effect, we must begin our attempts with moderation, and gradually increase our efforts according to the exigence of the case.

7. The force exerted should also be uniform, controlled or commanded, and exerted by intervals, in the manner of the natural pains.

8. If the head should not descend with the force which we judge can be safely exerted, we must rest, and give it time to collapse *.

9. We may then renew our attempts, extracting from side to side, or backwards and forwards, as may best conduce to ease the head through the distorted pelvis, alternately resting and endeavouring to extract.

10. But if the head should descend in ever so small a degree, the force is not to be increased with the view of finishing the delivery expeditiously, but we must be satisfied with our success, and proceed circumspectly.

11. When the head once begins to descend there is seldom much subsequent difficulty in finishing the delivery, as the cause of the difficulty usually exists at one particular part of the pelvis.

12. But should the head rest in this situation for several hours, no additional inconvenience would thence arise to the mother, and the longer it rested, the greater advantage we should pro-

* [A better plan would be to reduce the bulk of the head with the forceps or perforator, as already advised. M. R.]

bably gain when we renewed our attempts to extract it.

[If the pains were violent there would be danger to the mother by compression or contusion of the soft parts in the pelvis, and delivery ought to be accomplished by some operation. M. R.]

13. It may be presumed when the head of the infant has been wedged for a long time in the position we are supposing, and great force has been used to extract it, that there is little reason to expect the infant should be born alive; yet instances of this are said to have occurred in practice.

14. When we can hook a finger on the lower jaw of the infant, the direction of the head may be changed to one more favourable, and the delivery thereby facilitated.

15. But we must not extract with so much force as to incur the hazard of breaking or tearing away the jaw.

16. Pressing the head of the infant from the ossa pubis to the sacrum, with the fingers or thumbs carried up as high as we can reach, will often be of great use in these cases.

17. If the difficulty of extracting the head arises from its enormous size, occasioned by some disease, as hydrocephalus, &c., these methods steadily pursued will answer our intention, as by a prudent use of the force in our power, the

integuments will burst, or even the bones be broken *.

18. Cases of this kind, in which it might be necessary or expedient to use one or both blades of the forceps, or to lessen the head, very seldom occur.

19. But if such cases should occur, the latter operation is preferable to the use of the forceps, and the utmost care must be taken that we do no injury to the mother †.

20. Under these circumstances should it be absolutely necessary to lessen the head of the infant, the perforation may be conveniently made behind either of the ears, or in any part where we can most conveniently fix the point of the perforator, and the general rules of the operation must be followed.

21. By the force used, should the neck of the infant have given way, we are not to separate the body from the head altogether, but we must rest longer and act more moderately.

* [It would be much safer and better for the mother, for the obstetrician to puncture the head, evacuate the fluid, and diminish its size, than to use such force as would burst the integuments, &c., and thus severely contuse the left parts of the woman. Puncturing the infant's head is advised by the best modern obstetric writers, as Maygrier, Velpeau, &c., &c. M. R.]

† [The French writers advise puncturing and prefer the forceps, to lessening the head by perforation. In my opinion, the safer operation should be preferred first, and craniotomy only resorted to when every thing else had failed. M. R.]

22. But should the body be separated from the head by the force we have used, or should we be called to a case of this kind, there will be no occasion, for this reason alone, to act hastily or rashly, as the head may even then be expelled by the pains [or be easily extracted with the forceps or after perforation by craniotomy].

23. But if this should be impossible, or if it be absolutely necessary to extract the head speedily, on account of the state of the mother;

24. Then the general rules for lessening the head must be accommodated to the exigencies of this particular case, and the head may be confined to a proper situation by compressing the abdomen with a napkin passed across it, or by the hands of an assistant.

[The head may be so reduced by compression with a forceps that it may be adapted to the pelvis and extracted, or its size may be diminished after perforation, with the craniotomy forceps, so as to admit of its extraction or expulsion by the natural efforts. M. R.]

SECTION VIII.

Miscellaneous observations.

1. It sometimes happens that no part of the infant can be perceived before the membranes break, though the os uteri be fully dilated.

2. In such cases we should not be absent when the membranes break, lest it should prove a preternatural presentation, requiring the infant to be turned.

3. In some cases even when the os uteri is dilated, the membranes broken, and the waters discharged, no part of the infant can be felt.

4. It will then be prudent, in the cautious manner before directed, to introduce the hand far enough into the uterus, to discover the part which does present.

5. If the head be found to present we should withdraw our hand, and suffer the labour to proceed in a natural way.

6. If the inferior extremities should present, we may bring down the feet, and then suffer the labour to go on uninterruptedly.

7. But if the shoulder or superior extremities should present, we must proceed to the feet, and turn the infant as was before directed.

8. By this conduct we shall guard against the danger of turning an infant in a contracted uterus.

9. If we should be called to a case in which the arm presented, and much force had been used to extract the infant in that position, the arm having perhaps been mistaken for a leg, and the pains being at the same time violent, it may be impossible, without giving much pain, and incurring some danger of rupturing the uterus, to turn the infant, or even to introduce the hand into the

uterus, the shoulder of the infant being pushed low down into the pelvis.

10. Under such circumstances, it is improper to attempt to introduce the hand into the uterus, or to turn the infant, as it will generally be expelled by the efforts of the mother; or it may be extracted by methods less painful and hazardous to the mother.

[The infant will not be expelled by the efforts of the mother, unless it is premature, small, or the pelvis very capacious, and no modern practitioner would expect it or wait for it, as in a great majority of cases the woman would die undelivered. M. R.]

11. Yet in these cases the body of the infant does not come doubled, but the breech is the first part delivered, and the head the last, the body turning, as it were, on its own axis.

[This was termed *spontaneous evolution by Denman*, and *spontaneous version by Murat*. There are two kinds of spontaneous version.—1. Spontaneous cephalic version; 2. spontaneous pelvic version. It was stated at the Medical Society of London, a year or two since, that an infant was born at the full time with the neck presenting and the head flattened on the back.

There are two kinds of spontaneous pelvic evolution.—1. The breech presents while the trunk and head ascend towards the fundus uteri. 2.

The shoulder, neck, side of the head, chest, or back, is violently forced down into the pelvis, the pains continue, the breech is pushed down though the former parts do not recede. There are numerous authors cited by M. Velpeau who describe the latter evolution. M. R.]

12. Nor is this observation made with regard to a small infant coming prematurely, as it will apply to an infant of a common size, and when a woman is at her full time, provided the pelvis be well formed.

13. This fact, of the possibility of an infant being expelled in this position, though originally contradicted with great confidence, is now confirmed in the most satisfactory manner by many cases which have been recorded, in some of which the infants have even been born living *.

14. From these it might be inferred, that a woman in a state of nature, or in perfect health, would not die undelivered, though the arm of the infant might present, supposing that she was not assisted by art.

15. Yet it is always requisite and proper to turn infants when the superior extremities present, if the operation can be performed without the hazard of injuring the mother, and we have a better chance of lessening the sufferings of the mother, and of preserving the infant.

* [In a vast majority of cases the infant is born dead. M. R.]

[It would be, in my opinion, extremely bad practice in transverse presentations to wait for spontaneous evolution, and I feel convinced that nine out of ten women would die undelivered. This is now the general opinion. M. R.]

16. But when there is no chance of preserving the infant, and yet it cannot be turned without the greatest danger to the mother, knowing the possibility of its being expelled in this position, it is necessary to consider the propriety of the operation before we perform it.

17. It remains, however, to be proved by future experience, how far, and in what cases, the preceding observation ought to be a guide in practice.

18. In cases of presentation of the superior extremities, in which the difficulty of turning the infant would be very dangerous, and great or insurmountable, another method has been recommended.

19. But of this method, which has been practised by one gentleman to whose knowledge and experience I pay great respect, I am not a competent judge, having never tried it.

20. I therefore refer to the annexed note for an explanation and history of the method to which I allude.

NOTE. Hoorneus, sæpe laudatus, adhuc peculiarem, novum eumque breviorem modum, fœtum mortuum cum brachio arctissimè in va-

gina uteri hærente extrahendi, invenit atque, descripsit, qui in eo consistit, ut quando ad pedes pervenire nequit, collum, utpote quod in fœtibus valdè adhuc tenerum est, vel scalpello a reliquo trunco resecet, vel unco idoneo quam cautissimè auferat. Hoc enim facto, vel sponte mox prorumpit ex utero fœtus, vel tamen, dum brachium propendens attrahitur, quod medico loco habenæ inservit, quam facillimè excutitur. Caput vero deinde seorsim mox vel manu, vel aliis propositis artificiis, si manus parum esset ejiciendum.

HEISTER. cap. cliii. sect. ix.

The latter part of this description is further explained in the next section.

[The operation described in a foreign language or evisceration of the chest and abdomen, was performed in difficult cases of turning, until a recent period. I performed the latter on two occasions, as will be seen on reference to my Manual of Obstetricy. Great experience and much reflection convince me that decapitation or evisceration is rarely or ever required. Bloodletting, large doses of opium, nauseating doses of tartarized antimony, and the tobacco enema will, I believe, in ninety-nine in a hundred cases, arrest uterine action, and remove all impediments to version. M. R.]

SECTION IX.

I am induced to reprint the following, as they were the very cases which first gave me an opportunity of observing the spontaneous evolution.

CASE I.

In the year 1772, I was called to a poor woman in Oxford Street, who had been in labour all the preceding night, under the care of a midwife. Mr. Kingston, now living in Charlotte Street, and Mr. Goodwin, surgeon, at Wirksworth, in Derbyshire, who were at that time students in midwifery, had been sent for some hours before I was called. The arm of the infant presenting, they attempted to turn and extract it by the feet, but the pains were so strong as to prevent the introduction of the hand into the uterus. I found the arm much swelled, and pushed through the external parts in such a manner that the shoulder nearly reached the perineum. The woman struggled vehemently with her pains, and, during their continuance, I perceived the shoulder of the child to descend. Concluding that the infant was small, and would pass, doubled, through the pelvis, I desired one of the gentlemen to sit down to receive it, but the friends of the woman would not permit me to move. I remained by the bed-side till the infant was expelled, and I was very much surprised

to find, that the breech and inferior extremities were expelled before the head, as if the case had originally been a presentation of the inferior extremities.

The infant was dead, but the mother recovered as soon and as well as she could have done after the most natural labour.

CASE II.

In the year 1773, I was called to a woman in Castle Street, Oxford Market, who was attended by a midwife. Many hours after, it was discovered that the arm of the infant presented. Mr. Burosse, surgeon, in Poland Street, was sent for, and I was called into consultation. When I examined, I found the shoulder of the child pressed into the superior aperture of the pelvis. The pains were strong, and returned at short intervals. Having agreed upon the necessity of turning the child, and extracting it by the feet, I sat down and made repeated attempts to raise the shoulder, with all the force which I thought could be safely used; but the action of the uterus was so powerful that I was obliged to desist. I then called to mind the circumstances of the case before related, mentioned them to Mr. Burosse, and proposed that we should wait for the effect, which a continuance of the pains might produce, or till they were abated, when the child might be turned with less difficulty. No further at-

tempts were made to turn the child. Then every pain propelled it lower into the pelvis, and in a little more than one hour the infant was born, the breech being expelled, as in the first case.

This infant was also dead, but the mother recovered in the most favourable manner.

Having been prepared for observing the progress of this labour, I understood it more clearly, and attempted to explain, both in my lecture on the subject and in the aphorisms which were printed for the use of the students, my opinion of the manner in which the body of the child turned, as it were, upon its own axis. I also pointed out the circumstances in which I supposed the knowledge of the fact might be rendered useful in practice, but with great circumspection.

CASE III.

January the 2d, 1774, I was called to Mrs. Davis, who keeps a toy-shop in Crown Court, Windmill Street. She had been a long time in labour, and the arm of the child presented.

The late Mr. Eustace had been called on the preceding evening, and had made attempts to turn the infant, which he had continued for several hours without success. I was sent for about one o'clock in the morning, and on examination found the arm pushed through the external parts, the shoulder pressing firmly upon the perineum. The

exertions of the mother were wonderfully strong. I sat down while she had two pains; by the latter of which the infant was doubled, and the breech expelled. I extracted the shoulders and head, and left the child in the bed. Mr. Eustace expressed great astonishment at the sudden change; but I assured him that I could claim no other merit on account of this delivery, except that I had not impeded an effect which was wholly produced by the pains.

This infant was also dead, but the mother recovered in the most favourable manner.

In all these cases, the women were at the full period of utero-gestation, and the infants were of the usual size.

Many other cases of the same kind have occurred to me; and with the histories of several, varying in the time or manner in which the evolution of the infant was made, I have lately been favoured by gentlemen of eminence in the profession, and many others have been published in different countries. But these are sufficient to prove the fact, that in cases in which infants present with the arm, women would not necessarily die undelivered, though they were not assisted by art.

With respect to the benefit we can in practice derive from the knowledge of this fact, I may be permitted to repeat, that the custom of turning

and delivering by the feet in presentations of the arm, will remain necessary and proper in all cases in which the operation can be performed with safety to the mother, or give a chance of preserving the life of the infant. But when the infant is dead, and when we have no other view but merely to extract it, to remove the danger thence arising to the mother, it is of great importance to know the infant may be turned spontaneously, by the action of the uterus. If we avail ourselves of that knowledge, the pain and danger which sometimes attend the operation of turning an infant may be avoided. Nor would any person, fixing upon a case of preternatural presentation, in which he might expect the infant to be turned spontaneously, be involved in difficulty, if, from a defect of the pains, or any other cause, he should be disappointed in his expectations. Nor would the suffering or chance of danger to the patient be increased by such proceeding, as the usual methods of extracting the infant could, under any such circumstances, be safely and successfully practised.

[The preceding cases and doctrine are the only objectionable parts in Dr. Denman's works, but fortunately they have never been, nor never will be followed. The woman would be exposed to great danger, and according to the Author's own shewing, not more than one out of thirty infants could be born alive. No obstetrician of modern

times would wait for the spontaneous evolution in transverse presentations. He would act in conformity with the laws of nature, science, and humanity, in performing the operation of version or turning. When the pelvis or head of the infant is on the outlet, he might wait for the efforts of the uterus, but not in all transverse cases. The advice of Denman is neither followed in this country nor in any other, so far as my researches enable me to conclude. M. Velpeau cites authors who have seen 137 cases of spontaneous evolution, in which 125 infants were born dead, and eight living. (Traité des Accouchemens, 1835.) M. R.]

[Craniotomy—cephalotomy, perforation of the fœtal head, and its dismemberment, even when the infant is alive, is preferred in this country to the Cæsarean operation, or gastro-hysterotomy. It is advised by certain German writers in dynamic labours, as when convulsions are urgent, (Stein, Ritzen, &c.)

Cephalotomy is only employed in France, when the infant is dead, or most probably so, and when parturition is impossible by the natural passages; when the pelvis is less than fifteen lines, when the hand, forceps, or lever, cannot be introduced into the womb, the Cæsarean section is preferred in France, even when the infant is dead, (*Velpeau Op. cit.*) "Our neighbours," says this celebrated author, "have recourse to hysterotomy too rarely,

and they too often sacrifice the life of the infant sooner than compromise that of the mother. We fall into the opposite excess on the Continent, and are not less blameable. When the fœtus is strong and robust, so far from sacrificing its life, as is done in Great Britain and the North, we ought to extract it by a severe operation, which is not necessarily fatal to the woman. No doubt, also, in my opinion, but we ought to prefer cephalotomy when there is good reason to fear the death of the infant, or that it cannot live. It would be too cruel, after the Cæsarean operation, to find a dead or non-viable infant, which will die in a few minutes or hours after the unfortunate woman has undergone such sufferings and dangers."

Cephalotomy is indicated, 1. when the fœtus is dead, and when the passages are too narrow to admit of its extraction with the forceps, or by version; 2. when it is very probable that the infant has died or is at the point of death, and that to extract it, recourse should be had to gastro-hysterotomy; 3. when the head is in the pelvis, and cannot be extracted with the hand, forceps, or lever. It cannot be performed when the sacro-pubic or short diameter of the brim of the pelvis is of less extent than eighteen or twenty lines. It ought never to be performed but in cases of extreme necessity.

Embryotomy consists in passing a cutting in-

strument, called a perforator, along the operator's fingers and into the infant's head. The instrument is to be passed into the fontanelles, sutures, or openings of the head, as there is great difficulty experienced in perforating the centre or ossified parts of the bones of the skull.

When the perforator is introduced to the rests or shoulders, it ought to be opened, the fingers still protecting the uterus, then closed and passed into the brain. The incision ought to be a simple and then a crucial one, about an inch or two in length. The opening thus made admits the fingers or perforator to break down the brain, which is rapidly expelled by the labour-pains, or parturient action; the size of the head is diminished, all injurious pressure on the soft parts, bladder, rectum, &c., is removed, and the infant is expelled by the natural efforts.

When the action of the uterus does not expel the infant, the forceps, lever, or craniotomy-forceps, which has superseded the crotchet, may be applied. Traction, with any of these instruments, should be made in the axes of the pelvis. If we save the integuments of the scalp, we often succeed in extracting the head without breaking down the vault of the skull, by passing one blade of the craniotomy-forceps within the head, and the other over the scalp and bones. This gives a firm hold, and if traction be made in the axis of the outlet towards the pubes, the head will

in many cases descend rapidly, and be easily extracted. The craniotomy-forceps or crotchet ought always to be applied over the most solid part of the head, and the soft parts of the woman properly protected with the left hand, as the bones of the skull very easily give way.

The crotchet ought to be placed on the occiput, mastoid process, petrous portion of the temporal bone, occipital foramen, lower jaw, orbit, or forehead. When a portion of bone is broken or yields, great care must be taken in extracting it not to injure the woman. In contracted or deformed pelves, it may be necessary to re-introduce the craniotomy-forceps or crotchet several times before the cranium is so reduced in size as to pass through the outlet, and the greatest care must be taken not to contuse or otherwise injure the soft parts of the woman.

The breaking down of the cranium to the base of the skull may occupy two hours, and sometimes more, during which the strength of the patient ought to be properly supported. In cases in which the pelvis is capacious, labour is speedily completed after opening the head. The base of the skull may be broken down with the forceps of Davis, Holmes, Baudelocque, the cephalatribe*, or the térébellum of Duges. This last

* This instrument is said to overcome all difficulties relative to the size of the head, and renders perforators, crotchets, and craniotomy-forceps superfluous.

instrument is capable of perforating the bones and cartilages, and breaking down the base of the cranium. This operation is called cephalatripsy, and supersedes symphyseotomy and hysterotomy. It may also be applied to the pelvis of the infant. When the infant descends or presents by the feet, and the head remains in the cavity of the pelvis, it may be extracted as already described (p. 16), or may require craniotomy.

When the pelvis is greatly deformed, the body of the infant must be dismembered, and in such cases there is perhaps as great danger to the woman as is incurred by hysterotomy.

When the skull remains in the uterus after the body is separated from it, an assistant should press on it so as to fix it, unless it be already fixed or impacted, while the operator introduces the perforator, and breaks it down with the craniotomy-forceps, which has nearly superseded the crotchet in this country. This instrument is somewhat similar to a lithotomy-forceps, except that it has prominent teeth between the blades, which enable the operator to take a firm hold of the bones of the head and to break them. The crotchet may slip and lacerate the woman. It is now seldom used. M. R.]

Class IV. Anomalous or Complex Labours.

FOUR ORDERS.

ORDER I.

Labours attended with Hemorrhage.

ORDER II.

Labours attended with Convulsions.

ORDER III.

Labours with two or more Children.

ORDER IV.

Labours in which the Funis Umbilicalis presents before the Child.

ON LABOURS ATTENDED WITH HEMORRHAGE.

Hemorrhage. A discharge of blood from the uterus, inordinate with respect to time or quantity.

Varieties.

1. In abortions.
2. At the full period of utero-gestation.
3. After the birth of the child.
4. After the expulsion of the placenta.

NOTE. No general description or character can be given to Anomalous Labours as a class, because the different orders bear no resemblance to each other. They are brought together merely to prevent the multiplication of classes; [and I have included all these labours under the head dystocia, as d. hemorrhagica, d. convulsiva, d. funicalis, &c., (see my Manual of Obstetricy, 1831.) The term complex or anomalous labours is arbitrary, unscientific, and untenable. M. R.]

ON ABORTIONS.

[The expulsion of the embryo or fœtus before the sixth month of utero-gestation is termed abortion; and after this period, premature labour. M. R.]

SECTION I.

1. With respect to the time of pregnancy, all expulsions of the fœtus may be reduced under two distinctions.

2. In the first will be included all those which occur before the uterus is sufficiently distended to allow of any manual operation; and these may be properly called abortions.

3. In the second may be classed all those which allow of manual assistance, if required; and which are therefore to be esteemed as labours, premature or at the full time.

4. But no precise period of pregnancy can be fixed as a line for these distinctions.

5. We may, however, in general say, that all expulsions of the fœtus, before the end of the sixth month, are to be considered as abortions. [Abortion is the expulsion of an infant before it

can live or be viable without the uterus; and premature labour when it is viable. M. R.]

6. But all expulsions of the fœtus, after the expiration of the sixth month, are to be esteemed as labours, and, if attended with the same circumstances, should be managed upon the same principles.

7. Yet expulsions of the fœtus sometimes happen so critically, as to make it doubtful to which distinction they should be ascribed, especially in cases in which there are two or more children.

8. When manual assistance is thought needful, the longer the time wanting to complete the full period of pregnancy, the more difficult must be any operation.

SECTION II.

On the causes of abortions.

1. The predisposing causes of abortion are, 1st, general indisposition of the constitution; 2d, infirmity of the uterus, and diseases of the ovum.

2. The general state of women who are disposed to abortion is very different, some being weak and reduced, and others plethoric.

3. Weakly women become more liable to abortion, because they are susceptible of violent impressions from slight external causes.

4. Plethoric women are more liable to abortion, from the peculiar disposition which the vessels of the uterus have, from structure and habit, to discharge their contents.

5. Every action in common life has been assigned as a cause of abortion. [All mental emotions, falls, blows, agitation in carriages, on horseback, raising heavy weights, frights, terror, thunder, noise of artillery, walking, dancing, coughing, laughing, &c., are causes of abortion. M. R.]

6. But it is to the excess of these actions that we are to attribute their effects, for women in health seldom abort, unless from violent external causes.

SECTION III.

On the prevention of abortion.

1. As every disease to which women are liable may dispose to abortion, the method instituted to prevent it must be accommodated to the disease, or to the state of the constitution.

2. In some constitutions abortions may be prevented by repeated bleeding in small quantities, by antiphlogistic medicines, and sometimes by warm bathing.

3. In others, abortion may be prevented by nourishing and invigorating diet and medicines,

by bark, by the liberal use of wine, especially claret, and often by cold bathing.

4. But it will be proper, in every case, to avoid all violent exercise, to keep the mind composed, and to rest frequently in an horizontal position. [Rest is absolutely necessary, and opium is indispensable to arrest and suspend labour-pains, whenever they commence. M. R.]

5. Women seldom abort while they have the vomiting which usually attends early pregnancy.

6. In women who have no spontaneous vomiting, this may be excited, with safety and advantage, by frequently giving small doses of ipecacuanha. [This practice is scarcely ever followed at present. M. R.]

7. Pregnant women are usually costive, and abortions have been very often occasioned by too great assiduity to remove this costiveness, which is a natural and proper state, in the early part of pregnancy.

SECTION IV.

On the signs of abortion.

1. The signs of abortion are, frequent micturition, tenesmus, pains in the back, abdomen, and groins, with a sense of weight in the region of the uterus.

2. But the most certain sign is, a discharge of blood, which proves that some part of the ovum is separated from the uterus.

3. It has been supposed when this last sign appears, that there is scarcely a possibility of the patient proceeding in her pregnancy.

4. But I have met with an infinite number of cases in practice, in which, notwithstanding this appearance, once or oftener, to a considerable degree, the discharge has ceased, and no ill consequences have followed.

5. We are therefore to persevere in the use of those means of prevention which are thought reasonable and proper, till the abortion has actually happened.

6. It is not always prudent to give a decided opinion of the probable event of those cases in which abortion is threatened, as their termination is often different from what might have been expected from the symptoms.

SECTION V.

On the treatment of women at the time of abortion.

1. The treatment must vary according to the nature and degree of the symptoms.

2. There is an endless variety in the manner in which abortion takes place. Some women abort with sharp and long continued pains, others with little or no pain; some with a profuse and alarming hemorrhage, others with very little discharge. In some the ovum has been soon and perfectly expelled, in others after a long time, in small portions, or very much decayed; but the only alarming symptom is the hemorrhage. [The embryo may be expelled surrounded with the amnios, chorion, or decidua, the placenta remaining in the uterus.

This may be retained for five or six weeks, after the expulsion of the fœtus. In such cases the hemorrhage may be profuse, and induce great prostration of the vital powers, and excite many fatal diseases. It is an axiom, that an abortion is much more injurious to the constitution than a natural labour. The one is a disease, the other a natural function. Abortion may recur ten, or even twenty times at the same period of pregnancy. In such cases, it is most important to prevent the recurrence, and bring the woman to the end of pregnancy. M. R.]

3. The hemorrhage in abortions is not always in proportion to the period of pregnancy, this being in some advanced cases very small; and in others, though very early, abundant. [Women have died of hemorrhage, and others have only been saved by transfusion. M. R.]

4. The hemorrhage usually depends upon the difficulty with which the ovum may be expelled and upon the state of the constitution of the patient naturally prone to hemorrhage.

5. The general principles which should guide us in the treatment of hemorrhages, from any other part of the body, are applicable to those of the uterus, regard being had to the structure of the uterus.

6. If the patient be plethoric, some blood should be taken from the arm at the commencement of the hemorrhage, and the saline draughts with nitre, or acids of any kind, may be given in as large a quantity, and as often, as the stomach will bear. [The infusion of roses is perfectly useless. M. R.]

7. These may also be given during its continuance, and cloths wet with cold vinegar may be applied to the abdomen and loins, and renewed as they become warm. The patient should be exposed to, and suffered to breathe, the cold air.

8. Every application or medicine, actually or potentially cold, may be used. A large draught of cold water or ice may be given with great propriety; and it is the custom in Italy to sprinkle ice over the body of the patient, if the danger of the case be imminent. [It is questionable whether cold applied to the lower part of the abdomen, (over the pubes,) does not increase the determination of blood to the uterus, and augment the flood-

ing. Nevertheless, I have, in numerous cases, known hemorrhage in abortions arrested by such applications. M. R.]

9. Every medicine or application which has the power of slackening the circulation of the blood, eventually becomes an astringent; but astringents, properly so called, can have no power in stopping hemorrhages from the uterus. [The acetate of lead, combined with opium and dilute acetic acid, is an exception, and will often restrain hemorrhage. M. R.]

10. Hemorrhages are stayed by the contraction of the coats of the blood-vessels, or by the formation of coagula, plugging up the orifices of the open blood-vessels.

11. Both these effects are produced more favourably during a state of faintness, which, though occasioned by the loss of blood, becomes a remedy in stopping hemorrhages.

12. Cordials are not, therefore, to be hastily given to those who are faint from loss of blood; unless the faintness should continue so long as to make us apprehensive for the immediate safety of the patient.

13. The introduction of lint, a piece of sponge, or any other soft substance, into the vagina, has been recommended, and sometimes used with advantage, by favouring the formation of coagula.

14. Cold or astringent injections into the vagina,

or even a piece of ice introduced into the vagina, have also been recommended.

[The use of these remedies is very questionable. The introduction of the substances loosely into the vagina, can seldom favour the formation of coagula. The introduction of pieces of lint, muslin, or calico, passed piece by piece, oiled, and placed against the os uteri, and augmented so as to completely fill the vagina, will arrest flooding. This method is termed the tampon or plug by foreign writers. It is, when properly applied, a most efficient remedy. It should never be neglected in abortions. I have fully described the value of this remedy in my Manual of Obstetricy. M. R.]

15. Opiates have been advised in abortions attended with profuse discharges, and they may sometimes be proper to ease pain, or to quiet the patient, especially when there is a chance of preventing the abortion, or after the accident has happened.

16. But when there is no hope of preventing the abortion, the degree of pain proving the degree of action of the uterus, and the action of the uterus producing and favouring the contractile power of the blood-vessels, if by opiates the action of the uterus should be prevented or checked, they may contribute to the continuance of the hemorrhage.

17. Hemorrhages in abortions, independent of

other complaints, though sometimes very alarming, are not dangerous. [This is generally correct, but is liable to exceptions, as already stated. M. R.]

18. But if women abort in consequence of acute diseases, or if they are attended with violent spasms, there will be real and great danger.

19. For they abort because they are already in great danger, and the danger is increased and accelerated by the abortion.

20. The ovum has been sometimes retained in the uterus for many months after the symptoms of abortion had appeared, and when it had lost the principle of increasing.

21. But it is not now thought necessary or proper in abortions, to use any means for bringing away the ovum, or any portion of it which may be retained, with instruments or manual assistance. [The secale cornutum will cause its expulsion.

Blood-letting, opium, absolute rest, and the tampon or plug, are the best means for preventing abortion.

The ergot of rye is the best remedy to expedite the expulsion of the ovum. When the placenta is retained after the expulsion of the fœtus and proper use of the ergot, the plug is of great value in arresting flooding. It ought to be removed every twenty-four hours, and an astringent lotion, such as equal parts of the compound solution of

alum and water, thrown into the vagina and uterus.

When the patient is of a full habit and ruddy complexion, she ought to be bled in the arm, put to bed, have a full dose of opium, such as twenty-five or thirty drops of sedative solution, or a full dose of morphia; (see my Translation of the Formulary of Hospitals, 1835;) and if there be hemorrhage, the vagina should be tightly plugged. The acetate of lead with opium in solution forms the best astringent. The patient should be confined to a sofa or bed, and avoid sexual commerce. Abortion is generally prevented by these means. M. R.]

SECTION VI.

On hemorrhages at the full period of utero-gestation.

1. Under this section will be included all those hemorrhages which may happen in the last three months of pregnancy.

2. These are occasioned, first, by the attachment of the placenta over the os uteri. [An edge of the placenta may be placed over the orifice of the womb, and will be separated between the seventh and eighth month, when the cervix or neck of the uterus begins to dilate. M. R.] Se-

condly, by the separation of a part, or of the whole placenta, which had been attached to some other part of the uterus.

3. Hemorrhages arising from the first cause are more dangerous than from the second; but those from the second have sometimes proved fatal.

4. The danger attending hemorrhages is to be estimated from a consideration of the general state of the patient, of their cause, of the quantity of blood discharged, and of the effect of the loss of blood, which will vary in different constitutions.

5. Hemorrhages are infinitely more dangerous with sudden than with slow discharges of blood, even though the quantity lost may be equal.

6. The danger arising from hemorrhages is indicated by the weakness or quickness of the pulse, or by its becoming imperceptible, by the paleness of the lips, and a ghastly countenance, by inquietude, (excessive restlessness,) by continued fainting, by a high and laborious respiration, and by convulsions.

7. The last two symptoms are usually mortal, though when women are extremely reduced, they are liable to hysteric affections of a similar kind that are not dangerous.

8. The vomiting, which generally follows violent hemorrhages, indicates the injury which the constitution has sustained by the loss of blood, but by the action of vomiting the patient is al-

ways relieved, and it contributes to the suppression of hemorrhages.

[This position is correct, except in extreme cases of hemorrhages, when it is, according to my experience, erroneous. In many such cases nothing but transfusion can save the life of the patient. M. R.]

9. Near the full period of utero-gestation women are always in greater danger in those hemorrhages which are not accompanied with pain.

10. For the pain proving the contraction of the uterus, and this proving that the strength of the constitution is not exhausted, the danger in hemorrhages may often be estimated by the absence or degree of pain.

[When the placenta is attached over the orifice of the womb, it is separated between the seventh and eighth month, as at this period the neck of the womb dilates, the vessels running between it and the placenta are torn, and profuse flooding without labour-pain is the consequence. The rupture is caused by the natural expansion of the womb, and not by natural labour. The woman may bleed to death in such cases without a single labour-pain, unless the nature of her disease is understood and properly treated. It would shew ignorance and folly in the management of such cases to wait for labour-pains, as will more fully appear by the details in the following section. M. R.]

SECTION VII.

On those hemorrhages which are occasioned by the attachment of the placenta over the os uteri.

1. Though the placenta, which may easily be distinguished from the membranes, or from coagulated blood, as soon as the os uteri is a little opened, be attached over the os uteri, the woman usually passes through the early part of pregnancy without any inconvenience, or symptom which denotes the circumstance.

[It is only discoverable between the seventh and eighth months, when the cervix uteri begins to develope. M. R.]

2. But before or when the changes previous to labour come on, there must be an hemorrhage, because a separation of a part of the placenta is thereby occasioned, and as the disposition to labour advances, the hemorrhage is generally, though not universally, increased.

3. With this circumstance very slight external causes are also apt to occasion hemorrhage.

4. When an hemorrhage from this cause has once come on, the patient is never free from danger till she is delivered.

5. The powers of the constitution are undermined by hemorrhages profuse or often returning, so that no efforts, or only very feeble and insuffi-

cient ones, are commonly made for the expulsion of the child.

6. We are therefore often obliged to free the patient from the imminent danger she is in by artificial delivery.

7. Of the propriety of this delivery, in cases of dangerous hemorrhage, there is no doubt, or can be any dispute, except as to the precise time when the patient ought to be delivered.

8. On the first appearance of the hemorrhage, unless it be prodigious in quantity, or unusually terrifying in its effect, it is seldom either requisite or proper to attempt to deliver by art.

9. Nor does it often happen that a second or a third return of the discharge compel us to the delivery by art.

10. But as a patient with this circumstance cannot be secured till she is delivered, and as the delivery is seldom completed by the natural efforts, and as the artificial delivery, though performed before it is absolutely necessary, is not dangerous, if performed with care, we must be on our guard not to delay the delivery too long.

11. In some cases in which it might be thought eligible to deliver on account of the hemorrhage, the parts are so unyielding as not to allow of the operation itself without some hazard.

[When the patient is greatly debilitated, and the orifice of the womb undilated, there can be no danger or hazard in dilating it after the sixth or

seventh month of pregnancy, because it is capable of dilatation at any period of pregnancy, more especially in the last three months. Many women and their infants have been sacrificed by the fear of dilating the uterus. M. R.]

12. Yet when the parts requiring dilatation make no resistance to the passage of the hand, the event of the operation is always more precarious, the operation having been deferred too long.

13. But though it may be proper in some cases to determine on immediate delivery, the operation must always be performed with the utmost deliberation.

14. The first part of the operation has been described under preternatural presentations.

[The fingers are to be brought together, so that the hand forms a cone, and they are to be gradually introduced through the os uteri. The fingers are to be passed in succession through the orifice of the womb, until the hand is introduced into the uterus. M. R.]

15. When the hand is carried to the placenta attached over the os uteri, it is of little consequence whether we perforate the placenta with our fingers, or separate it on one side till we come to the edge, though the latter is generally preferable.

16. If the hand be passed through the placenta, we shall come directly to the part of the child which presents.

[The hand ought not to be passed through the centre of the placenta, in which the funis or navel cord is generally situated, as this last would be lacerated, and the infant destroyed. M. R.]

17. But if we separate the placenta to the edge, the hand will be on the outside of the membranes, which must be ruptured before we lay hold of the feet of the child.

[It is much safer to pass the hand in this way, as there is less danger of injuring or destroying the life of the infant. M. R.]

18. No regard is to be paid to the part of the infant which may present, as it must always be delivered by the feet.

19. The feet of the infant being brought slowly into the pelvis, we must wait till the uterus is contracted to the body of the infant, which will be indicated by pain, and known by the application of our hand to the abdomen.

[The contractions of the uterus may be excited by a proper use of the ergot of rye, which may be given before or after the hand is introduced into the womb, according to the strength and state of the patient. When there is great debility, the ergot must be given in large or double doses, seldom exceeding half an ounce. (For a minute account of this valuable remedy, see my Manual of Obstetricy, 3rd Edition, 1831, and my Translation of the New Formulary of Hospitals, 1835. See also p. 67.)

When the woman is very weak, and the hand about to be passed into the womb to extract the infant, the ergot of rye ought to be given in a full dose a few minutes previously, and repeated when the hand is introduced, unless the pains return. The object in giving the medicine is to excite the uterus to contract, thereby to accelerate parturition during the operation of version or turning, to expel the placenta, and suppress hemorrhage. I have repeatedly administered the medicine in the cases under consideration with the greatest success. It was not in use in the time of Dr. Denman, and has only been introduced within a recent period. M. R.]

20. The delivery must then be finished very slowly, to give the uterus time to contract as the child is withdrawn from its cavity; but this part of the operation has likewise been described under preternatural presentations.

21. An assistant should make a moderate pressure upon the abdomen during the operation, to aid the contraction of the uterus; [the ergot will do this more effectually, as already stated. M. R.;] and to prevent ill consequences from the sudden emptying of the abdomen.

22. When the infant is born, the hemorrhage will be generally stayed, if the operation has been performed slowly.

[There are many exceptions to this aphorism, unless the ergot of rye be freely employed, and

many women, without it, have and will be lost by hemorrhage. M. R.]

23. But if the hemorrhage should continue or return, the placenta is to be managed as will be afterwards directed.

24. Should no uncommon difficulty attend the delivery, infants will be often born living in cases of hemorrhage which are attended with the utmost danger to the mother; or, as it has sometimes happened, after the death of the mother. [According to my experience, the majority of infants are born dead. M. R.]

25. Before, during, or after delivery, in cases of hemorrhage, the means and applications before recommended, may be occasionally used with advantage.

SECTION VII.

On those hemorrhages which are occasioned by the separation of a part, or of the whole placenta, before or in the time of labour.

1. Hemorrhages arising from this cause are seldom so alarming or dangerous as the preceding. [I have repeatedly observed hemorrhages of this kind as dangerous as the former; and I know no scientific reason why they should not be so. M. R.]

2. But if the separation of the placenta be

sudden and extensive, the danger may be equal, and the same mode of proceeding required.

3. Our conduct must be guided by a consideration of the degree and effect of the hemorrhage, and of the state of the labour when it occurs.

4. Should the hemorrhage from this cause occur in the first period of labour, the action of the uterus will be weakened, but it may be sufficient to dilate the os uteri. [In this case also, the ergot of rye is most valuable. M. R.]

5. If the quantity of blood lost in these cases be very considerable when the os uteri is sufficiently dilated, the greater the degree the better, if the case will allow us to wait so long, the membranes containing the waters may be ruptured. [In extreme cases of this kind, I always dilate the os uteri, as I feel convinced that it is dilatable at all periods of pregnancy, and especially in the latter months. My valued and experienced friend, Mr. Barlow, of Blackburne, has lately assured me, that he has dilated the uterus under such circumstance with the best effects, and without a single untoward symptom. 1832. M. R.]

6. By the discharge of the waters the distension of the uterus will be lessened, and by the consequent contraction, the size of the vessels being diminished, the hemorrhage will of course be abated or removed.

7. After the abatement or suppression of the hemorrhage, the action of the uterus will become

stronger, so that the delivery will, in general, be then completed without further assistance.

8. But if the hemorrhage should continue after the discharge of the waters, in such a degree as to threaten danger; or if it should commence in the second period of the labour; the interposition on our part must vary according to the circumstances, and chiefly according to the situation of the child.

9. It may in some cases be necessary to deliver by art, as in the preceding section, and in others to deliver with the forceps or vectis, if the hemorrhage be profuse, and we despair of the infant being expelled by the natural efforts.

10. The proper management of all such cases may be collected from what will be generally said on the subject, being always on our guard to distinguish between fear and real danger.

SECTION VIII.

On those hemorrhages which occur when the placenta is retained after the birth of the child.

1. The placenta is generally expelled by the spontaneous action of the uterus in a short time after the birth of the infant.

2. But sometimes the placenta is retained, 1st, from the inaction or insufficient action of the

uterus; 2d, by the irregular action of the uterus; 3d, by the scirrhous adhesion of the placenta to the uterus.

3. Sometimes there is a profuse discharge of blood, when no action is exerted by the uterus to expel the placenta, and this is found in practice to be far the most common cause of hemorrhage at the time of delivery.

4. Whenever there is a hemorrhage, the whole or a portion of the placenta must have been previously separated, and the hemorrhage usually continues, or returns, till the placenta is expelled or extracted out of the cavity of the uterus.

SECTION IX.

On the retention of the placenta from the inaction or insufficient action of the uterus.

1. Though the placenta be retained after the birth of the infant, if there be no hemorrhage, we are to wait, without any interposition on our part, in expectation of the action of the uterus.

2. The time which it may be proper and expedient to wait, will depend upon the state of the patient, and the state of the patient generally depends upon the previous circumstances of the labour; so that it may not be proper to wait in one case for any length of time, and in another

we may safely wait four, six, or even twelve hours. [There is no modern obstetrician who waits more than one hour for the expulsion of the placenta. It is true he might wait the time above stated, or wait a day or a month in a perfectly natural labour, according to some obstetric writers; but few, if any, allow the placenta to remain longer than an hour. According to my experience, the placenta is generally expelled from the uterus into the vagina, from fifteen to thirty or forty minutes after the birth of the infant; and often much sooner. However long the placenta remains in the uterus or vagina, there can be no danger of hemorrhage when the womb is firmly contracted. M. R.]

3. But no patient ought to be left before the placenta is brought away, because, though there may be no existing hemorrhage, a dangerous one may at any time come on.

4. When the patient complains of pain, the expulsion of the placenta may be safely forwarded, by aiding the contraction of the uterus by moderate pressure with the hand upon the abdomen, and by pulling very gently by the funis.

5. But if the first pains, with the aid we think it prudent to give, should not bring down the placenta, we are to wait for a return of the pains, proceeding in the same cautious manner.

6. When that part of the placenta into which the funis is inserted can be felt, little danger or

difficulty is to be apprehended; but we are either to wait longer, or to extract it very slowly. [When the navel cord is put on the stretch with the left hand, and two fingers of the right hand passed along it into the uterus, if its insertion into the placenta can be felt, the latter is detached and is situated in the vagina. It may be easily removed, by hooking down its edge with the fingers, and by making traction in the axis of the outlet through the centre of the genital fissure, and towards the pubes. If the woman bear down, cough, laugh, sneeze, or "blow on the back of her hand," a popular advice, the placenta will be readily expelled, more especially if traction be made in the axis of the outlet. M. R.]

7. But if a hemorrhage were to come on, the placenta being retained, it would be equally necessary to extract the placenta as it would be to extract the infant, provided the degree of hemorrhage was equally profuse or sudden.

8. After the birth of the infant, the extraction of the placenta is to be considered as the only method by which an apprehended or present dangerous hemorrhage is to be prevented or avoided.

9. Yet all discharges of blood do not require a speedy extraction of the placenta, but such only as by their violence or continuance, or frequent returns, threaten danger.

10. If much force be used in pulling by the funis, there will be danger; 1st, of tearing it from

the placenta; 2d, of inverting the uterus; 3d, of injuring the uterus by the violence; 4th, of increasing the hemorrhage.

11. The danger of these consequences is greater when force is used to extract the placenta by the funis, than by the prudent introduction of the hand into the uterus for that purpose. [No attempt is ever made at present by educated obstetricians to extract the placenta by pulling at the funis. The ergot of rye will excite the contractions of the uterus, and these will expel it. Gentle traction may be made by the funis in the axis of the brim or outlet of the pelvis. M. R.]

12. In cases in which the uterus acts insufficiently, by attending to the respiration you will sometimes be able to bring down the placenta, just using so much force, in pulling by the funis, as will prevent the retrocession of it in the act of inspiration.

13. But in whatever manner the placenta may be brought into the pelvis, it should be suffered to remain there till the action of the uterus comes on, or so long as there is reason to fear a return of the hemorrhage, and it must then be carefully withdrawn, or until it is extracted.

SECTION X.

On the retention of the placenta from the irregular action of the uterus.

1. When all the parts of the uterus act with equivalent force, and at the same time, the combined power will contribute to the expulsion of whatever is contained in its cavity.

2. But if the uterus should act irregularly, the contrary effect might be produced.

3. If the fundus uteri should not act when the other parts are in action, the longitudinal contraction of the uterus would be produced; but if the central parts should only act, the uterus would then be contracted in the form of an hour-glass.

4. As the placenta cannot be excluded when the uterus acts in this irregular manner, it must be extracted by introducing the hand into the uterus, provided the state of the hemorrhage should require it; and when it cannot be extracted by using the means before mentioned.

5. The hand ought never to be introduced into the uterus except in cases of real necessity, and then with the utmost circumspection and care; and the hand when introduced should not be withdrawn until the placenta is detached and brought into the pelvis. [Hour-glass contraction

is caused by the woman forcing down strongly, in the absence of labour pain, immediately after the expulsion of the infant's head, or by timid or ignorant practitioners extracting the shoulders under similar circumstances. Hour-glass contraction is seldom observed at present, since medical practitioners have been compelled to study obstetricy, except from the cause first mentioned. Every educated obstetrician knows, that so far from extracting the shoulders and body of the infant, during the absence of labour pain, after the birth of the head, he ought rather to retard their advance when induced by the voluntary efforts of the woman. M. R.]

6. If the whole placenta be loosened, this is easily effected; but if a portion of it should be found adhering, this must be separated by bending it back from the uterus, or by gently passing the fingers between it and the uterus. [The young obstetrician should pass his right hand along the navel cord, stretched with the left, to the placenta, and be most cautious lest he mistake the uterus for this organ. He should separate its edge from the uterus, and proceed until he detaches it. M. R.]

7. When the uterus is found contracted in the form of an hour-glass, and this is the most common cause of the retention of the placenta, the contracted part must be dilated in the manner recommended for the dilatation of the os uteri,

and it must be amply dilated, or it will immediately contract again round the wrist.

8. We must then proceed as is before advised. [The hand ought to be introduced in a conical form, the points of the fingers being in contact, and the index, middle, ring, and little finger, with the thumb, successively passed through the contraction into the upper chamber of the uterus. It will require an hour or two to accomplish this in some cases; and the hand may be so firmly pressed on by the uterus that it cannot be freely used for four or six days afterwards. M. R.]

SECTION XI.

On the retention of the placenta from the scirrhous adhesion of it to the uterus.

1. Should there be a degree of hemorrhage sufficient to make it necesssary to introduce the hand to extract the placenta, a part of it must be separated, though there may be a scirrhous adhesion of the remainder to the uterus.

2. Then the method advised in the last section must be put in practice, and the firmer we find the adhesion, the slower the separation ought to be made.

3. But if there should be no hemorrhage of importance, and merely a retention of the pla-

centa beyond its due time, we may say, for example, more than four hours,—[One hour is the time agreed on at present. M. R.]—and the means before recommended are insufficient to bring down the placenta;

4. It may then be necessary to introduce the hand carefully to separate and extract the placenta, and the difficulty will not be increased by the delay.

5. Following the navel string as our guide, we must then pass the hand to the placenta; and if it should be found almost wholly adhering, we must begin, with great caution, to separate at the edge, and gradually proceed, as before directed, until the separation is completed.

6. Then grasping the placenta, we must slowly withdraw our hand, that the uterus may contract accordingly, and the chance of a subsequent hemorrhage be prevented. [The uterus should expel both the hand and placenta by its gradual contractions. M. R.]

7. The irritation made by the introduction of the hand will often occasion a return of the action of the uterus, before dormant, that will greatly facilitate the separation.

8. Yet it is possible that a portion of the placenta may adhere so firmly as to make it unsafe to separate it with our fingers.

9. Should this circumstance occur notwithstanding the most deliberate and firm proceeding,

it may sometimes be more justifiable to leave the adhering part remaining, than to use violence in separating it.

10. But though hemorrhages are stayed when the greater portion of the placenta is brought away, it is always a desirable thing to bring away the placenta and membranes in a perfect state; and if these are slowly extracted, any coagula formed in the uterus will usually be enveloped in them.

SECTION XII.

On those hemorrhages which follow the expulsion or extraction of the placenta.

1. The hemorrhage in these cases may be either a continuation of that which existed before the exclusion of the placenta, or it may only follow its exclusion.

2. When it is of the former kind, we may presume that it was not within our power to prevent it; but the latter kind may often be attributed to the violence or hurry with which the placenta has been extracted.

3. This is not so dangerous as either of the varieties of hemorrhage of which we have last spoken, though with imprudent management, or under particular circumstances, it has sometimes

proved fatal. [This form of hemorrhage very often proves fatal. It follows slow labours, and may be prevented by a timely use of the ergot of rye when the head is on the perineum. M. R.]

4. All the cautions given with respect to the general management of the placenta, relate to the prevention of this kind of hemorrhage.

5. When the strength of women is much reduced by any cause which existed previous to labour, or when they have gone through much fatigue in the course of it, there is usually great heat and a rapid circulation of the blood at the time of delivery.

6. While they are in this situation, if the placenta were to be brought away hastily, an extraordinary quantity of blood must of necessity be discharged.

7. The interval of time which passes between the birth of the infant and the expulsion of the placenta should, therefore, be employed in cooling the patient, and recovering her from her fatigue.

8. Even when the placenta is excluded out of the cavity of the uterus, it should be suffered to remain till all tumult is quieted, and then, with the membranes, slowly extracted. [The placenta, with the membranes, ought to be extracted in the axis of the outlet, and when passing through the genital fissure, ought to be twisted round on its axis. When the placenta and membranes are twisted, the latter will present somewhat like a piece of

intestine, and are to be drawn down between the fore-finger and thumb, or otherwise they may be torn and left behind, and give rise to unnecessary alarm. As soon as the placenta is expelled, it ought to be examined on both sides, so as to ascertain if it be entire, or any part of it left behind in the uterus. M. R.]

9. The quantity of blood discharged in consequence of the separation of the placenta will vary in different women, or in the same woman at different labours, independently of the manner in which the placenta may come away.

10. The less the quantity of blood discharged, the sooner women in general recover, provided there be no morbid cause of its diminution.

11. Some women are always prone to a great discharge of blood after the separation of the placenta, whatever care may be taken in extracting it.

12. This may be often prevented by keeping the patient out of bed till the membranes are broken and the waters discharged to the very moment of the infant being born, rather retarding than forwarding its expulsion. [This advice applies to those cases in which the pains cease after the expulsion of the head. M. R.]

13. In all cases of dangerous hemorrhage, after the extraction of the placenta, it is first necessary that we should be assured, by an examination per vaginam, that the uterus is not inverted.

14. Should there be an alarming hemorrhage after the separation and exclusion of the placenta, notwithstanding all the care which can be taken according to the methods before mentioned;—[This is called *internal*, hidden, or *concealed* hemorrhage, and is extremely dangerous. The abdomen enlarges, and all the symptoms of hemorrhage are apparent. The secale cornutum given timely will prevent this form of flooding. The practice formerly was, to introduce the hand into the uterus to remove the coagula, and press on the uterus to excite it to contract. It is questionable whether the removal of the coagula from the vessels of the uterus was judicious practice. M. R.];

15. The doctrine of hemorrhages before given, and the general treatment already recommended, will enable you to fix upon the line of conduct it will be expedient to pursue, and to restrain or suppress them as far as they are under the influence of art. [The ergot of rye will prevent these hemorrhages, and in cases of great prostration it should be given in large doses, as ordinary ones will have little or no effect. M. R.]

16. In cases of hemorrhage so very profuse as to occasion frightful faintings, continuing so long as to raise great solicitude for the immediate safety of the patient, it was generally said, that cordials ought not to be given.

17. But this requires explanation. When the patient has continued faint so long as to give

time, according to our judgment, for the vessels of the uterus to contract, then cordials and nourishment in small quantities, very often repeated, are really needful. [Cordials and nutritious aliment are highly necessary in small and repeated quantities, no more than half a wine-glassful at a time, and repeated every ten or twenty minutes. Pure brandy or other ardent spirit may be administered in such proportion to the amount of half a pint, or even a pint, in extremely bad cases. If large quantities of fluids be administered, repeated vomiting will be induced, and the powers of life may become so prostrate that transfusion will be necessary. M. R.]

18. Other means are also to be used for the purpose of recovering women from this long continued fainting; and one of the most effectual is, sprinkling the face freely with cold water.

19. After a profuse hemorrhage, the patient will frequently have a disposition to sleep, which has generally been considered as dangerous.

20. But short sleeps are very refreshing; though long ones, in a very weak state, are, under every circumstance, found to be injurious.

21. When there has been a dangerous hemorrhage, the patient should remain for many hours undisturbed, and in an horizontal position; and our attention must be continued as long as any danger is to be apprehended. [When the strength of the woman suffers from severe hemorrhage,

nutritious aliment, as the vegetable jellies, sago, arrow-root, tapioca, and the animal broths and jellies are to be employed, in small and repeated quantities, so soon as they can be prepared.

When there is great prostration of strength, hurried respiration, great anxiety, pallidity of the face, lips, and skin, diffusible stimulants, as brandy, whiskey, rum, gin, with ammonia and opium, are to be freely administered. A pint of undiluted ardent spirit has been given to a woman who never took a table-spoonful during her previous life.

When flooding is violent and extreme, and every sign of death apparent, when after the free use of stimulants, the face is blanched, the respiration scarcely audible, the pulse absent, the extremities cold and clammy, the power of deglutition lost, and vomiting incessant, the life of the woman is in the greatest danger. Nevertheless, women have remained in this condition for seventeen hours and then recovered.

When asphyxia occurs, and the patient appears on the point of death, the operation of transfusion can alone save her. Dr. Blundell has immortalized himself by the successful performance of transfusion in extreme cases of hemorrhage. He performed the operation successfully, for the first time, on a patient of Dr. Waller's, in August, 1825.

Mode of performing the operation.—A double brass syringe, tinned on the inside, with a lateral tube, large enough to contain two ounces, perfectly air-tight, not clogged with oil or covered with a green rust, is to be selected for the operation. The instrument must be perfectly clean, and an ivory, or rather a silver tube is affixed to the extremity of the lateral one. A small funnel is sometimes attached to the barrel of the syringe, by means of which the blood passes from the arm into it, without being received into an ordinary vessel. A stop-cock is also attached to it, by turning which the communication may be opened either with the funnel or with the extremity of the instrument. The syringe should be warmed by passing tepid water through it four or five times, care being taken not to use it too hot, as a heated instrument would tend to coagulate the blood.

The basilic or cephalic vein of the patient is to be laid bare, by making an incision over it, about an inch or an inch and a half in length, and separating it from the surrounding cellular substance. A probe is now to be passed under the vein, and pressure made on the point of contact between the instrument and the vessel. The object of this is, not to permit the blood to ooze from the vein when opened, which would impede the operation. An opening is now to be made into the vein with a

clean sharp lancet, about the size of that used in venesection, to admit the point of the silver or ivory tube attached to the syringe.

The husband, or some healthy male, is to be bled from a free orifice, and the blood received into the funnel, or into a common vessel, immersed in tepid water.

The pipe of the syringe is to be immersed in the blood, and the piston raised slowly and steadily. It is now important to bear in mind that there is a quantity of air in the syringe and lateral tube, which would prove fatal if injected into the vein of the woman. To remove this, the handle of the syringe is to be turned downwards, and the point upwards, the piston being pressed on, until the blood flows from the end of the lateral tube. When this is accomplished, the air is expelled, and the operator places the point of his finger over the nozzle or end of the lateral or transfusing tube; the syringe is now raised in the horizontal or ordinary position, the silver or ivory tube is carefully introduced into the open or incised vein of the woman, and the blood is very slowly injected.

The blood ought to be injected slowly, for if passed suddenly, it may extinguish life. When the blood is injected, the tube is to be withdrawn from the arm, and the syringe well washed with tepid or cold water. Unless this is done, clots of blood will impede, or wholly prevent, the action

of the instrument. It is necessary to wait five or eight minutes between each injection, so as to allow the blood to circulate throughout the body.

The quantity of blood required for successful transfusion, will vary from eight to twelve ounces. It is remarkable that the pulse rises after the first or second injection, the countenance brightens, the voice returns, and the patient seems to be rescued from death to life. I have witnessed this fact in a case with Dr. Blundell, and in a cholera patient at the Free Hospital.

If the respiration ceases, death is certain and sudden.

When the woman has revived, after one or more injections, the probe is to be withdrawn, and the wound treated on ordinary principles. Its edges are to be approximated, and secured with adhesive plaister, over which a cold lotion is applied.

After-treatment of hemorrhage.—In a few hours reaction supervenes after hemorrhage, with or without transfusion. The skin becomes hot, the pulse rapid, and there is a sense of noise in the ears, as if thunder or the noise of artillery were heard by the patient. These symptoms are not to be subdued by antiphlogistic measures; but by nutriment, a moderate use of stimulants, as already advised, in describing the management of flooding in abortions.

Labours attended with hemorrhage from other

organs.—There may be bleeding from the nose, lungs, stomach, or intestines during parturition. These hemorrhages are to be treated on ordinary principles. The best remedy is a combination of acetate of lead with opium*. Bleeding, nitrate of potass, digitalis, and ordinary measures, may also be employed. M. R.]

[* ℞ Plumbi acetatis, gr. vi—x;
Acidi acetici diluti, ℥j—ij;
Aquæ destillatæ, ℥iii;
Liquoris opii sedativi, ℥ss—j;
Sacchari purificati, ℥j.
Doses, ℥ss. secundâ vel tertia horâ.]

ON LABOURS

ATTENDED WITH CONVULSIONS.

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1. The convulsions which occur in pregnancy very much resemble epilepsy; but to the symptoms, which these have in common, may be added, the peculiar hissing noise which women almost universally make during convulsions.

2. When convulsions happen to women with child, they are generally, but not constantly, accompanied or followed with symptoms of labour; but though the convulsions may be removed, the child is most frequently afterwards born dead.

3. These convulsions are indicated by a piercing pain in the head, by giddiness and other vertiginous complaints, by blindness, by vacillation of the mind or a slight delirium, by violent cramp or pain at the stomach, by a fulness or apparent strangulation of the neck and fauces, and other affections of the vascular and nervous system.

4. The means to be used for the prevention or cure of convulsions when threatened or existing, must be regulated according to the constitution of the patient and the violence of the symptoms.

5. It will always be necessary to take away some blood, and commonly to repeat the bleeding; and it has been found particularly serviceable to open the jugular vein; or to take away blood by cupping; and by applying leeches to the temples. [Blood-letting is not *always* necessary or useful. It is injurious to nervous, hysterical, and delicate women, who are often relieved by sedatives, such as opium, camphor, &c. In women of relaxed, irritable, and debilitated constitutions, convulsions are often dependent on hysteria or epilepsy. It is this form of the disease that is termed *eclampsia*, and cured by large doses of opium, ether, camphor, hyoscyamus, &c. M. R.] Emetics, when they could be given, have been useful, as has sometimes also the warm bath. Clysters may be frequently exhibited. Opiates, joined with nervous medicines, may be given; and the patient is, by all the means in our power, to be soothed and restrained from violent exertions.

6. During the convulsions, the means by which contrary irritations may be excited are to be used; and of these the most powerful is, the dashing of cold water in the face, which has been known to prevent, or even to cure, convulsions.

7. Some writers have recommended the speedy delivery of the patient, as the most eligible, and only effectual method of removing puerperal con-

vulsions; but others have insisted that the labour should be uninterrupted.

8. From the histories of all the cases of puerperal convulsions which have been hitherto recorded, it appears, that a greater number have died of those who were delivered by art, than when the labours were resigned to nature.

9. As far as my experience enables me to judge, we ought not to attempt to deliver women with convulsions before some progress is made in the labour.

10. But when the os uteri becomes dilated sufficiently, or to a certain degree, the patient safely may, and ought to be delivered by art, if from the urgency of the convulsions, and the general danger of the case, delivery should appear necessary.

11. The manner of delivering women in these cases, whether the operation be performed with the forceps or vectis, or by turning and extracting the child by the feet, has already been fully explained.

12. The event of the operation, both to the mother and child, will also very much depend upon the skill and circumspection with which it may be performed.

13. When dangerous convulsions come on in the early part of pregnancy, it is often clear that they arise from excessive uterine irritation.

14. It will then be justifiable and proper to for-

ward the exclusion of the fœtus, by puncturing the membranes as soon as it can be done with safety.

[It is remarkable that the talented author has omitted to describe his third and fourth orders in Class IV., though named under this head.—Order III. Labours with two or more infants.—Order IV. Labours in which the funis umbilicalis presents before the infant. I shall therefore supply his omissions.

Labours with plurality of infants. Plural or twin labour.—When two, three, or five infants are contained in the uterus at the same time, the labour is to be managed on the principles already stated. One, two, or more infants may present naturally, others by the feet, and one or more transversely. The first and second classes require no operation. The operation of version will be required in the last description of cases.

When one infant is born, and the pains cease, Dr. Denman advised to wait for four hours, and Dr. Burns for one hour; and at the expiration of these periods, to deliver in the absence of pains by version or turning. Others recommend rupturing the membranes after the birth and separation of the first infant from the mother, and to excite uterine action or labour-pains by the means already mentioned. The latter practice appears to be the best. I have attended a woman who was delivered of one infant on the Monday, and

had no pains until the following Thursday, when the second infant was born alive.

In twin cases, the placenta of each may be placed side by side or united; or the two umbilical cords may be inserted in one placenta. In the last case, it will be necessary to place a second ligature on the navel cord of the first born infant near the mother, or the other infant might be lost by hemorrhage from the cord.

When there are two placentæ, that belonging to the first infant will remain undisturbed until the birth of the second, as the uterus cannot contract sufficiently close to expel it. But when the second infant is born, the uterus can then contract and expel both placentæ. This was the result in the case in which one infant was born on Monday, the other on Thursday, and then both placentæ were expelled united by membranes.

Labours with malformations of the fœtus. Monsters.—When the fœtus is malformed, it is termed a monster, and is in general expelled prematurely. The head or abdomen may be very much enlarged by dropsy, or solid tumours may be attached to the body of the infant, or two infants may be attached to each other by the chest, as the Siamese twins, or by the back, as the Hungarian sisters. There may be two heads attached to one trunk, or double extremities may be united to one head.

In cases of congenital hydrocephalus or ascites, the fluid must be evacuated by paracentesis or tapping, or it may be necessary to craniotomise or break down the head.

In cases in which two infants are united, they must be expelled through the genital fissure at the same time, which shews the wonderful provision and power of nature.

One infant may be expelled to the neck by the feet, and the head of another infant may also descend into the pelvis, so that both heads may be immovable. In one case in which the second head descended with the first, the infant to which it belonged was born alive, the other was dead. In such a case, I think it possible, in the absence of pain, to push up the head of the unborn infant which descends by the crown. Some recommend craniotomy or detruncation. Such a case has been lately described by Dr. Fergusson, of Dublin. (See my Manual of Obstetricy.)

Labours with hernia of the bladder.—It sometimes happens that the bladder is protruded before the head of the infant, and forms a tumour in front of the vagina. When distended with urine, it encroaches considerably upon the cavity of the pelvis. The patient complains of pain in the region of the bladder, and great inclination to evacuate the organ.

The treatment consists in emptying the bladder with a catheter, and then pressing it into its usual

position, so that the head may pass down behind it.

Hernia sometimes encroaches on the vagina during labour. It is to be pressed up in the absence of labour-pain, and kept raised until the head has passed over it.

Labours with obliquities of the uterus.—The uterus may be inordinately inclined to either side (lateral obliquity), anteriorly (anti-version, pendulous abdomen), or posteriorly (retroversion). In all these cases there will be displacement of the uterine orifice, so that the expulsive contractions do not dilate this opening, it being carried to either side, or backwards, or forwards. In such cases the orifice of the womb cannot be felt, the head descends, and the uterus has been thinned, lacerated, incised, or become gangrenous. The obliquities of the uterus are obviated by placing the woman on the opposite side, on the back or abdomen, according as they are lateral, anterior, or posterior, and then hooking down the os uteri on the finger.

Labours with rupture of the uterus or vagina.—This may happen in all cases of preternatural or dystocial or difficult labour. The rupture may allow the whole or a part of the infant to escape into the cavity of the abdomen. The disease is caused by severe or powerful labour, by attempts to turn or perform version under such circumstances, or by the improper use of instruments.

The symptoms are, a feeling of laceration, sudden cessation of labour-pains, recession of the head, a discharge of blood from the vagina, and irregularity of the abdomen. Syncope now follows, the extremities become cold, and there is vomiting of a coffee-coloured fluid. In these cases delivery of the infant must be effected as soon as possible, either by version or with the forceps. The hand is to be passed into the uterus, and even through it into the abdomen, for the purpose of seizing the feet and performing the operation of version. When this fails, gastrotomy has been advised, and has been performed five or six times with success. These cases, however, usually prove fatal. There are exceptions; for recoveries have happened, even after a second rupture. (M'Keever, Labat, Collins, &c.)

The great danger in such cases arises from fatal hemorrhage, or inflammation of the uterus or bowels. If any symptoms of enteritis or metritis supervene, antiphlogistic measures will be necessary, and must be freely employed.

Labours with rupture of the vagina, are to be treated as those with rupture of the uterus.

Labours with rupture and sanguineous infiltration of the labium, may require incision to evacuate the effused blood, and plugging the vagina to arrest the hemorrhage.

Labours with inflammation and gangrene of the vagina, of the bladder, and rectum, are fol-

lowed by vesico-vaginal fistula, or recto-vaginal fistula. I have fully described the treatment of these cases in my Manual of Obstetricy. They are fortunately of rare occurrence. I was, I believe, the first who succeeded in curing both fistulæ in the same individual without any cutting or cauterizing operation. (See my Manual, 1831, already quoted, p. 513.) M. Velpeau has also succeeded in a subsequent case by my method. (Traité Complêt de l'Art des Accouchemens, &c., 1835, p. 524.)

The treatment consists, in recent cases, in plugging the vagina with oiled lint, advising the patient to repose on either side or on the abdomen, so that the urine may remain on the sound portion of the bladder. This position prevents the constant escape of the urine through the anormal fistula into the vagina, and consequently removes the constant source of irritation to that canal by the presence of an acrid foreign fluid which nature did not intend to pass through that outlet.

Cold lotions, with opium, are necessary when the vagina is highly irritated or inflamed. Anodyne draughts are also necessary to allay pain and procure sleep. The general health should also be attended to. The plug or tampon ought to be removed, and another reapplied every day.

Labours with rupture of the perineum.—This disease occurs in very young women or those advanced in life, or when instruments are badly

applied, or the body of the infant is badly managed in pedal or footling presentations. It may occur inferiorly, from the anus towards the inferior commissure of the genital fissure. It may also happen to a greater or less extent in first labours, in spite of the best directed efforts to prevent it. There may be a slight laceration at the inferior commissure or angle of the vulva, or in the centre or through the whole extent of the perineum, and sometimes the sphincter ani and rectum are torn.

The treatment consists in approximating the limbs, and applying simple dressing over the wound, to prevent the irritating effects of the lochia, urine, or fæces. By these means, union by the first intention is generally effected. But when the laceration is considerable, it may be necessary to insert a suture or two, and if the edges have cicatrized, to incise them before bringing them into apposition.

If the rectum be involved in the injury, the fæces will be discharged involuntarily, the disease hopeless, and the patient rendered a miserable object for the remainder of life. Such cases are, however, of very rare occurrence.

Labours with suppression of urine.—When the infant's head presses too long on the bladder, or is in a wrong position, there will be suppression of urine, and the catheter must be employed.

The bladder has burst in such cases, and death speedily followed.

Introduction of the catheter.—The orifice of the urethra is placed about an inch below the clitoris, and under the arch of the pubes. The labia are to be separated with the fore and middle finger of the left hand, and the former is then passed along the pubes, and a little below it, when a small depression will be felt, which is the orifice of the urethra. The catheter, dipped in oil, is now introduced with the right hand. It is to be recollected that the urethra runs along the pubic joint. If the finger be introduced into the vagina, and drawn along the pubic joint, the urethra is readily distinguished, and its orifice easily detected. There is no necessity of exposing the patient in performing catheterism. The operation may be required for several days after delivery. The urethra is sometimes discovered with difficulty when inflamed and enlarged.

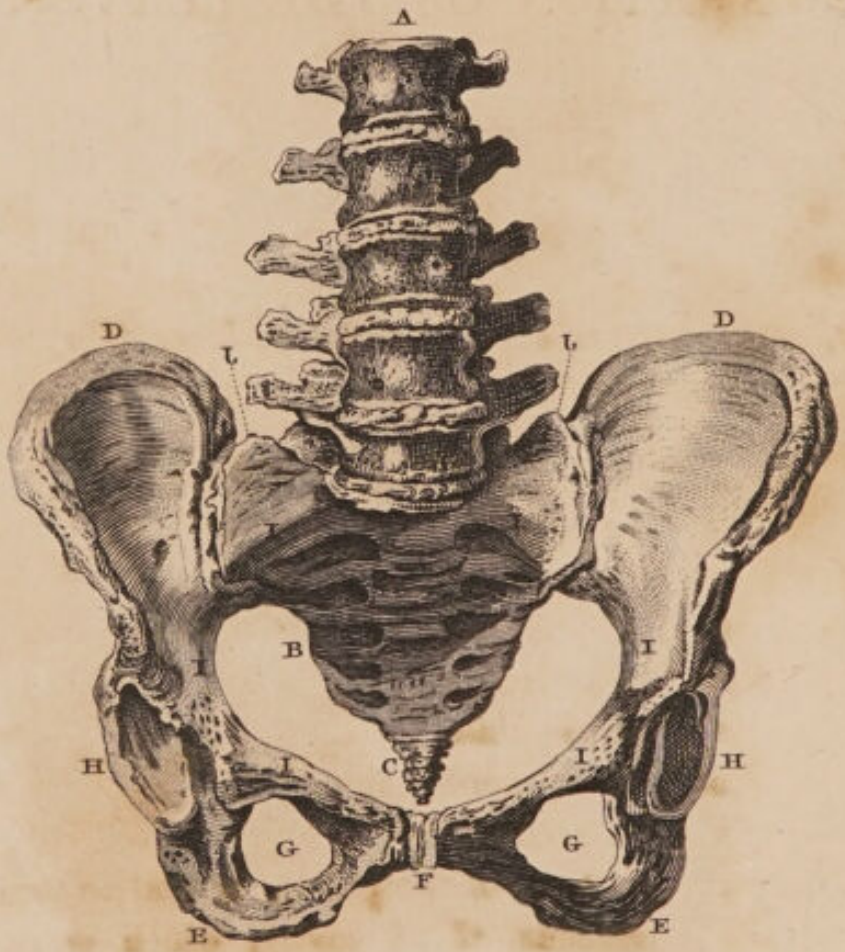
Labours with scirrhous uteri, sometimes require incision.

Labours with fibrous, sarcomatous, polypous, and other tumours, are treated by allowing the descent of the head to lacerate them, or by excision. (See my Manual of Obstetricy, 1831, 3d ed.)

Labours with imperforation of the vagina, by the hymen, a band, or membranes, may require incision.

Labours per rectum.—Dupuytren and others have described the passage of a full grown infant through the rectum. In some cases the vagina opens into the rectum, either by a congenital or accidental aperture.

Labours with asthma, hydro-thorax, ascites, ovarian, and other tumours in the abdomen.—In these cases delivery must sometimes be accomplished in a sitting posture or on the knees. The respiration becomes so laborious and difficult that asphyxia may be suddenly produced. In such cases delivery ought to be induced as soon as possible by puncturing the membranes. When the liquor amnii is evacuated, the size of the abdomen is very much diminished, and the respiration is greatly relieved. It is still more improved after the birth of the infant. When impeded, venesection is imperiously required. M. R.]



Published Oct.r 1.st 1835, by Eliz.th Cox, St. Thomas's St. Borough.

EXPLANATION OF THE PLATES.

PLATE I.

FIG. 1, *represents, in a front view, the bones of a well formed pelvis.*

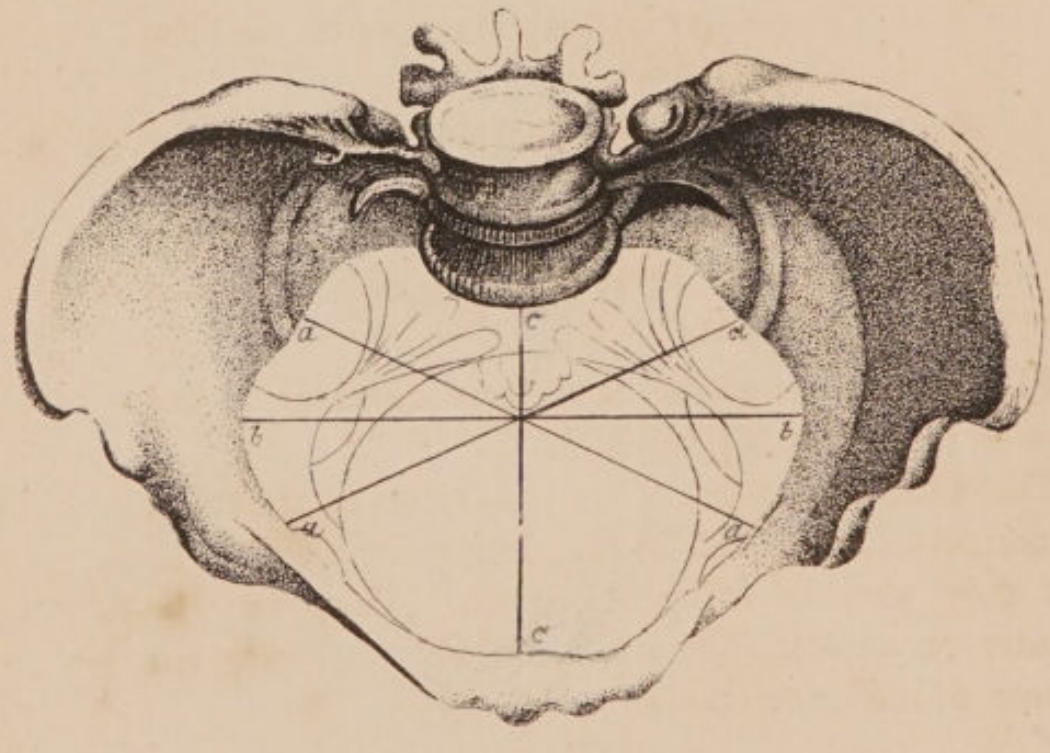
A. The five vertebræ of the loins*.
B. The os sacrum.
C. The os coccygis.
D. D. The os ilium.
E. E. The os ischium.
F. The os pubis.
G. The foramina magna.
H. H. The acetabula.
I. I. I. I. I. I. The brim of the pelvis, or that circumference of its cavity, which is described at the sides by the inferior parts of the os ilium, and at the back and fore parts by the superior parts of the os pubis and sacrum.

In this Table, besides the general structure and figure of the several bones, the dimensions of the brim

* [The four bones from A. to I. I. have no relation to parturition, and are therefore excluded in Fig. 2. Plate I. M. R.]

of the pelvis, and the distance between the under part of the os ischium, are particularly to be attended to; from which it will appear that the cavity of the brim is commonly wider from side to side than from the back to the fore part, but that the sides below are in the contrary proportion. The reader, however, ought not to conclude from this, that every pelvis is similar in figure and dimensions, since even well formed ones differ in some degree from each other. In general, the brim of the pelvis measures about five inches and a quarter from side to side, and four inches and a quarter from the back to the fore part; there being likewise the same distance between the inferior parts of the os ischium. All these measures, however, must be understood as taken from the skeleton; for, in the subject, the cavity of the pelvis is considerably diminished by its teguments and contents. Correspondent also to this diminution, the usual dimensions of the head of the full-grown fœtus are but three inches and a half from ear to ear, and four inches and a quarter from the fore to the hind head. (See p. 2.)

Dimensions of the Superior Strait.



[FIG. 2, *represents the diameters of the brim of the pelvis.*

A. A. The oblique or long diameter of the brim of the pelvis.

B. B. The bis-iliac or transverse diameter of the brim of the pelvis.

C. C. The antero-posterior, sacro-pubic, conjugate, or short diameter of the brim of the pelvis.

The description of the transverse diameter of the brim of the pelvis is given at p. 3.

The admeasurements of the diameters of the brim of the pelvis are stated in the description of Plate I., but they vary in different women. They may be greater or smaller, but are described in well formed women of moderate stature.

FIG. 3.

A. A. The coccy-pubic, antero-posterior, or long diameter of the outlet of the pelvis.

B. B. The bis-ischiatic, transverse, or short diameter of the outlet of the pelvis.

These diameters are imperfectly described in p. 3, which refers to Plate I.

Dimensions of the Inferior Strait

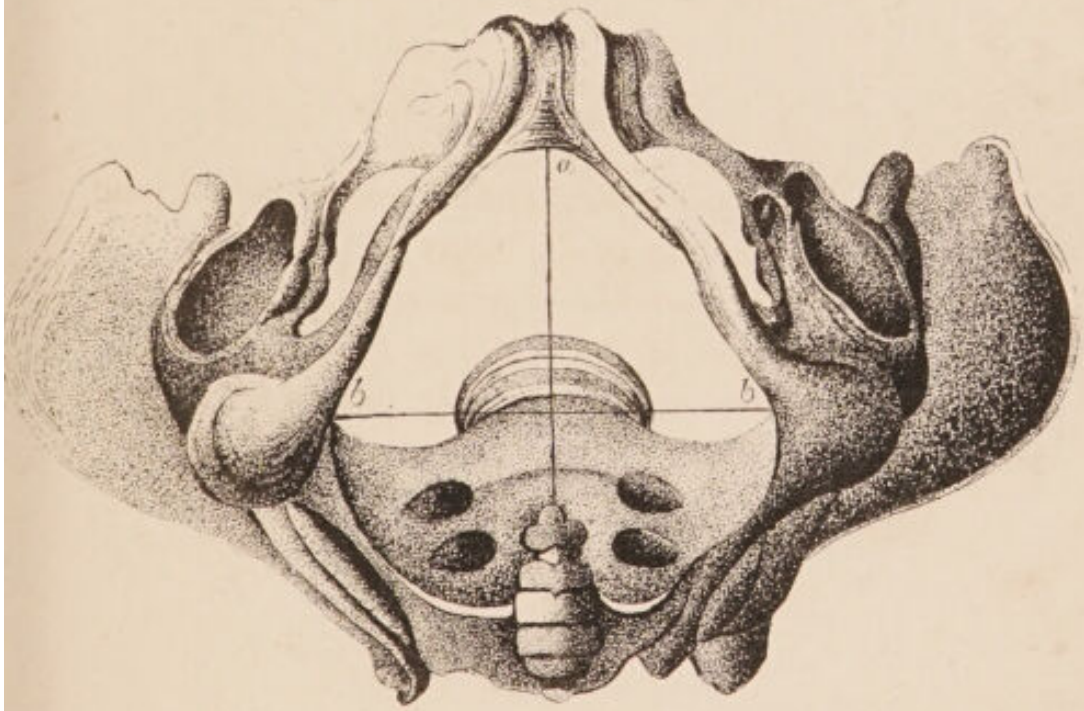


FIG 4 PL. I.

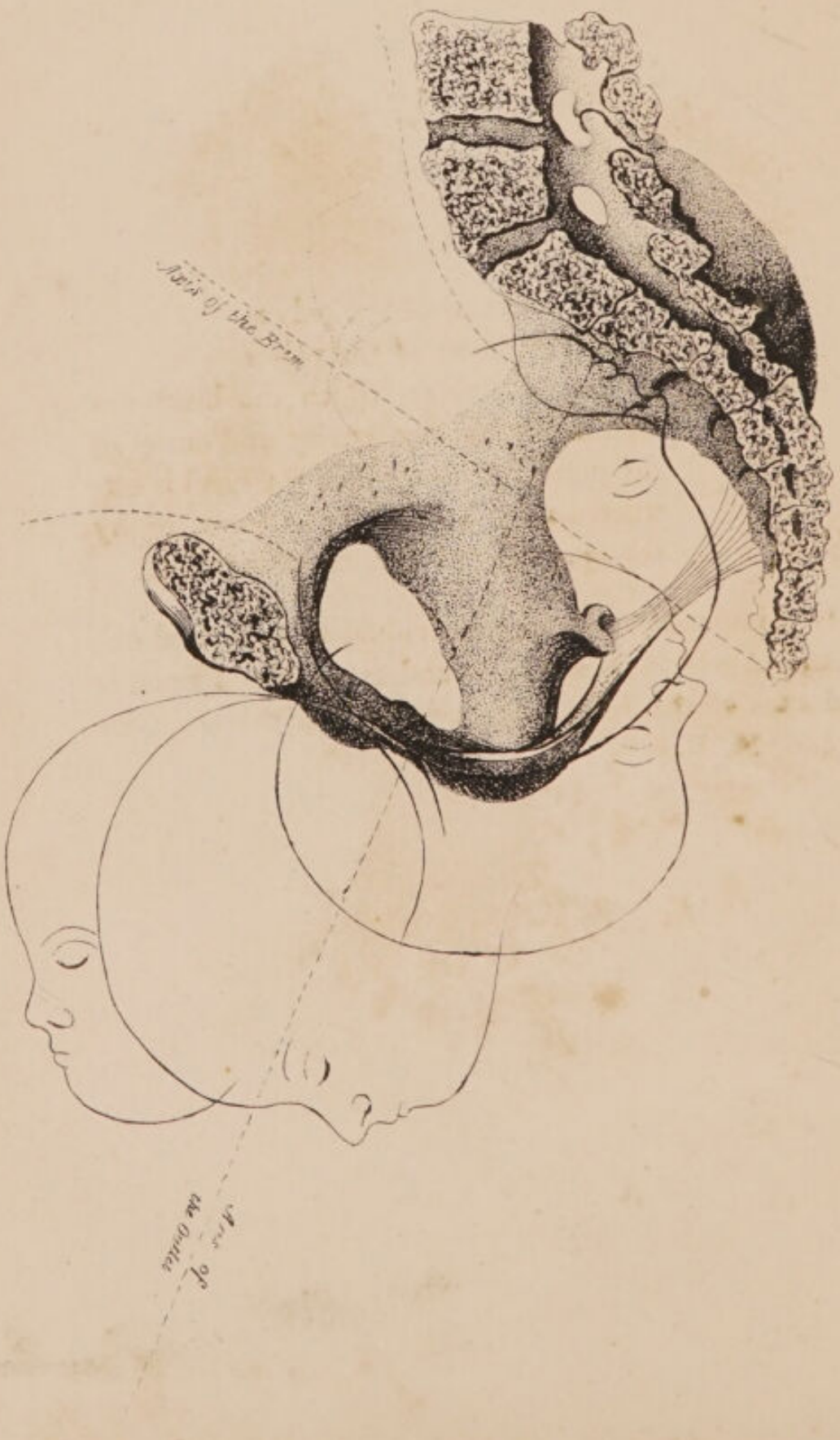


FIG. 4.

A. A. Axis of the brim of the pelvis.
B. B. Axis of the outlet of the pelvis.
C. C. C. The curved line on which the head descends through the cavity and outlet of the pelvis, and on which the head is extracted with the forceps or lever, or by the operation of version or turning.

It is impossible for any individual to be a good obstetrician who does not fully understand the diameters and axes of the brim and outlet of the pelvis. (See p. 3.) M. R.]

PLATE II.

Represents the uterus in the eighth or ninth month of pregnancy.

A. The uterus, as stretched to near its full extent, with the waters (liquor amnii), and containing the fœtus entangled in the funis (navel cord), the head presenting at the upper part of the pelvis.

B. B. The superior part of the os ilium.

C. C. The acetabula.

D. D. The remaining posterior parts of the os ischium.

E. The coccyx.

F. The inferior part of the rectum.

G. G. G. The vagina stretched on each side.

H. The os uteri, the neck of the womb being stretched to its full extent, or entirely obliterated.

I. I. Part of the vesica urinaria or bladder.

K. K. The placenta, or after-birth, at the superior and posterior part of the uterus.

L. L. The membranes.

M. The funis umbilicalis, or navel cord.

This plate shews in what manner the uterus stretches, and how its neck grows shorter, in the different periods of pregnancy.

Notwithstanding it has been handed down as an invariable truth, from the earliest accounts of obstetricy

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to the present time, that when the head of the fœtus presented, the face was turned to the posterior part of the pelvis; yet from Sir Fielding Ould's observation, as well as from some late dissections of the gravid uterus, and what I myself have observed in practice, I am led to believe, that the head presents for the most part at the brim of the pelvis, as is here delineated, with one ear to the pubes and the other to the os sacrum; though sometimes this may vary, according to the form of the head, as well as that of the pelvis.

[All modern obstetricians are of this opinion, and it was first delivered by Sir Fielding Ould, physician to the Dublin Lying-in Hospital. M. R.]

PLATE III.

Gives a front view of twins in utero in the beginning of labour; the anterior parts being removed.

A. The uterus as stretched with the membranes and waters.

B. B. The superior part of the os ilium.

C. C. The acetabula*.

D. D. The os ischium.

E. The coccyx.

F. F. F. The lower part of the rectum.

G. G. The vagina.

H. The os internum stretched open, about a finger's breadth, with the membranes and waters in the time of labour-pains.

I. I. The inferior part of the uterus stretched with the waters which are below the head of the child that presents.

K. K. The two placentæ adhering to the posterior part of the uterus, the two fœtuses lying before them; one with its head in a proper position, at the inferior part of the uterus; and the other situated preternaturally, with the head to the fundus; the bodies of each are here entangled in their proper funis, which frequently hap-

* [The bones of the pubes are removed for the purpose of delineating the neck and orifice of the womb, the vagina, and rectum during the commencement of labour. M. R.]

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pens in the natural as well as preternatural positions.

L. L. L. The membranes belonging to each placenta.

This representation of twins I have placed here, in order to shew the os uteri grown much thinner than in the former figure, a little open, and stretched by the waters and membranes, which are pushed down before the head of one of the fœtuses during the commencement of the first stage of parturition.

PLATE IV.

Exhibits another front view of the gravid uterus in the beginning of labour; the anterior parts being removed, as in the former plate; but in this the membranes, not being broken, form a large bag, containing the waters and fœtus.

A. The substance of the uterus.

B. B. C. C. D. D. The bones of the pelvis*.

E. The coccyx.

F. The inferior part of the rectum.

G. G. G. G. The vagina.

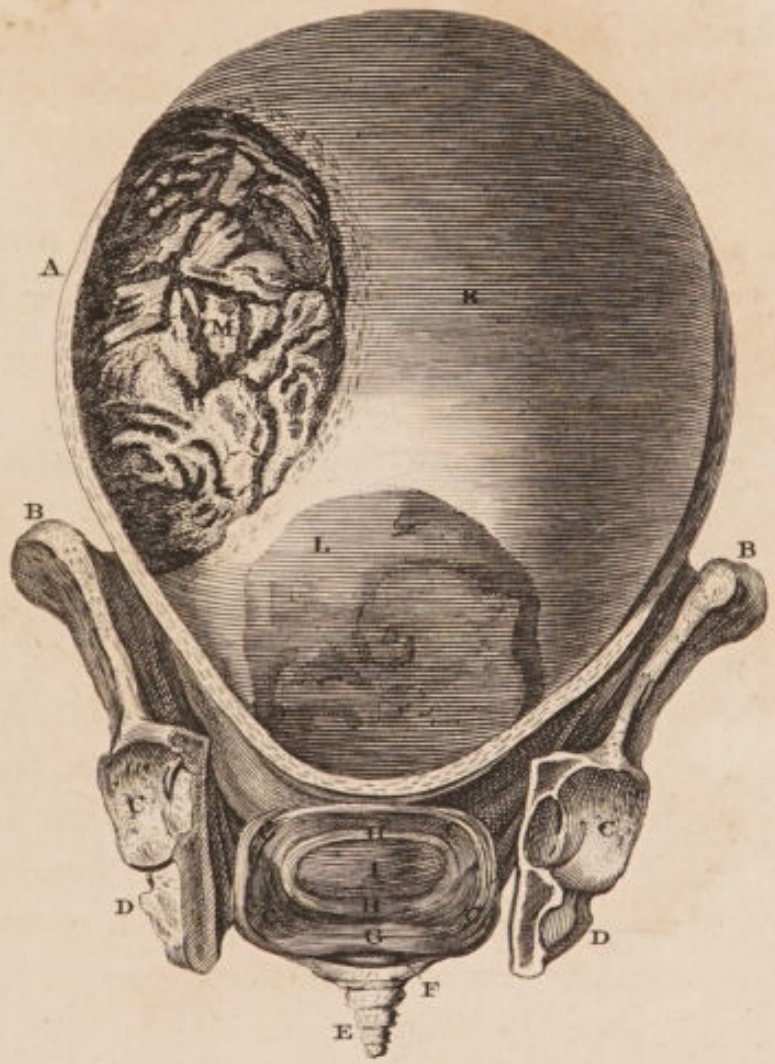
H. H. The mouth of the womb largely dilated in time of a pain; with I. the membranes and waters. This circumstance makes it usually certain that labour is begun; whereas, from the degree of dilatation represented in the former plate, there is little to be ascertained, unless the pains are regular and strong, the os uteri being often found more open several days, and even weeks, before labour commences.

K. The chorion.

L. The same dissected off at the inferior part of the uterus, in order to shew the head of the fœtus through the amnion. N.B. This hint is taken from one of Dr. Albinus's tables of the gravid uterus.

M. The placenta; the external convex sur-

* See Plates I. and Figs. 2, 3, 4.



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face of which, divided into a number of lobes, is here represented, its concave internal parts being covered by the chorion.

The placenta has been found adhering to all the different parts of the internal surface of the uterus, and sometimes even over the inside of the os uteri ; this last manner of adhesion, however, always occasions floodings as soon as the neck begins to dilate. (See p. 164.)

See a valuable essay on Uterine Hemorrhage in advanced gestation, by Dr. Rigby, third edition, London, 1784; in which the distinction between those floodings that require immediate delivery, and those which may be expected to yield to a more simple treatment, is properly ascertained. [See also the works of M. Baudelocque, and Mr. Ingleby on Uterine Hemorrhage, 1833, and the text, p. 164, &c.]

Plate IV. shews the internal surface of the placenta towards the uterus, with the vessels composing its substance proceeding from the funis or navel cord, which is inserted in different placentæ, into all the different parts of the same, as well as in the middle.

PLATE V.

Shews (in a lateral view and longitudinal division of the parts) the gravid uterus when labour is somewhat advanced.

A. The lowest vertebra of the back.

B. The scrobiculus cordis (pit of the stomach); the distance from which to the last mentioned vertebra is here shewn by a dotted line; as also part of the region below the diaphragm.

C. C. The usual thickness and figure of the uterus when extended with the waters at the latter end of pregnancy.

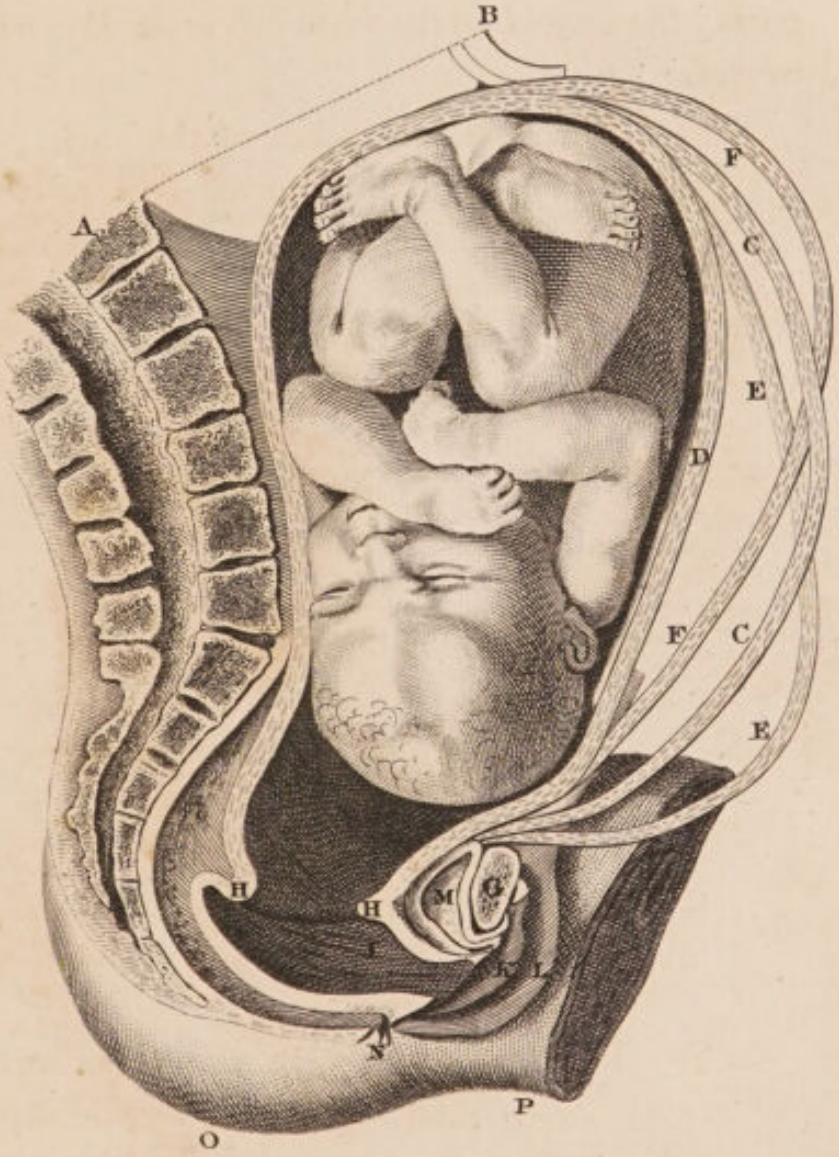
D. The same contracted and grown thicker after the waters are evacuated.

E. E. The figure of the uterus when pendulous. In this case, if the membranes break when the patient is in an erect position, the head of the fœtus runs a risk of sliding over and above the os pubis, whence the shoulders will be pushed into the pelvis.

F. F. The figure of the uterus, when stretched higher than usual, which generally occasions vomitings and difficulty of breathing. Consult on this subject M. Levret, sur le Mechanisme de Differentes Grossesses.

G. The os pubis of the left side.

H. H. The os internum, or orifice of the womb, dilated.



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I. The vagina.
K. The left nympha.
L. The labium pudendi of the same side.
M. The remaining portion of the bladder.
N. The anus.
O. P. The left hip and thigh.

In this period of labour, the os uteri being more and more stretched by the membranes pushing down, and beginning to extend to the vagina*, a great quantity of waters is forced down at the same time, and (if the membranes break) is discharged; whence the uterus contracts itself nearer to the body of the fœtus, which is here represented in a natural position, with the vertex resting at the superior part of the os pubis, and the forehead towards the right os ilium. As soon as the uterus is in contact with the body of the fœtus, the head of the same is forced backward towards the os sacrum from the line of the abdomen B. G. into that of the pelvis, viz. from the uppermost F. to near the end of the coccyx, and is gradually pushed lower, as in the following plate.

* [See Plate VI., G. G. H. I. I., and Plate VII., G. G. H. H. and I.]

PLATE VI.

Shews the natural position of the head of the fœtus when sunk down into the cavity of the pelvis after the os internum (or orifice of the womb) is fully opened; a large quantity of the waters being protruded with the membranes through the os externum (genital fissure), but prevented from being all discharged, by the head filling up the vagina.

A. The uterus a little contracted and thicker, from some of the waters being sunk down before the infant, or discharged.
B. The superior parts of the os ilium.
C. The inferior part of the rectum.
D. D. The vagina largely stretched with the head of the fœtus.
E. E. The os internum, or orifice of the womb, fully dilated.
F. A portion of the placenta.
G. G. The membranes.
H. H. The ligamenta lata.
I. I. The ligamenta rotunda. Both these last stretched upwards with the uterus.

The vertex, or crown of the head, of the infant, being now down at the inferior part of the right os ischium, and the wide part of the head at the narrow and inferior part of the pelvis, or long diameter of the head to the short of the pelvis (see p. 4.), the forehead, by the force of the pains, is gradually moved

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backwards; and, as it advances lower, the vertex and occiput turn out below the pubes, as in the next plate. Hence may be learned of what consequence it is to know, that it is wider from side to side at the brim of the pelvis, than from the back to the fore part; and that it is wider from the fore to the hind head of the child, than from ear to ear. (See pp. 7—11.) [This is a wise provision of nature, for had the diameters or openings of the brim and outlet of the pelvis been in the same direction, few women could arrive at the end of pregnancy without premature labour. M. R.]

PLATE VII.

Shews the forehead of the fœtus turned (in its progression downwards, from its position in the former plate) backwards to the os sacrum, and the occiput below the pubes; by which means the narrow part of the head is to the narrow part of the pelvis, that is, between the inferior parts of the os ischium. Hence it may be observed, that, though the distance between the inferior parts of the last mentioned bones is much the same as between the coccyx and pubes; yet, as the cavity of the pelvis is much shallower at the anterior than lateral part, the occiput of the fœtus, when come down to the inferior part of either os ischium, turns out below the pubes. (See Plate I., Fig. 4., D.) *This answers the same end as if the pelvis itself had been wider from the posterior part than from side to side; the head likewise enlarging the cavity by forcing back the coccyx, and pushing out the external parts in form of a large tumour.*

A. The uterus contracted closely to the fœtus after the waters are evacuated.

B. C. D. The vertebræ of the loins, or sacrum, and coccyx.

E. The anus.

F. The left hip.

G. The perineum.

H. The os externum (external genital aperture) beginning to dilate.

I. The os pubis of the left side.

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K. The remaining portion of the bladder.

L. L. L. The posterior part of the os uteri.

N.B. Although for the most part, at or before this period, the waters are evacuated, yet it often happens that more or less will be retained, and not all discharged, till after the delivery of the infant, occasioned from the presenting part of the fœtus coming into close contact with the lower or under part of the uterus, which fills up the os externum, immediately or soon after the membranes break.

PLATE VIII.

Shews in what manner the head of the fœtus is extracted with the forceps, as artificial hands, when it is necessary to assist with the same for the safety of either mother or infant.

A. A. B. C. The vertebræ of the loins, os sacrum, and coccyx.

D. The os pubis of the left side.

E. The remaining part of the bladder.

F. The intestinum rectum.

G. G. G. The uterus.

H. The mons veneris.

I. The left nympha.

K. The corpus cavernosum clitoridis.

X. The meatus urinarius.

K. The left labium pudendi.

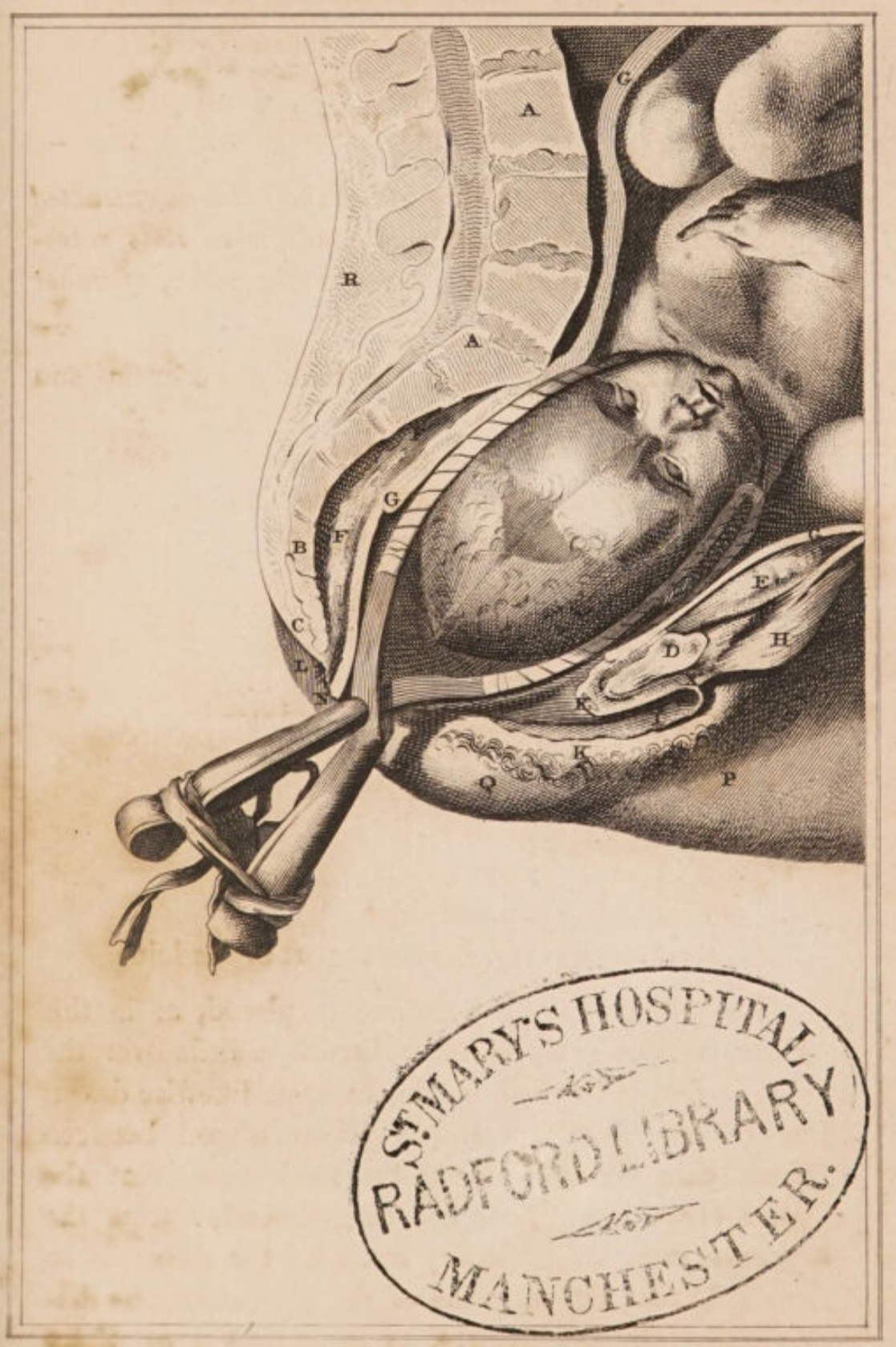
L. The anus.

N. The perineum.

Q. P. The left hip and thigh.

R. The skin and muscular part of the loins.

The patient in this case may be placed, as in this Plate, on her side, with her breech a little over the side or foot of the bed, her knees being likewise drawn up to her abdomen, and a pillow placed between them, care being taken, at the same time, that the parts are, by a proper covering, defended from the external air. If the hairy scalp of the fœtus is so swelled, that the situation of the head cannot be distinguished by the sutures, as in Plate V.; or, if by



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introducing a finger between the head of the child and the pubes, or groins, the ear or back part of the neck cannot be felt, the os externum must be gradually dilated in the time of the pains with the operator's fingers, (previously lubricated with hog's lard or pomatum,) till the whole hand can be introduced into the vagina, and slipped up, in a flattened form, between the posterior part of the pelvis and infant's head. This last is then to be raised up as high as possible, to allow room for the fingers to reach the ear and posterior part of the neck. When the position of the head is known, the operator must withdraw his hand, and wait to see if the stretching of the parts will renew or increase the labour-pains, and allow more space for the advancement of the head in the pelvis. If this, however, proves of no effect, two fingers are to be reintroduced as before, and one of the blades of the forceps, after it has been dipped in warm water to raise its temperature to that of the human body, and lubricated with lard, is then to be passed along the inside of the palm of the hand or fingers, and applied to the left ear of the infant, as represented in the Plate. But, if the pelvis is distorted, and projects forward at the superior part of the os sacrum, and the forehead therefore cannot be moved a little backwards, in order to turn the ear from that part of the pelvis which prevents the end of the forceps to pass the same; in that case, I say, the blade must be introduced along the posterior part of the ear at the side of the distorted bone. The fingers which were introduced are then to be withdrawn, and the handle of the introduced blade held as far back as the perineum

will allow, whilst the fingers of the other hand are introduced to the os uteri, at the pubes or right groin, and the other blade placed exactly opposite to the former. This done, the handles being taken hold of and joined together, or locked, the head is to be gradually drawn lower and lower every pain, till the vertex, as in this Plate, is brought down to the inferior part of the left ischium, or below the same. The wide part of the head being now advanced to the narrow part of the pelvis betwixt the tuberosities of the ossa ischia, it is to be turned from the left ischium, out below the pubes, and the forehead backwards to the concave part of the os sacrum and coccyx, and afterwards the head brought along the curved line formed by the axes of the brim, cavity, and outlet of the pelvis, (see Plate I., D., Fig. 4, and p. 12,) and delivered, as in Plate IX. But, if it is found that the delivery will require a considerable degree of force, from the head being large, or the pelvis narrow, the handles of the forceps are to be tied together with a fillet, as represented in this Table, to prevent their position being changed, whilst the woman is turned on her back, which is then more convenient for delivering the head than when lying on the side, (see pp. 27 to 38,) and the traction made towards the pubes and abdomen of the woman.

N.B.—When the head is wedged in the pelvis, and the basis not yet protruded below the brim, the forceps can neither be employed with advantage nor safety; and to attempt the mechanical turns *recommended here* would be difficult and hazardous.

This Plate shews that the handles of the forceps

ought to be held as far back as the os externum will allow, that the blades may be in an imaginary line between that and the middle space between the umbilicus and the scrobiculus cordis. The forceps is now in the axis of the cavity of the pelvis, and so soon as the head is brought down to the outlet, the handles of the forceps ought to be in the axis of the outlet. (See Plate I., D., Fig. 4, and Plate X.) When the forceps is applied along the ears and sides of the head, its blades are nearer to one another, have a better hold, and cause a less mark by compression than when over the occipital and frontal bones. (See p. 79.)

PLATE IX.

In this, the os externum is open, the occiput comes low down under the pubes, and the forehead has passed the coccyx, by which both the anus and perineum are stretched out in form of a large tumour.

When the head is so far advanced, the operator ought to extract with great caution, lest the soft parts should be torn. If the labour-pains are sufficient, the forehead may be raised, and assisted along, in a slow manner, by pressing against it with the fingers on the external parts below the coccyx; at the same time, the forceps being taken off, the head may be allowed to stretch the os externum more and more, in a gradual manner, from the force of the labour-pains, as well as assistance of the fingers. But, if the former are weak and insufficient, the assistance of the forceps must be continued. (Vide the description of the parts in Plate VIII.) S. T., in this plate, represent the left side of the os uteri. The dotted lines demonstrate the sitution of the bones of the pelvis on the right side, and may serve as an example for all the lateral views of the same.

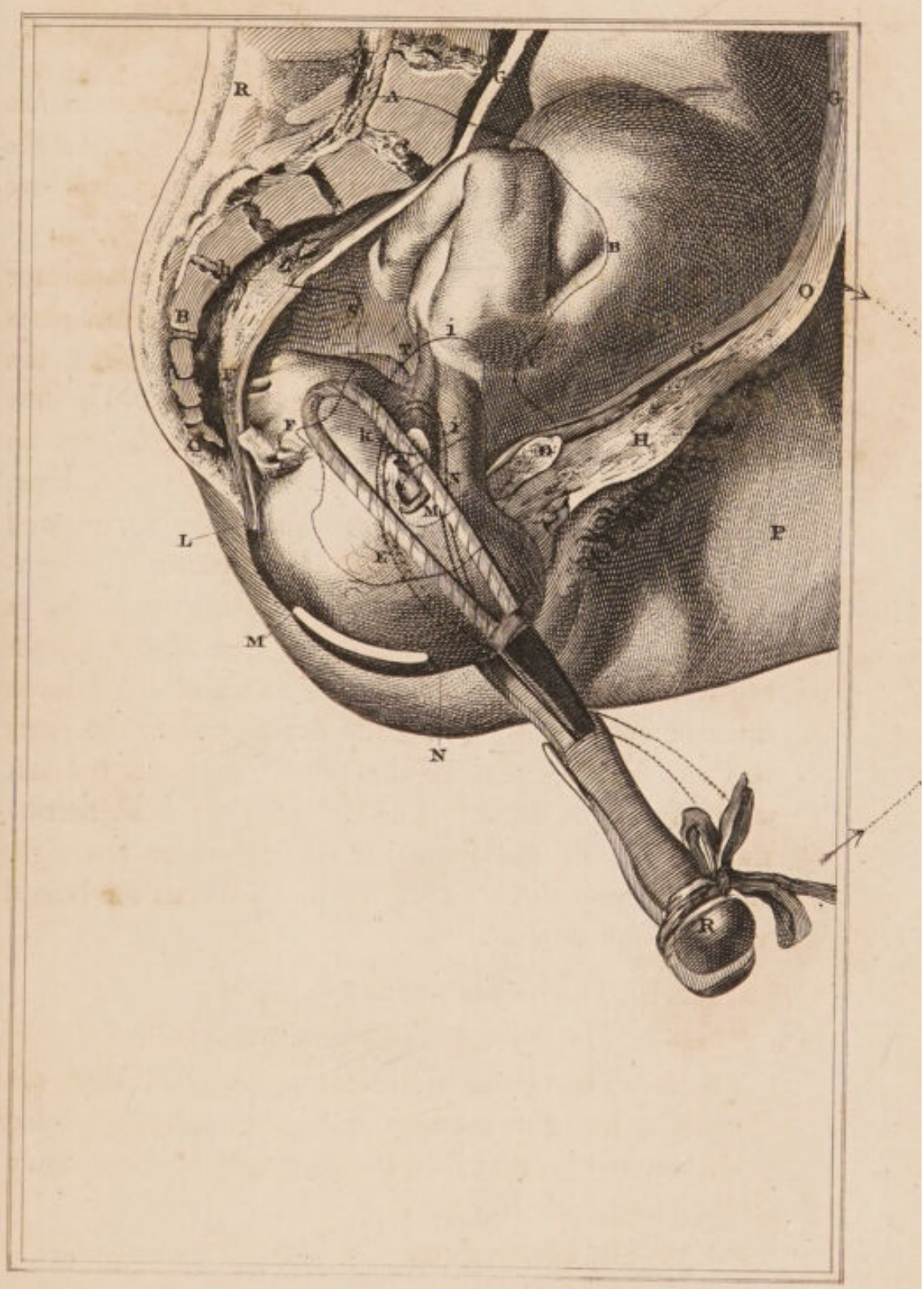
A. B. C. h. The outlines of the os ilium.

D. E. F. The same of the pubes and ischium.

[N.B.—The blades of the forceps in this Plate are Smellie's, but the modern ones are curved, so that their convexities may face the concavity of the sacrum. (See p. 80.) M. R.]

T. i. i. k. The acetabulum.

M. N. The foramen magnum.



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L. M. The anus.
M. N. The perineum.
N. D. The genital aperture.
O. Common integuments of the abdomen.
P. The left thigh.
Q. The short forceps.
R. The skin and loins.
F. S. The cavity of the sacrum.

PLATE X.

In the same section of the parts, but with a view of the right side, shews the head of the fœtus in the contrary position to the last three figures, the vertex being here in the concavity of the sacrum, and the forehead turned to the pubes.

A. B. The vertebræ of the loins, os sacrum, and coccygis.
C. The os pubis of the right side.
D. The anus.
E. E. The os externum before its dilatation.
F. The nympha.
G. The labium pudendi of the right side.
H. Hip and thigh.
I. I. The uterus contracted, the waters being all discharged.

When the head is small and the pelvis large, the parietal bones and the forehead will, in this case, as they are forced downwards by the labour-pains, gradually dilate the os externum, and stretch the parts between that and the coccyx, in the form of a large tumour, till the face comes down below the pubes, when the head will be safely delivered, the chin, or occiput descending first. But, if the same be large, and the pelvis narrow, the difficulty will be greater, and the child in danger; as in the following Plate.

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PLATE XI.

Shews, in a lateral view, the face of the child presenting, and forced down into the lower part of the pelvis, the chin being below the pubes, and the vertex in the concavity of the os sacrum; the waters being all discharged, the uterus appears closely compressed on the body of the child, round the neck of which is one circumvolution of the funis or navel cord.

A. B. The vertebræ of the loins, os sacrum, and coccygis.
C. The os pubis of the left side.
D. The inferior part of the rectum.
E. The perineum.
F. The left labium pudendi.
G. G. G. The uterus.

When the pelvis is large, the head, if small, will descend in this position, and the child may be saved; for, as the head advances lower, the face and forehead will stretch the perineum and external genital aperture, in form of a large tumour. As the os externum likewise is dilated, the face will be forced through it, the under part of the chin will rise upwards over the anterior part of the pubes; and the forehead, vertex, and occiput, from the parts below. If the head, however, is large, it will be detained, either when higher or in this position. In this case, if the position cannot be altered to the natural, the infant ought to be turned, and delivered by version or turning.

PLATE XII.

Shews, in a front view of the parts, the forehead of the fœtus presenting at the brim of the pelvis, the face being turned to one side, the fontanelle to the other, and the feet and breech stretched towards the fundus uteri.

A. A. The superior part of the os ilium.
B. The anus.
C. The perineum.
D. The os externum; the thickness of the posterior part before it is stretched with the head of the infant.
E. E. E. The vagina.
F. The os uteri not yet fully dilated.
G. G. G. The uterus.
H. The membrana adiposa.

If the face is not forced down, the head will sometimes advance in this manner; in which case the vertex will be flattened, and the forehead raised in a conical form; and when the head descends to the lower part of the pelvis, the face or occiput will be turned from the side, and escape under the pubes. But, if the head is large, and cannot be delivered by the pains, or if the wrong position cannot be altered, the child must be delivered with the forceps. If this should fail, recourse must be had to embryulcia, or craniotomy.

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PLATE XIII.

Shews, in a lateral view, of the right side, the face of the fœtus presenting, as in Plate XI., but in the contrary position; that is, with the chin to the os sacrum, and the forehead to the pubes, the waters evacuated, and the uterus contracted.

A. The os externum not yet begun to stretch.
B. The anus.

In such cases, as well as in those described in the last Plate, if the infant is small, the head will be pushed lower with the labour-pains, and gradually stretch the lower part of the vagina and the external parts; by which means the os externum will be more and more dilated, till the vertex comes out below the pubes, and rises up towards the abdomen; in which case the delivery is then the same as in natural labours. But, if the head is large, it will pass along with great difficulty, whence the brain, and vessels of the neck, will be so much compressed and obstructed, as to destroy the infant. To prevent which, if called in time, before the head is far advanced in the pelvis, the child ought to be turned, or extracted by the feet. If the head, however, is low down, and cannot be turned, the delivery is then to be performed with the forceps, either by bringing along the head as it presents, and depressing the occiput under the arch of the pubes, and then raising the handles of the instrument towards the abdomen of the mother.

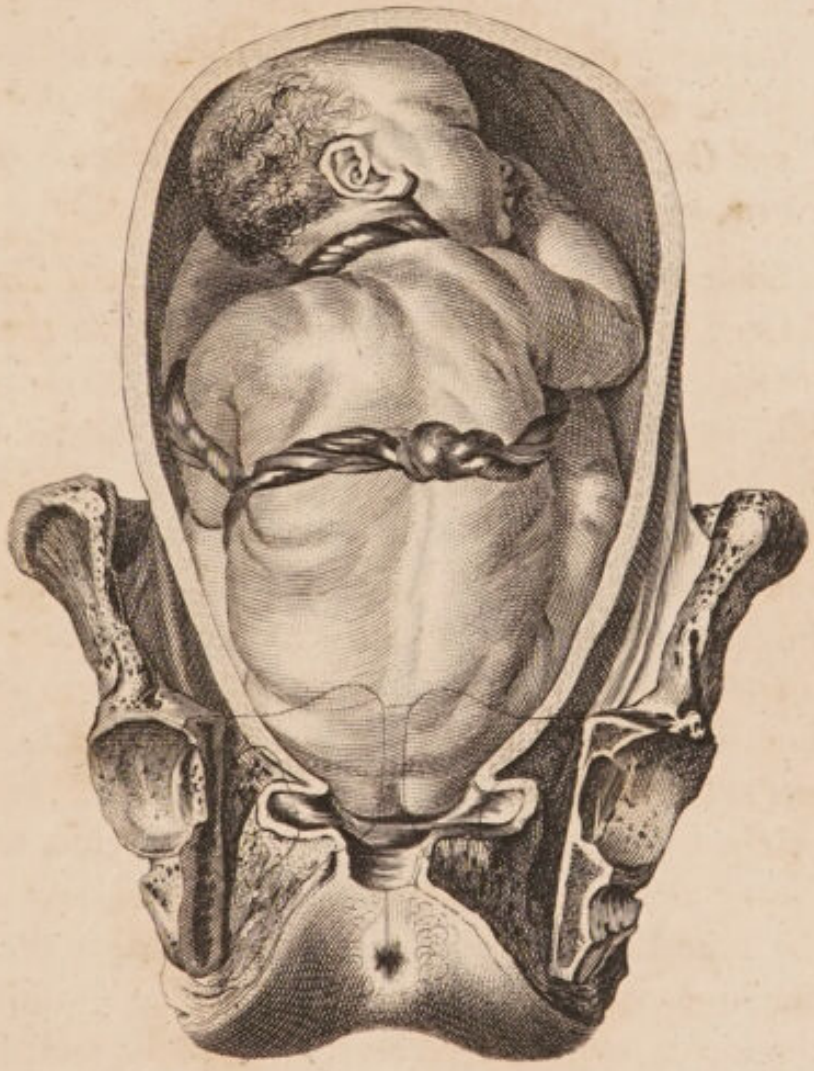
PLATE XIV.

Represents, in a front view of the pelvis, the breech of the fœtus presenting, and dilating the os internum, the membranes being too soon broken. The fore-parts of the child are to the posterior part of the uterus; and the funis, with a knot upon it, surrounds the neck, arm, and body.

Some time after this Plate was engraved, Dr. Kelly shewed me a subject he had opened, where the breech presented, and the child lay much in the same position, supposing the breech turned to the pelvis, and the head up to the fundus uteri.

I have sometimes felt, in these cases, (when labour was begun, and before the breech was advanced into the pelvis,) one hip at the sacrum, the other resting above the os pubis, and the genital organs to one side; but, before they could advance lower, the nates were turned to the sides and wide part of the brim of the pelvis, with the genital organs to the sacrum, as in this Plate; though sometimes to the pubes. As soon as the breech advances to the lower part of the pelvis, the hips again return to their former position, viz., one hip is expelled under the os pubis, and the other at the back parts of the os externum, towards the os sacrum.

In this case, the infant, if not very large, or the pelvis narrow, may be often delivered alive by the labour-pains; but if long detained at the inferior part of the pelvis, the long pressure on the funis may obstruct the circulation. In most cases in which the



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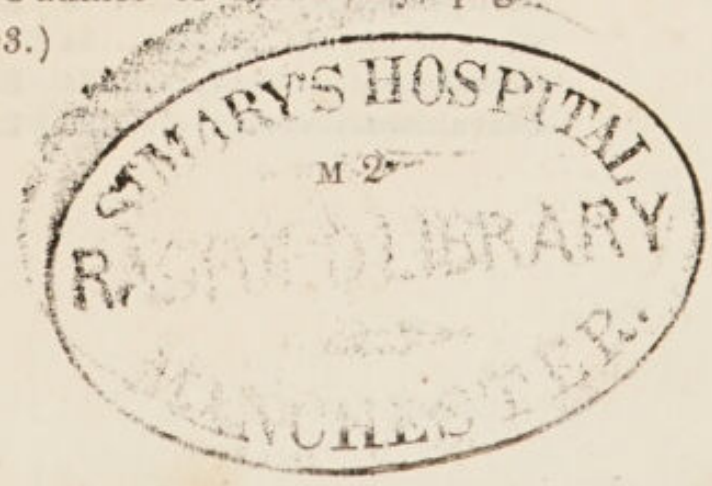
breech presents, the effect of the labour-pains ought to be waited for, till at least they have fully dilated the os internum and vagina, if the same have not been expanded before by the waters and membranes. In the mean time, whilst the breech advances, the os externum may be dilated gently during every pain, to allow room for introducing a finger or two of each hand to the outside of each groin of the fœtus, in order to assist the delivery when the nates are advanced to the lower part of the vagina. But if the fœtus is larger than usual, or the pelvis narrow, and after a long time and many repeated pains, the breech is not forced down into the pelvis, the patient's strength at the same time failing, the operator must, in a gradual manner, dilate the external genital aperture, and, having introduced a hand into the vagina, raise or push up the breech of the fœtus, and bring down the legs and thighs. If the uterus is so strongly contracted that the legs cannot be got down, the largest end of the blunt hook is to be introduced. As soon as the breech or legs are brought down, the body and head are to be delivered, there being no necessity here to alter the position of the infant's body.

N.B.—The use of the blunt hook, in breech cases, is a hazardous expedient; and manual assistance of every kind should be avoided, the most urgent cases only excepted.

See Dr. Hamilton's Outlines of Midwifery, page 370, et seq. (See p. 103.)



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