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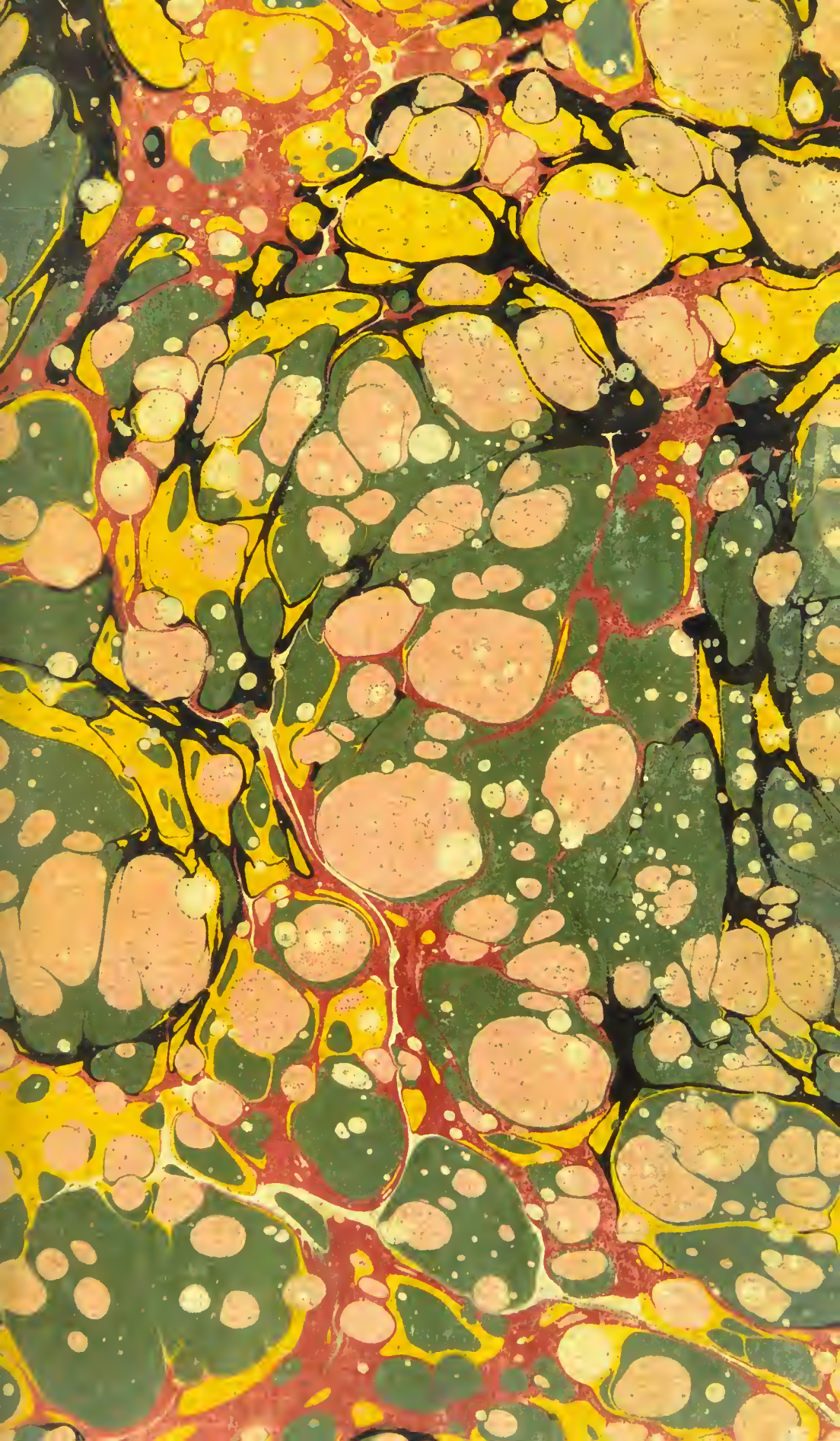
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A
S E T
O F
ANATOMICAL TABLES,
W I T H
E X P L A N A T I O N S,
AND AN ABRIDGMENT OF THE
PRACTICE OF MIDWIFERY;

WITH A VIEW TO ILLUSTRATE
A TREATISE ON THAT SUBJECT, AND
COLLECTION OF CASES.

By *WILLIAM SMELLIE*, M.D.

A NEW EDITION, carefully CORRECTED and REVISED;
W I T H
NOTES AND ILLUSTRATIONS,
Adapted to the present IMPROVED METHOD of PRACTICE;

By A. HAMILTON, M. D. F. R. S. EDIN. and
Professor of Midwifery in the University of Edinburgh.

EDINBURGH:

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M, DCC, LXXXVII.

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THE LIFE OF

After the death of the late King, the nation was in a state of confusion and distress. The people were without a head, and the government was in a state of anarchy. The King's death had left behind him a young and inexperienced son, who was unable to govern the kingdom. The nobles and the clergy were divided in their interests, and the people were suffering from the consequences of the civil war. The Duke of Burgundy, who was the most powerful of the nobles, was determined to seize the throne and to establish a new dynasty. He had the support of the French king, and he was able to march into the kingdom with a large army. He was met by the Duke of Brittany, who was also a powerful noble, and the two fought a battle which was a decisive victory for the Duke of Burgundy. He then entered the city of Paris, and he was proclaimed King of France. The Duke of Burgundy was a man of great ability and of great courage, and he was able to restore order to the kingdom. He was a just and a merciful ruler, and he was able to win the love and the respect of his subjects. He was a great warrior, and he was able to defend his kingdom from all enemies. He was a great statesman, and he was able to bring peace and prosperity to the kingdom. He was a great king, and he was able to leave behind him a kingdom which was strong and united.

P R E E A C E.

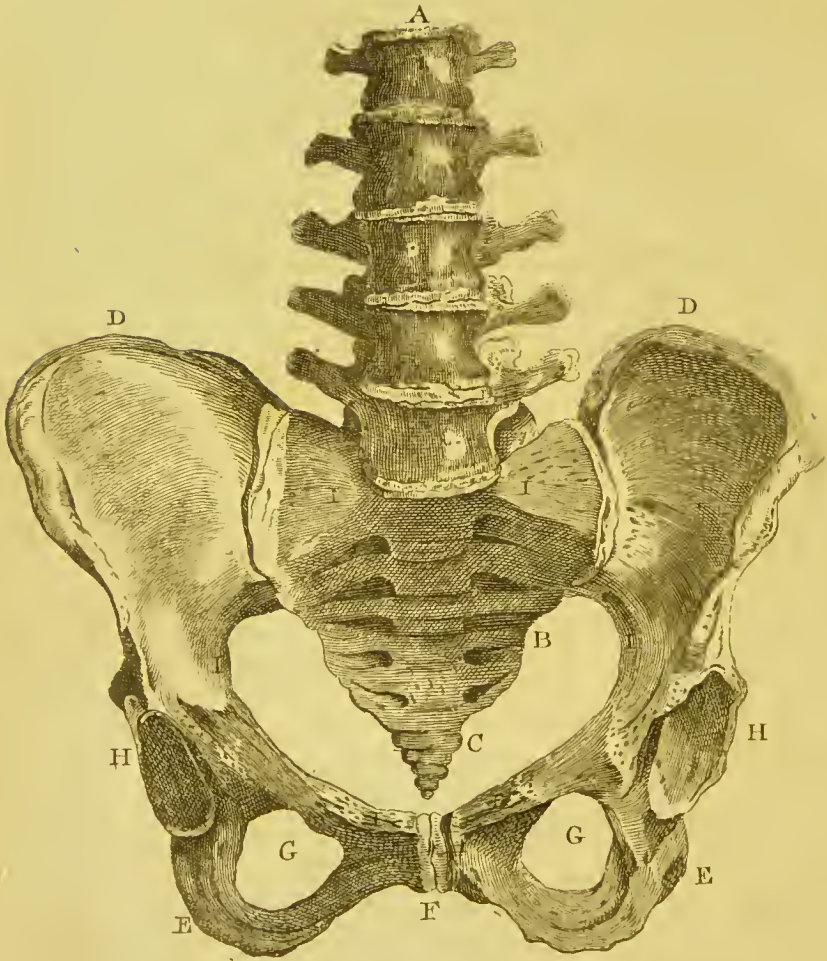
AS, in a long course of teaching and practice in Midwifery, I hope I may without vanity say, that I have done something towards reducing that Art into a more simple and mechanical method than has hitherto been done, I have attempted to explain the same in my Treatise of the Theory and Practice of Midwifery and Collection of Cases; and finding that most of the representations hitherto given of the parts subservient to *uterine gestation* and *parturition* were in many respects deficient, I have been induced to undertake the following *Tables*, with a view to supply in some measure the defects of others, and at the same time to illustrate what I have taught and written on the subject. How far I have obtained those ends, it belongs to others to judge. I shall only beg leave to observe here by way of Preface, that the greatest part of the figures were taken from Subjects prepared on purpose, to show every thing that might conduce to the improvement of the young Practitioner: avoiding, however, the extreme *minutiae*, and what else seemed foreign to the present design; the situation of parts, and their respective dimensions, being more particularly attended to, than a minute anatomical investigation of their structure.

As these *Tables* may possibly fall into the hands of some who have not seen my former work, I have added an abridgment of the Practice; which, though far from being complete, may serve to illustrate several

ral things which otherwise by a bare representation would be hardly intelligible.

References are made to Vol. I. II. and III. By *Vol. I.* I mean that which I first published in the year 1752, and contains a view of the Theory and Practice of Midwifery; *Vol. II.* and *III.* contain the collection of cases mentioned above. My first plan for these *Tables* confined them to the number of twenty-two, which Mr *Rymfdyke* had finished above two years ago; but I soon saw that a farther illustration, and consequently an addition to that number, was necessary. In eleven of these, *Dr Camper*, formerly *Professor of Medicine at Franeker in Friesland*, now *Professor of Anatomy and Botany at Amsterdam*, greatly assisted me, viz. Table XII. XVI. XVII. XVIII. XIX. XXIV. XXVI. XXVII. XXVIII. XXXIV. and XXXVI. The rest were drawn by Mr *Rymfdyke*; except the thirty-seventh and thirty-ninth, which were done by another hand. The whole of the drawings are faithfully engraved: in which, however, delicacy and elegance have not been so much consulted as to have them done in a strong and distinct manner; with this view chiefly, that from the cheapness of the work it may be rendered of more general use.

Plate I.



A. Bellini del.

EXPLANATIONS
OF A SET OF
ANATOMICAL TABLES,
WITH AN ABRIDGMENT OF THE
PRACTICE OF MIDWIFERY.

THE FIRST TABLE

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 *ossa iliûm*.

E.E The *ossa ischiûm*.

F The *ossa pubis*.

G The *foramina magna*.

H.H The *acetabula*.

A

I.I.I.I.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 *ossa iliūm*, and at the back and fore parts by the superior parts of the *ossa pubis* and *sacrum*.

IN this Table, besides the general structure and figure of the several bones, the dimensions of the brim of the *pelvis*, and the distance between the under parts of the *ossa ischiūm*, 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 from this to conclude, 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 *ossa ischiūm*. All these measures,

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.

Vide Tab. XVI. XVII. XVIII. Also Vol. I. Chap. 1. Sect. 1. 2. 3. where the form and dimensions of the *pelvis*, as well as of the head of the *fœtus*, and the manner in which the same is protruded in labour through the basin, are fully treated of. Consult likewise Vol. II. Coll. 1. N^o 1, 2. where cases are given of complaints of the *pelvis* arising from difficult labours.

THE SECOND TABLE

Gives a lateral and internal view of the *Pelvis*, the same being divided longitudinally.

A The three lower *vertebræ* of the loins.

B The *os sacrum*.

C The *os coccygis*.

D The left *os iliûm*.

E The left *os ischiûm*.

F The *os pubis* of the same side.

G The acute process of the *os ischiûm*.

H The *foramen magnum*.

I.I.I The brim of the *pelvis*.

THIS Plate shows the distance from the superior part of the *os sacrum* to the *ossa pubis*, as well as from the last mentioned bones to the *coccyx*, which in each amounts to about four inches and a quarter. The depth likewise is shown of the posterior, lateral, and anterior parts of the *pelvis*, not in the line of the body, but in that of the *pelvis* from its brim downward, which is generally three times deeper on the posterior than anterior

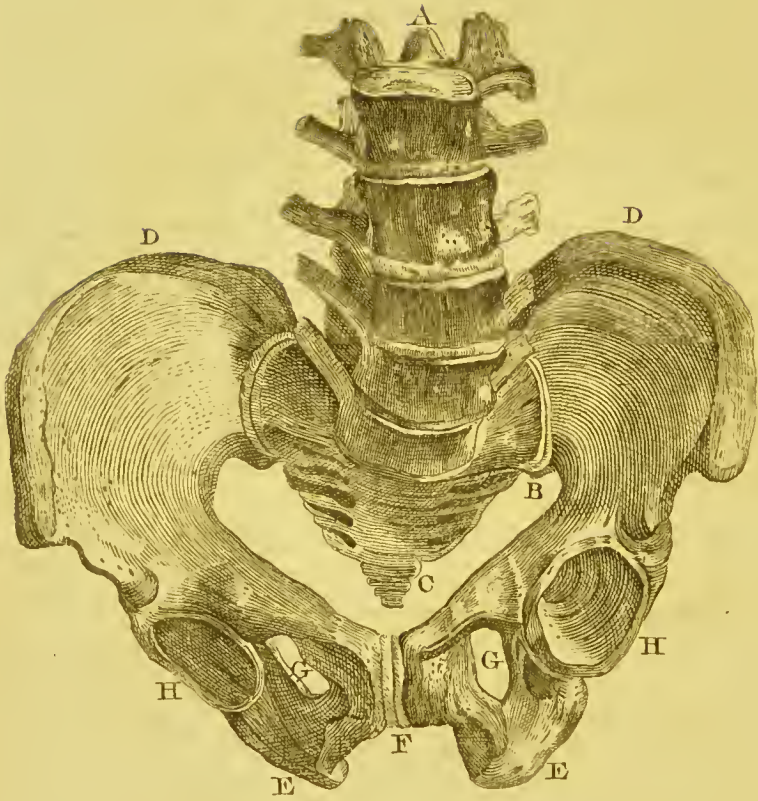
Plate II.



A Bell's sculp.



Plate III.



W. Bell sculp.

anterior part, and twice the depth of the last at the sides.

From this view appears also the angle which is formed by the last *vertebra* of the loins and the superior part of the *os sacrum*, as likewise the concavity or hollow space in the posterior internal part of the *pelvis*, arising from the curvature of the last mentioned bone and *coccyx*; finally, the distance from which to the posterior parts of the *ossa ischium* is here expressed.

Vide Tab. XVI. XVII. XVIII. XIX. Also Vol. I. and II. as referred to in the former Table.

THE THIRD TABLE

Exhibits a front view of a distorted *Pelvis*.

A The five *vertebræ* of the loins.

B The *os sacrum*.

C The *os coccygis*.

D.D The *ossa ilium*.

E.E The *ossa ischiūm*.

F The *ossa pubis*.

G.G The *foramina magna*.

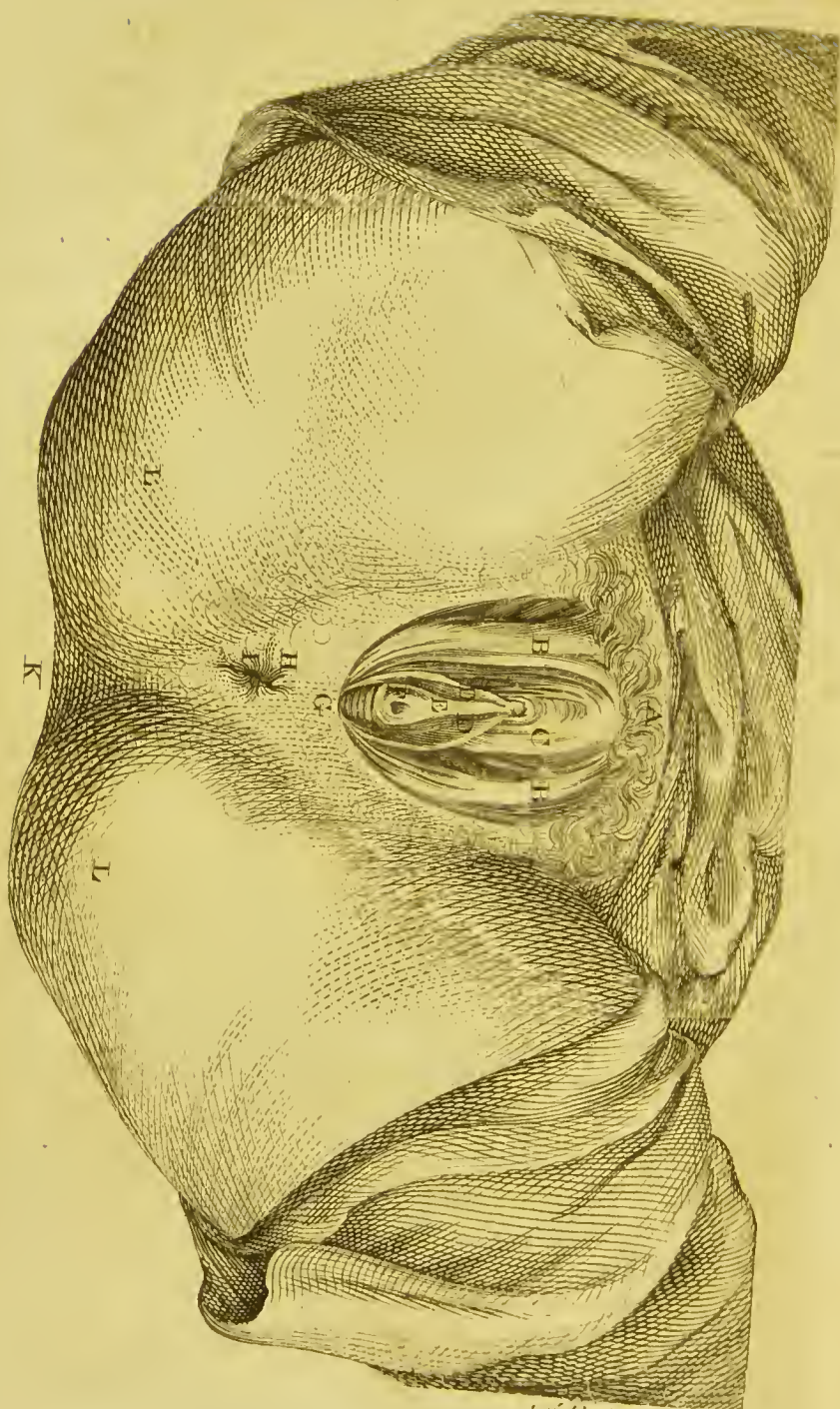
H.H The *acetabula*.

FROM this Plate may appear the great danger incident to both mother and child when the *pelvis* is distorted in this manner; it being only two inches and an half at the brim from the posterior to the anterior part, and the same distance between the inferior parts of each *os ischiūm*. *Vide* Tab. XXVII. where the *pelvis* is one quarter of an inch narrower at the brim than this, but sufficiently wide below. Various are the forms of distorted basons, 'but the last mentioned is the most common. It is a great happiness, however, in practice, that they are seldom so narrow, though there are instances where they have been much more so. The danger in all such cases must increase or diminish, according to the degree of distortion of the *pelvis*, and size of the child's head.

Vide Vol. I. Book I. Chap. 1. Sect. 4, 5. and Vol. II. Col. 1. N° 3, 4, 5. Also Coll. 21. 27. and 29.



Plate IV.



J. Bellecoulpe

THE FOURTH TABLE

Shews the External Female Parts of Generation.

- A The lower part of the *abdomen*.
- B B The *labia pudendi* separated.
- C The *clitoris* and *præputium*.
- D.D The *nymphæ*.
- E The *fossa magna*, or *os externum*.
- F The *meatus urinarius*.
- G The *frænum labiorum*.
- H The *perinæum*.
- I The *anus*.
- K The part that covers the extremity of the *coccyx*.
- L.L The parts that cover the tuberosities of the *ossa ischium*.

As it is of great consequence to every practitioner in midwifery, to know exactly the situation of the parts concerned in parturition, and which have not been accurately described by former anatomists with a view to this particular branch, I have given
this

this draught from one of the preserved subjects which I keep by me, in order to demonstrate these parts in the ordinary course of my lectures. From a view, then, of the situation of the parts, it appears, that the *os externum* is not placed in the middle of the inferior part of the *pelvis*, but at the anterior and inferior part of the *pubes*; and that the *labia* cover likewise the anterior part of these bones.

Secondly, It may be observed, that as the *frænum labiorum*, which is nearly adjoining to the inferior part of the *ossa pubis*, is only about an inch from the *anus*, between which and the *coccyx* there is about three inches distance; it follows, that the *anus* is nearer to the first-mentioned bones than to the latter.

Thirdly, The view of this and the following Table will furnish proper hints with respect to the method of touching or examining the *os uteri*, without hurting or inflaming the parts; as it appears, that the *os externum* is placed forwards towards the *pubes*, and the *os uteri* backwards towards the *rectum* and *coccyx*. By this wise mechanism of
nature

nature many inconveniences are often prevented, which must happen if these parts were opposite to each other, and situated in the middle of the inferior part of the *pelvis*; particularly a *prolapsus* of the *vagina* and *uterus*, either in the unimpregnated state, or in any of the first four months of pregnancy; as also too sudden deliveries in any of the last months.

Fourthly, From a view of the situation of the parts, it will appear, that in labour, when the *os uteri* is sufficiently opened to allow a passage for the head of the *fœtus*, the same is protruded to the lower part of the *vagina*, by which the external parts are pushed out in form of a large tumor, as in Table XV.

Lastly, It may be observed, that when it is necessary to dilate the *os externum*, the principal force ought to be applied downwards and towards the *rectum*, to prevent the *urethra* and neck of the bladder from being hurt or inflamed.

Vide Vol. I. Book I. Chap. 2. Sect. 1. Vol. II. Coll. 2.

THE FIFTH TABLE.

FIGURE I. Gives a front view of the *Uterus in situ* suspended in the *vagina*; the anterior parts of the *ossa ischium*, with the *ossa pubis*, *pudenda*, *perinæum*, and *anus*, being removed, in order to show the internal parts.

A The last *vertebra* of the *loins*.

B.B The *ossa iliûm*.

C.C The *acetabula*.

D.D The inferior and posterior parts of the *ossa ischiûm*. Vide Tab. XXIX. where the *ossa pubis* and the anterior parts of the *ossa ischiûm* are represented by dotted lines.

E The part covering the extremity of the *coccyx*.

F The inferior part of the *rectum*.

G.G The *vagina* cut open longitudinally, and stretched on each side of the *collum uteri*, to show in what manner the *uterus* is suspended in the same.

H.H Part of the *vesica urinaria* stretched

ON

Plate V.

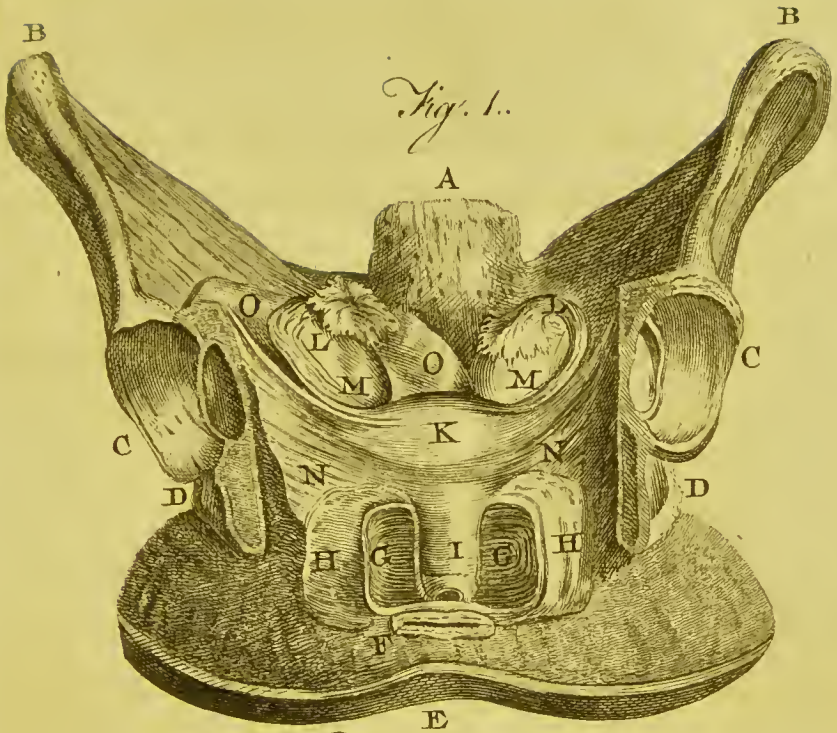


Fig. 2.

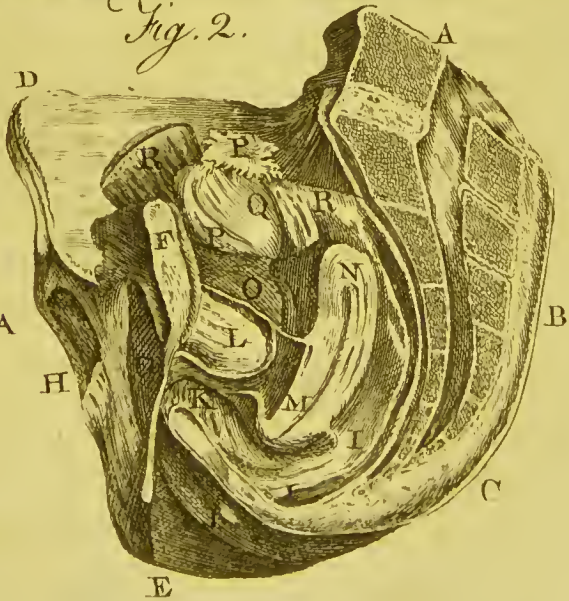
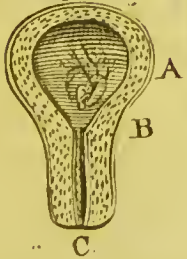


Fig. 3.



on each side of the *vagina* and inferior part of the *fundus uteri*.

I The *collum uteri*.

K The *fundus uteri*.

L.L The *tubæ Fallopiantæ* and *fimbriæ*.

M.M The *ovaria*.

N.N The *ligamenta lata* and *rotunda*.

O.O The superior part of the *rectum*.

FIGURE II. Gives a view of the internal parts as seen from the right *groin*, the *pelvis* being divided longitudinally.

A The lowest *vertebra* of the *loins*.

B.C The *os sacrum* and *coccyx*, with the integuments.

D The left *os iliûm*.

E The inferior part of the left *os ischiûm*.

F The *os pubis* of the same side.

G The *foramen magnum*.

H The *acetabulum*.

I.I.I The inferior part of the *rectum* and anus.

K The *os externum* and *vagina*; the *os uteri* lying loosely in the same.

L The *vesica urinaria*.

M.N The *collum* and *fundus uteri*, with a view of the cavity of both. The attachment of the *vagina* round the outside of the lips of the mouth of the *womb* is here likewise shown, as also the situation of the *uterus*, as it is pressed downwards and backwards by the *intestines* and *urinary bladder* into the concave and inferior part of the *os sacrum*.

O The *ligamenta lata* and *rotunda* of the left side.

P.P The *Fallopian* tube, with the *fimbriae*.

Q The *ovarium* of the same side.

R.R The superior part of the *rectum*, and inferior part of the *colon*,

FIGURE III. Gives a front view of the *Uterus* in the beginning of the first month of pregnancy; the anterior part being removed, that the *Embryo* might appear through the *amnios*, the *chorion* being dissected off.

A the *fundus uteri*.

B The *collum uteri*, with a view of the rugous canal that leads to the cavity of the *fundus*.

C The *os uteri*.

Vide

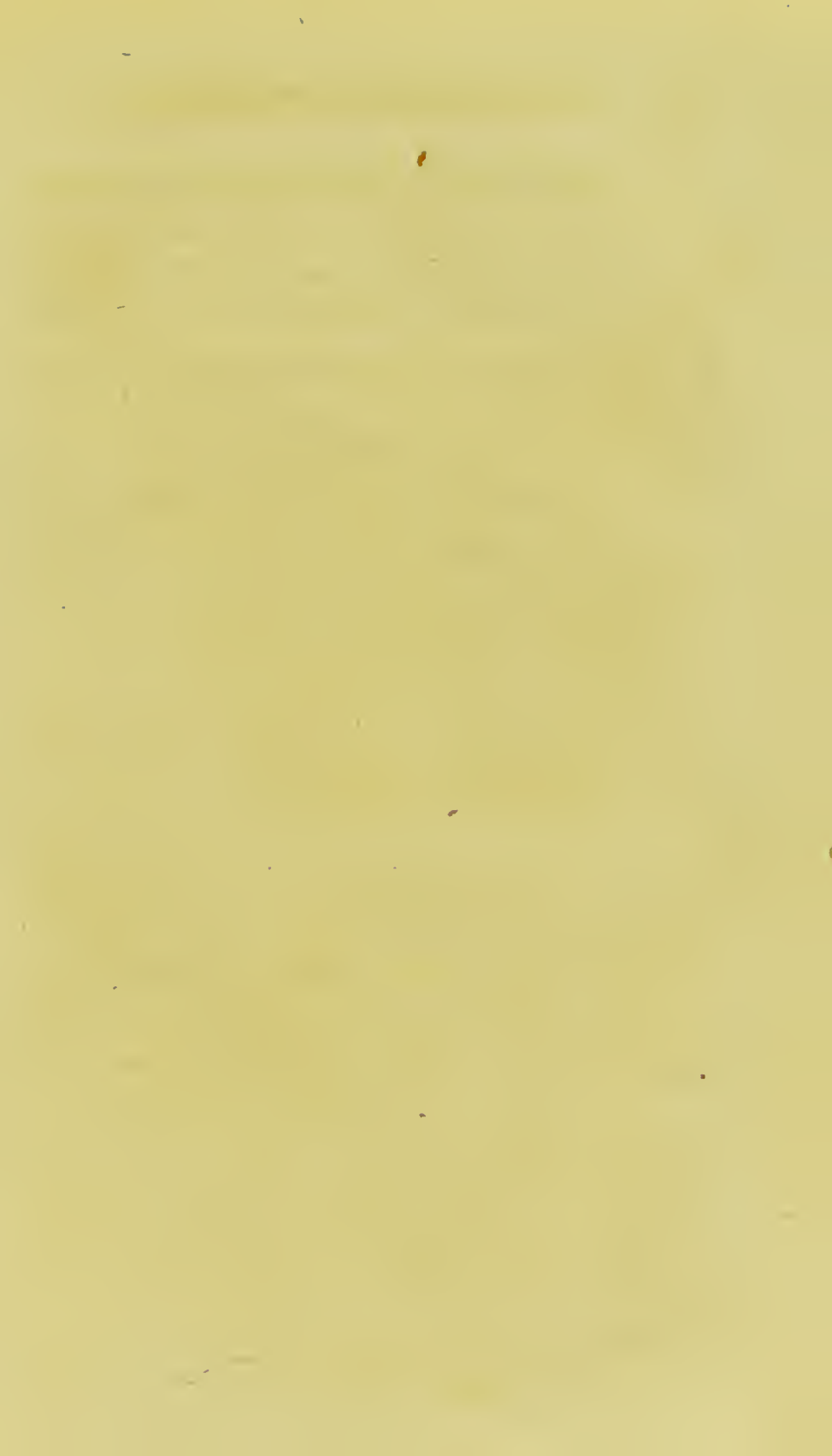


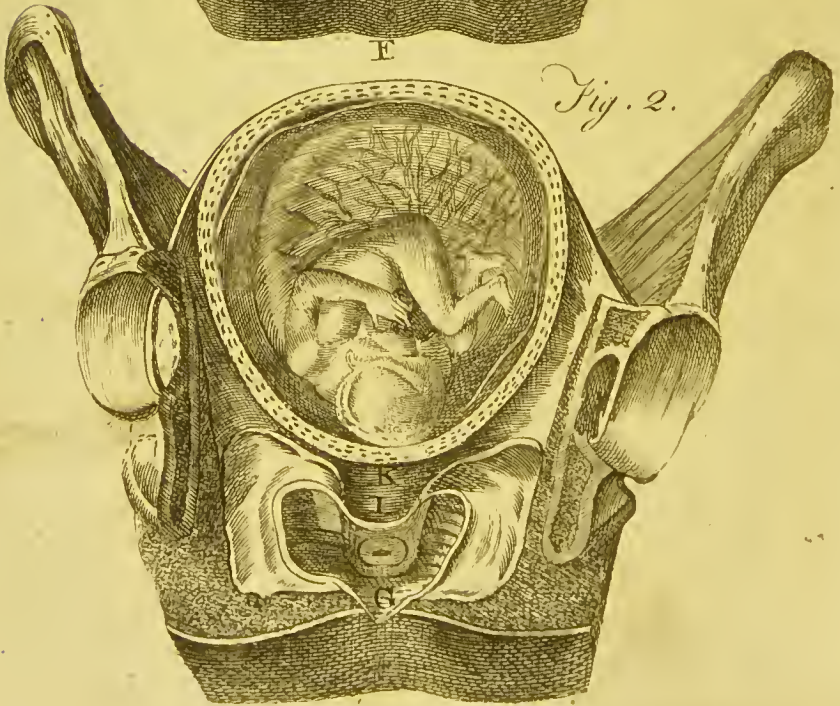
Plate VI.

Fig. 1.



E

Fig. 2.



K

I

S

Vide Vol. I. Book I. Chap. 2. Sect. 2, 3.
Vol. II. Coll. 3.

THE SIXTH TABLE.

FIGURE I. In the same view and section of the parts as in the first figure of the former Table, shows the *Uterus* as it appears in the second or third month of pregnancy, its anterior part being here likewise removed.

F The *anus*.

G The *vagina*, with its *plicæ*.

H.H The posterior and inferior part of the *urinary bladder* extended on each side, the anterior and superior part being removed.

I.I The mouth and neck of the *womb*, as raised up when examining the same by the touch, with one of the fingers in the *vagina*.

K.K

K.K The *uterus* as stretched in the second or third month, containing the *embryo*, with the *placenta* adhering to the *fundus*.

It appears from this and the former Table, that at this time nothing can be known, with respect to pregnancy, from the touch in the *vagina*, as the resistance of the *uterus* is so inconsiderable that it cannot prevent its being raised up before the finger; and even were it kept down, the length of the neck would prevent the stretching being perceptible. The *uterus* likewise not being stretched above the *pelvis*, little change is made as to the figure of the *abdomen*, further than that the *intestines* are raised a little higher; whence, possibly, the old observation of the *abdomen* being a little flatter at this period than usual, from the *intestines* being pressed more to each side. Women at this period miscarry oftener than at any other. It is a great happiness, however, in practice, that although they are frequently much weakened by large discharges, yet they rarely sink under the same, but are sooner or later relieved by labour coming on, which gradually

ly

ly stretches the neck and mouth of the *womb*, by the *membranes* being forced down with the waters; and if the *placenta* is separated from the internal surface of the *uterus*, all its contents are discharged. But if the *placenta* still adheres, the *membranes* break, the waters and *fœtus* are expelled, and the flooding diminishes, from the *uterus* contracting close to the *secundines*, which also are usually discharged sooner or later.

From the structure, finally, of the parts, as represented in this and the former table, it may appear, that it is much safer to restrain the flooding, and support the patient, waiting with patience the efforts of nature, than to endeavour to stretch the *os uteri*, and deliver either with the hand or instruments, which might endanger a laceration and inflammation of the parts.

Vide C in Table XXXVII. Also Vol. I. Book II. Chap. 2. Sect. 2, 3, 4. Vol. II. Coll. 12. N° 2.

FIGURE

FIGURE II. Represents the *Uterus* in the fourth or fifth month of pregnancy, in the same view and section of the parts with the former figure, excepting that in this the anterior part of the *collum uteri* is not removed.

IN the natural situation, the mouth and lips of the *womb* are covered with the *vagina*, and these parts are contiguous to each other; but here the *vagina* G is a little stretched from the neck and lips of the former, in order to show the parts more distinctly. I, the neck of the *womb*, which appears in this figure thicker, shorter, and softer, than in the former. K, The inferior part of the *fundus uteri*; the stretching of which can sometimes be felt through the *vagina*, by pushing up a finger on the anterior or lateral part of the same.

The *uterus* now is so largely stretched as to fill all the upper part of the *pelvis*, and begins also to increase so much as to rest on the brim, and to be supported by the same, the *fundus* at the same time being raised considerably

siderably above the *pubes*. From the *abdomen* being now more stretched, the woman is more sensible of her growing bigger; and the *uterus* also, from the counter-pressure of the contents and parietes of the *abdomen*, is kept down, and the *os uteri* prevented from rising before the finger as formerly. In lean women, the stretching of the *uterus* can sometimes be perceived in the *vagina* at this period as well as above the *pubes*: but nothing certain can be discovered from the resistance or feel of the mouth of the *womb* or *lips*, which are commonly the same in the first months of pregnancy as before it.

The size or bulk of the *fœtus* is finally here to be observed, with the *placenta* adhering to the posterior part of the *uterus*.

Vide the references to Vol. I. and II. in the former Table.

THE SEVENTH TABLE

Represents the *Abdomen* of a woman opened in the sixth or seventh month of pregnancy.

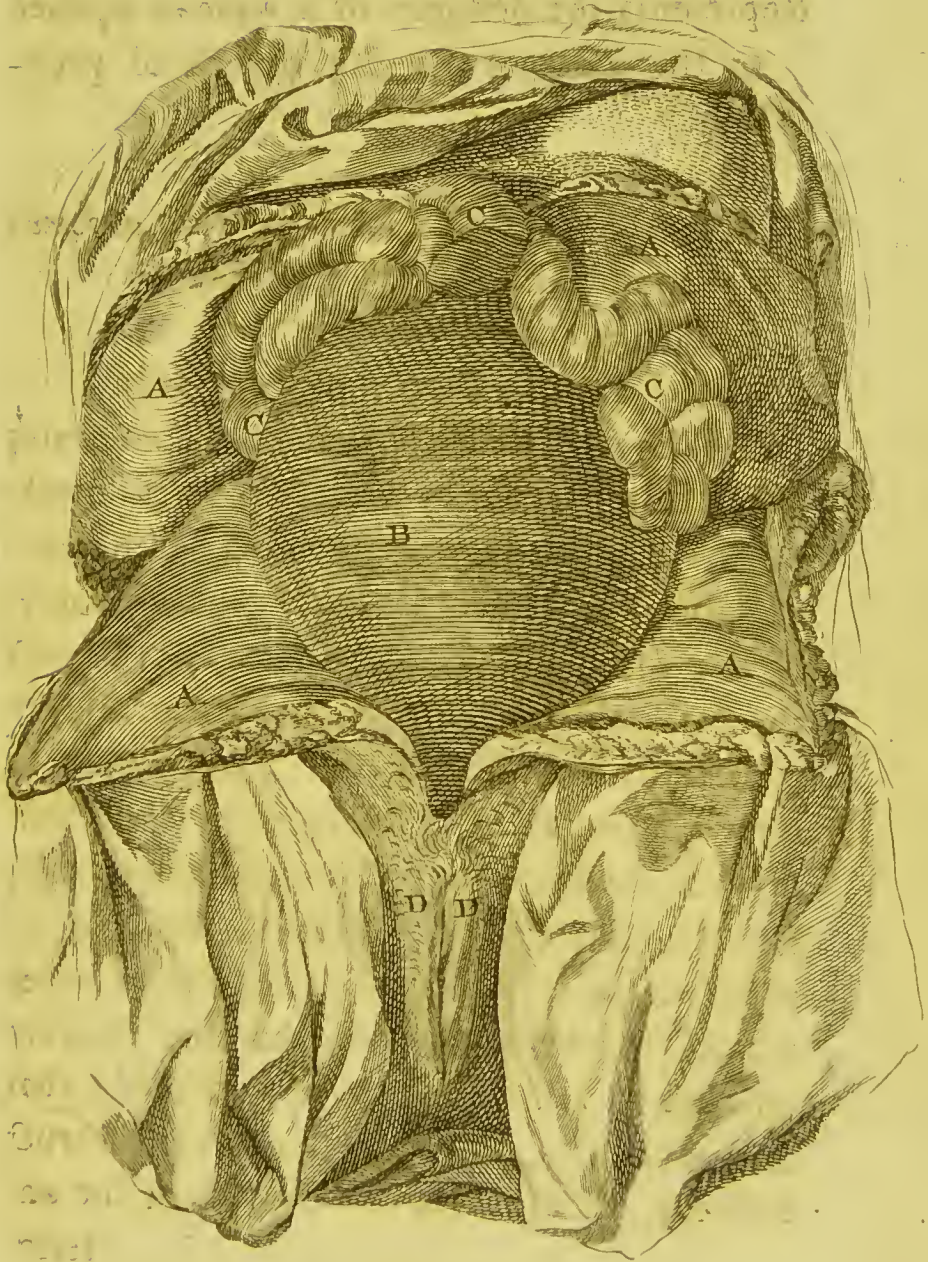
A.A.A.A The parietes of the *abdomen* opened, and turned back, to show

B The *uterus*.

C.C.C The *intestines* raised upwards.

D The *labia pudendi*, which are sometimes affected in pregnancy with *œdematous* swellings, occasioned by the pressure of the *uterus* upon the returning veins and *lymphatics*. If the *labia* are so tumefied as to obstruct the patient's walking, the complaint is removed by puncturing the parts affected. By which means the serous fluid is discharged for the present, but commonly recurs; and the same operation must be repeated several times perhaps before delivery; after which, however, the tumefaction entirely subsides. Here it may be observed, that this complaint can seldom or never obstruct delivery, as the *labia* are situated at the anterior

Plate VII.



terior part of the *ossa pubis*, and can rarely affect the stretching of the *frænum*, *perinæum*, *vagina*, and *rectum*. From this figure it appears, that the stretching of the *uterus* can easily be felt at this period in lean subjects, through the parietes of the *abdomen*; especially if the *intestines* do not lie before it. In general indeed, as the *uterus* stretches, it rises higher; by which means the *intestines* are likewise raised higher, and are also pressed to each side. Hence the nearer the woman is to her full time, the stretching is the more easily felt.

N. B. Oedematous swellings, symptomatic of pregnancy, affecting the labia, have in few, if any instances, been observed to interrupt the progress of labour; therefore the discharge of the serous fluid by puncture is seldom requisite; and *repeated puncture* in advanced gestation might be attended with disagreeable consequences.

Vide Vol. I. Book I. Chap. 3. Sect. 3. Book III. Chap. 1. Sect. 2. and Vol. II. Coll. 12, 13.

THE EIGHTH TABLE.

In the same view and section of the parts as in Table VI. is represented the *Uterus* of the former Table, in order to show its contents, and the internal parts as they appear in the sixth or seventh month of pregnancy.

A The *uterus* stretched up to the *umbilical* region.

B.B The superior part of the *ossa ilium*.

C.C The *acetabula*.

D.D The remaining posterior parts of the *ossa ischium*.

E The *anus*.

F The *vagina*.

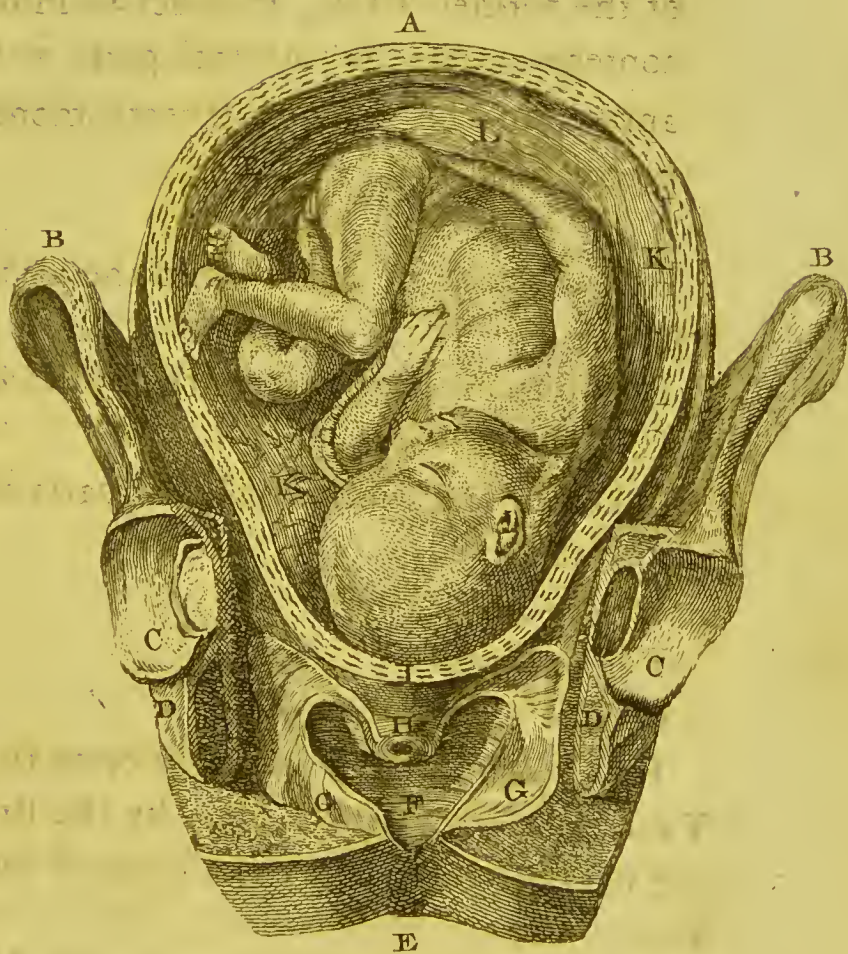
G The bladder of *urine*.

H The neck of the *womb* shorter than in Table VI. and raised higher by the stretching of the *uterus* above the brim of the *pelvis*.

I The vessels of the *uterus* larger than in the unimpregnated state.

K.K

PLATE VIII



THE HISTORY OF THE

REIGN OF THE

EMPEROR

OF THE

WESTERN

EMPIRE

FROM THE

DEATH OF

THE

EMPEROR

CONSTANTINE

UNTIL THE

ASCENSION

OF

THE

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K.K The *placenta* adhering to the inferior and posterior part of the *uterus*.

L.L The *membranes* that surround the *fœtus*, the head of which is here represented (as well as of those in Table VI.) situated downwards at the inferior part of the *uterus*, and which I am apt to believe is the usual situation of the *fœtus* when at rest and surrounded with a great quantity of waters, as the head is heavier than any other part. With respect to the situation of the body of the *fœtus*, though the fore parts are often turned towards the sides and posterior parts of the *uterus*, they are here, as well as in the foregoing Table, represented at the anterior part or forwards, in order to show them in a more distinct and picturesque manner.

Vide Vol. I. Book I. Chap. 3. Sect. 3, 4. Vol. II. Coll. 13. N° 1.

FROM this Table may appear the difficulty of stretching the *os uteri* in flooding cases, even at this period, from the length and thickness of the neck of the *womb*, especially in a first pregnancy: much the same method,

thod, however, is to be followed here as was directed in Table VI. till labour comes on to dilate the *os uteri*. If the flooding is then considerable, the *membranes* should be broken, that the *uterus* may contract, and thereby lessen the discharge. The labour likewise, if it is necessary, may be assisted by dilating the *os uteri* in time of the pains; which also, if wanting, may be provoked by the same method, when the patient is in danger. If this danger is eminent, and the woman seems ready to expire, the *uterus*, as appears from this Table, is at this time sufficiently stretched to receive the operator's hand to extract the *fœtus*, if the *os internum* can be safely dilated.

Lastly, It may be observed that women are in greater danger at this period and afterwards, than in the former months.

Vide Vol. I. Book III. Chap. 4. Sect. 3. N° 1, 2, 3. Vol. III. Coll. 33. N° 2. See also in the *Edinburgh* Physical and Literary Observations, Art. xvii. the dissection of a woman with child by Dr *Donald Monro*, physician at *London*.

See, Directions for the management in
cases

that he says to the disciples, 'I am going to Jerusalem and I will be killed by the Jews and I will be buried there. After three days I will rise again and go to Galilee. Remember these words of mine.' The disciples did not understand these words, but they remembered them. Then he said to them, 'The Son of Man will be killed and will be buried and will rise again after three days and will go to Galilee.' And he said to them, 'Remember these words of mine.'

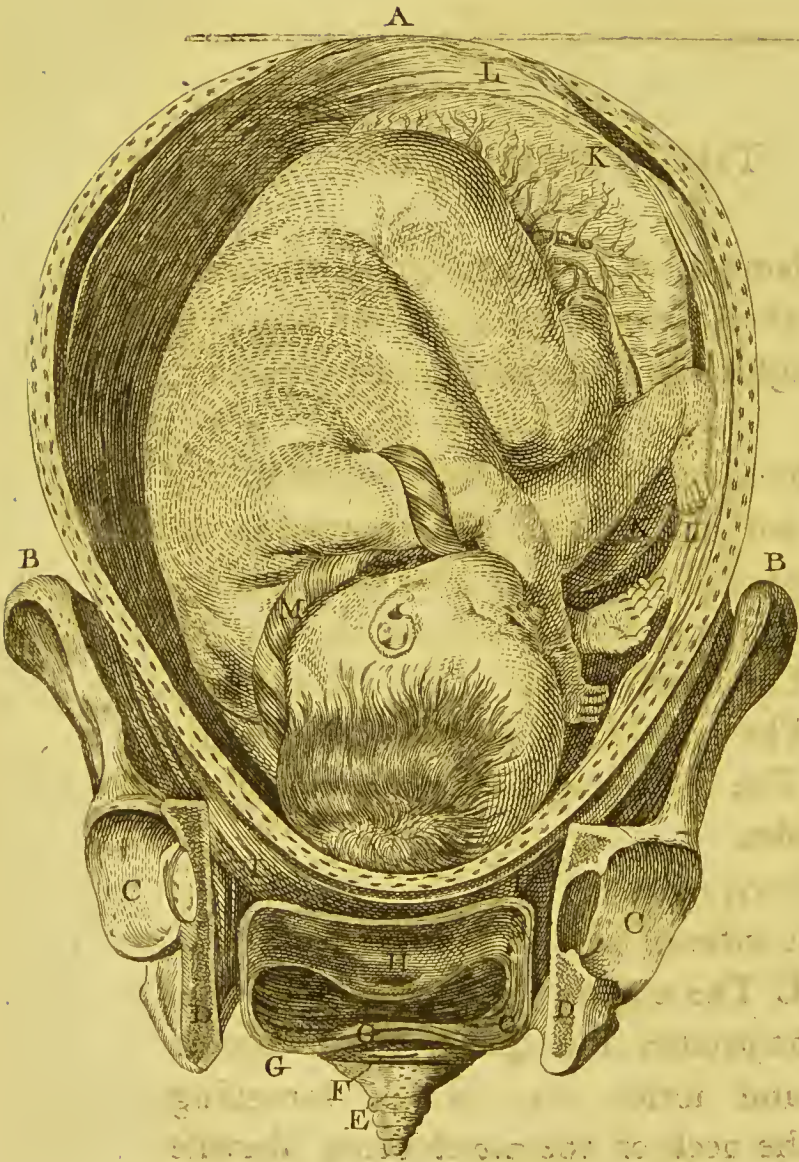
Then he said to them, 'The Son of Man will be killed and will be buried and will rise again after three days and will go to Galilee.' And he said to them, 'Remember these words of mine.'

Then he said to them, 'The Son of Man will be killed and will be buried and will rise again after three days and will go to Galilee.'

Then he said to them, 'The Son of Man will be killed and will be buried and will rise again after three days and will go to Galilee.'

Then he said to them, 'The Son of Man will be killed and will be buried and will rise again after three days and will go to Galilee.'

Plate IX.



A Belle's vulp.

cases of Flooding, Dr *Hamilton's* Outlines of Midwifery, page 401.

THE NINTH TABLE,

In the same view and section of the parts with the former, represents the *Uterus* in the eighth or ninth month of pregnancy.

A The *uterus* as stretched to near its full extent, with the waters, and containing the *fœtus* entangled in the *funis*, the head presenting at the upper part of the *pelvis*.

B.B The superior part of the *ossa ilium*.

C.C The *acetabula*.

D.D The remaining posterior parts of the *ossa ischiûm*.

E The *coccyx*.

F The inferior part of the *rectum*.

G.G.G The *vagina* stretched on each side.

H The *os uteri*, the lips of which appear larger and softer than in the foregoing Table, the neck of the *womb* being likewise stretched

stretched to its full extent, or entirely obliterated.

I.I Part of the *vesica urinaria*.

K.K The *placenta* at the superior and posterior part of the *uterus*.

L.L The *membranes*.

M The *funis umbilicalis*.

THIS and the foregoing Table show in what manner the *uterus* stretches, and how its neck grows shorter, in the different periods of pregnancy; as also the magnitude of the *fætus*, in order more fully to explain Vol. I. Book I. Chap. 3. Sect. 4, 5. also Lib. 3. Chap. 1. Sect. 1, 2. likewise Vol. II. Coll. 13. N° 1.

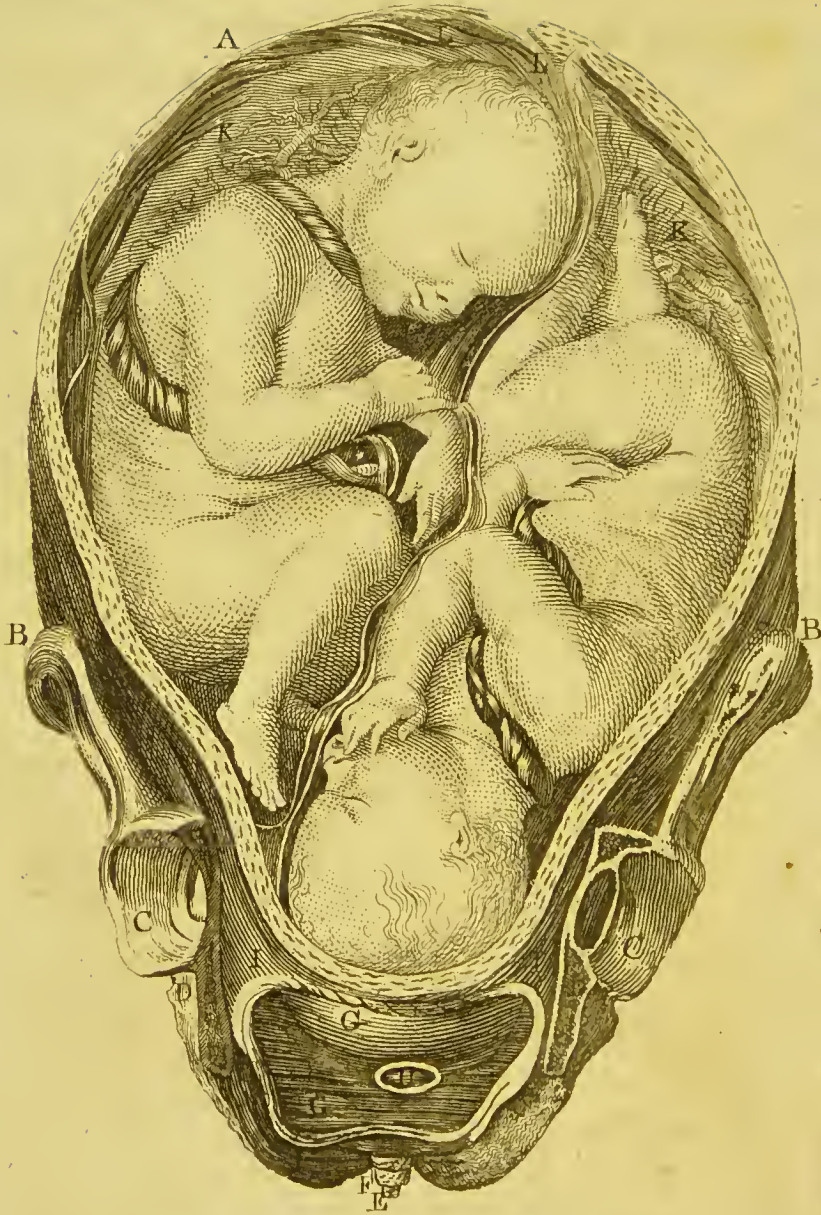
Notwithstanding it has been handed down as an invariable truth, from the earliest accounts of the art to the present times, that when the head of the *fætus* presented, the face was turned to the posterior part of the *pelvis*; yet from Mr *Ould's* observation, as well as from some late dissections of the *gravid uterus*, and what I myself have observed in practice, I am led to believe, that the head presents for the most part, as is here

The following table shows the number of persons
 employed in the various occupations in the
 State of New York, in the year 1900.
 The total number of persons employed is
 1,100,000.

The following table shows the number of persons
 employed in the various occupations in the
 State of New York, in the year 1900.
 The total number of persons employed is
 1,100,000.

The following table shows the number of persons
 employed in the various occupations in the
 State of New York, in the year 1900.
 The total number of persons employed is
 1,100,000.

Plate X



A Bell Sculp!

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*.

Consult Dr *Hunter's* elegant plates of the *gravid uterus*.

THE TENTH TABLE

Gives a front view of *Twins in utero* in the beginning of labour; the anterior parts being removed, as in the preceding Tables.

A The *uterus* as stretched with the *membranes* and waters.

B.B The superior parts of the *ossa iliūm*.

C.C The *acetabula*.

D.D The *ossa ischiūm*.

E The *coccyx*.

F The lower part of the *rectum*.

G.G The *vagina*.

H The *os internum* stretched open about a

D

finger's

finger's breadth with the *membranes* and waters in time of labour-pains.

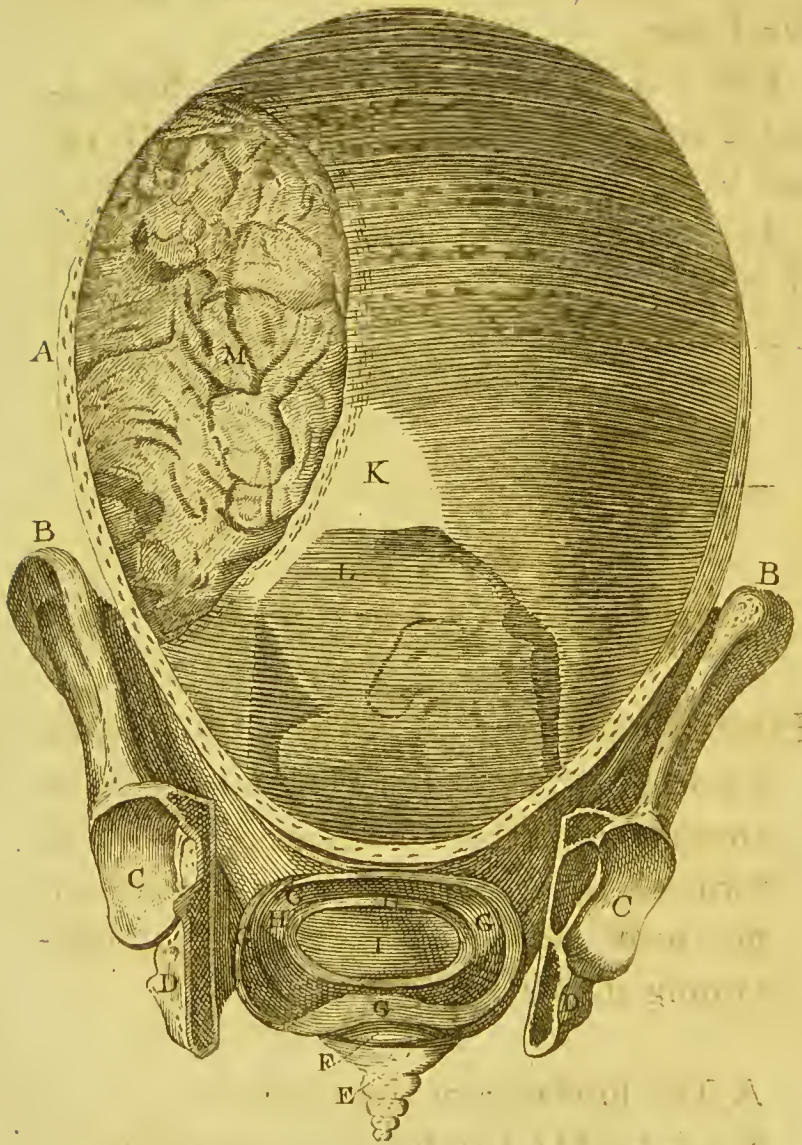
I.I The inferior part of the *uterus* stretched with the waters which are below the head of the child that presents.

K.K The two *placentas* adhering to the posterior part of the *uterus*, the two *fætuses* 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 happens in the natural as well as preternatural positions.

L.L.L The *membranes* belonging to each *placenta*.

THIS representation of Twins, according to the order observed in my Treatise of Midwifery, ought to have been placed among the last Tables; but as that was of no consequence, I have placed it here in order to show 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 *fætuses*

Plate XI



A. Bell sculp^t

fœtuses in time of a labour-pain. With respect to the position of twins, it is often different in different cases; but was thus in a late dissection of a *gravid uterus* by Dr *Mackenzie*.

Vide Vol. I. Book III. Chap. 1. Sect. 4. and Chap. 5. Sect. 1. and Vol. II. Coll. 14. and Vol. III. Coll. 37.

For the improved management in cases of plurality of children, see Dr *Hamilton's* *Outlines of Midwifery*, page 412.

THE ELEVENTH TABLE

Exhibits another front view of the *Gravid Uterus* in the beginning of labour; the anterior parts being removed, as in the former Table; 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*.

D 2

E The

E The *coccyx*.

F The inferior part of the *rectum*.

G.G.G.G The *vagina*.

H.H The mouth of the *womb* largely stretched 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 Table 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 show the head of the *fetus* through the *amnios*.
N. B. This hint is taken from one of Dr *Albinus's* Tables of the *gravid uterus*.

M The *placenta*; the external convex surface 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

inside of the *os uteri*; this last manner of adhesion however always occasions floodings as soon as the same begins to dilate.

See a valuable essay on Uterine Hæmorrhage in advanced gestation, by E. 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.

Tables VI. VIII. IX. X. show the internal surface of the *placenta* towards the *fætus*, with the vessels composing its substance proceeding from the *funis*, which is inserted in different *placentas*, into all the different parts of the same, as well as in the middle.

The Thirtieth and Thirty-third Tables show the insertion of the *funis* into the *abdomen* of the *fætus*.

With respect to the expulsion of the *placenta*, when the *membranes* break, the *uterus* contracts as the waters are evacuated till it comes in contact with the body of the *fætus*: the same being delivered, the *uterus* grows much thicker, and contracts closely to the *placenta* and *membranes*, by which means they

they are gradually separated, and forced into the *vagina*. This shows that we ought to follow the method which nature teaches, waiting with patience, and allowing it to separate in a slow manner: which is much safer practice, especially when the patient is weak; as the discharge is neither so great or sudden as when the *placenta* is hurried down in the too common method. But then we must not run into the other extreme, but assist when nature is not sufficient to expel the same.

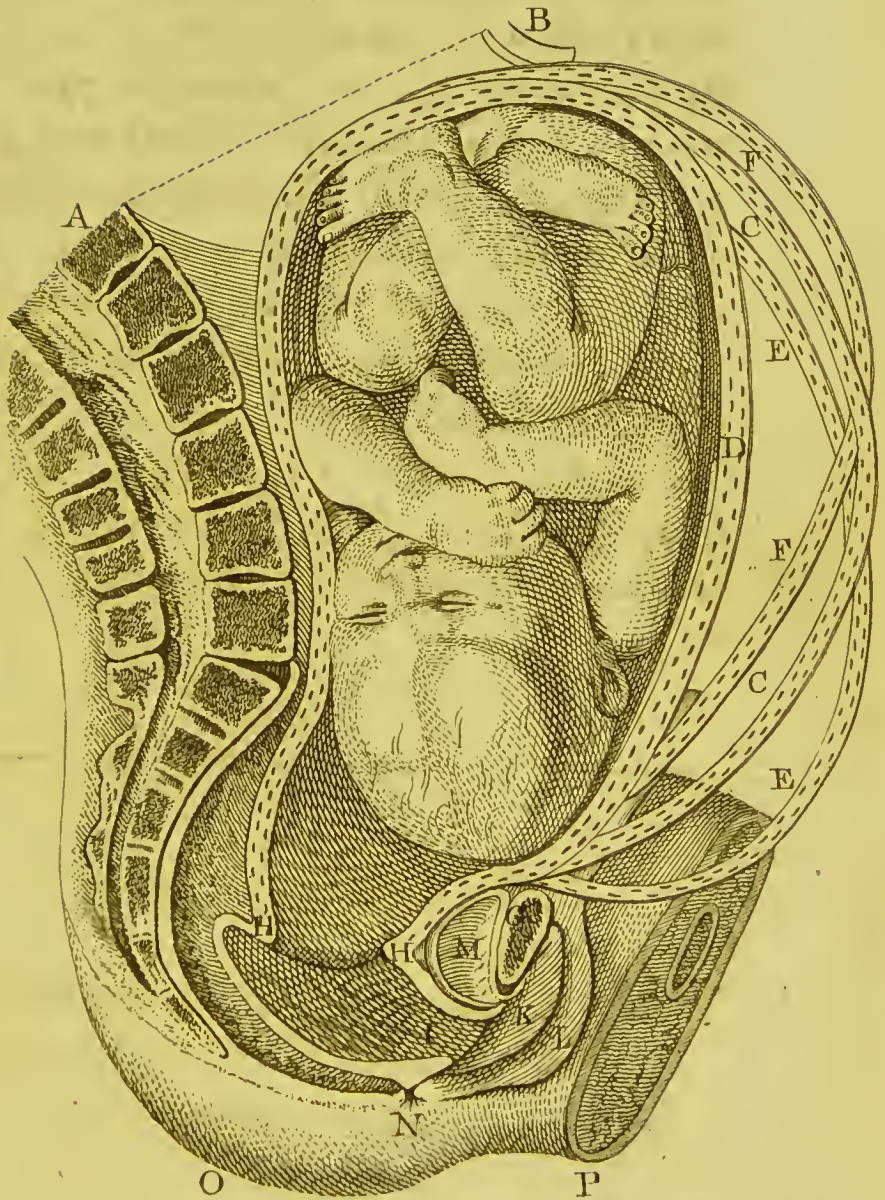
Vide Vol. I. Book III. Chap. 1. Sect. 4. Chap. 2. Sect. 2, 5. Vol. II. Coll. 14, 23. Also *Dr Hamilton's* Outlines of Midwifery, p. 211. et seq.

THE TWELFTH TABLE

Shows (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.

Plate XII.



A. Bell Sculp.

1911
The University of Chicago Library
has acquired the following books
from the collection of
Mr. J. H. [Name]

1. [Title]
2. [Title]
3. [Title]

4. [Title]
5. [Title]
6. [Title]

7. [Title]
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10. [Title]
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14. [Title]
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16. [Title]
17. [Title]
18. [Title]

19. [Title]
20. [Title]
21. [Title]

22. [Title]
23. [Title]
24. [Title]

B The *scrobiculus cordis*; the distance from which to the last mentioned *vertebra* is here shown by dotted lines; 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 *fætus* runs a risk of sliding over and above the *ossa 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 Mr LEVRET *sur le Mechanisme de differentes Grossesses*.

G The *os pubis* of the left side.

H.H The *os internum*.

I The *vagina*.

K The left *nympha*.

L The *labium pudendi* of the same side.

M The remaining portion of the bladder.

N The

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 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 *ossa 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 Table.

If the *membranes* do not break immediately upon their being pushed into the *vagina*, they should be allowed to protrude still further in order to dilate the *os externum*.

Vide Vol. I. Book I. Chap. 2. Sect. 2. Chap. 3.
Sect.

PHYSICS DEPARTMENT
5300 S. DICKINSON DRIVE
CHICAGO, ILL. 60637

Dear Sirs:

I have the pleasure to inform you that your application for admission to the Ph.D. program in Physics has been accepted. You will receive a letter from the Registrar regarding the admission process and the required documents.

Very truly yours,
[Signature]

Plate XIII.



A. Bell. Sculp. L^o

Sect. 3. Book III. Chap. 1. Sect. 1, 2, 4. Chap. 2.
 Sect. 3. Chap. 3. Sect. 4. N° 5. Vol. II. Coll. 10.
 N° 4. Case 3, 4. Coll. 14. Vol. III. Coll. 34. N° 2.
 Case 4.

THE THIRTEENTH TABLE,

In the same view and section of the parts as in Table VI. shows the natural position of the head of the *Fætus* when sunk down into the middle of the *Pelvis* after the *Os Internum* is fully opened, a large quantity of the waters being protruded with the *Membranes* through the *Os Externum*, but prevented from being all discharged, by the head's filling up the *Vagina*.

A The *uterus* a little contracted, and thicker, from some of the waters being sunk down before the child, or discharged.

B.B The superior parts of the *ossa iliûm*.

C The inferior part of the *rectum*.

E

D.D

D.D The *vagina* largely stretched with the head of the *fœtus*.

E.E The *os internum* fully opened.

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*.

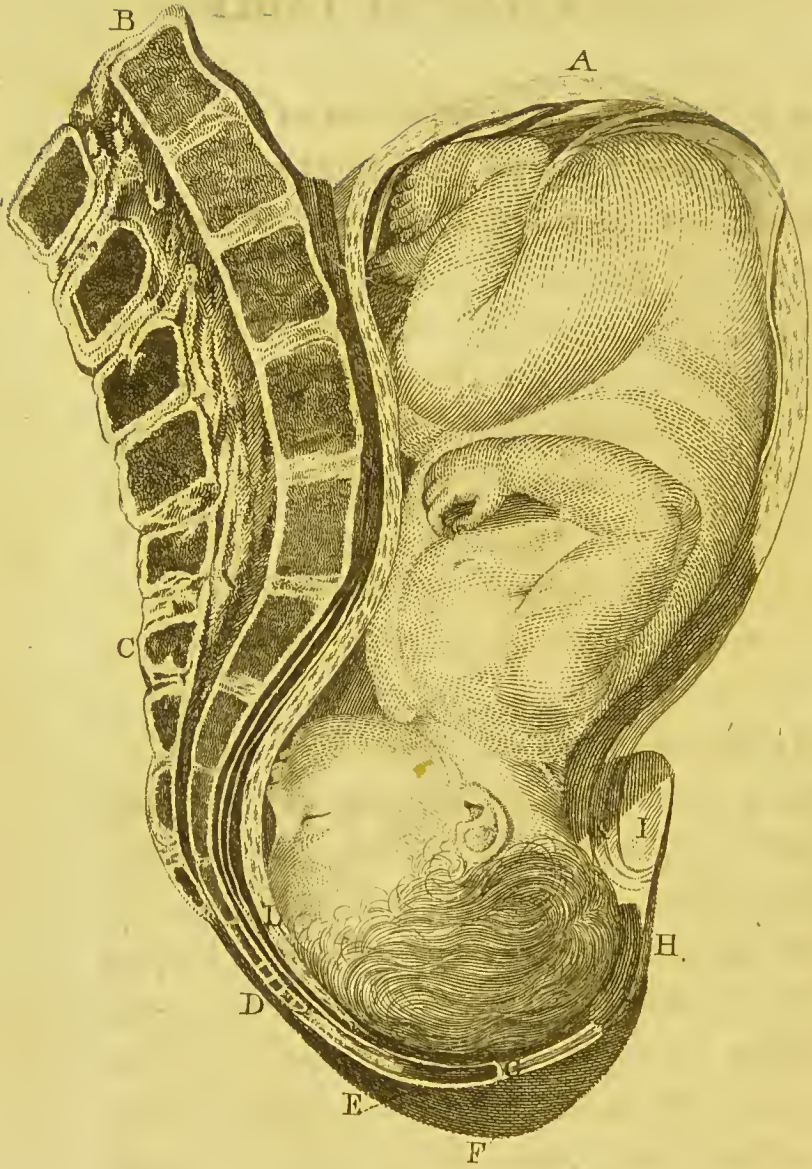
THE *vertex* of the *fœtus* being now down at the inferior part of the right *os ischiûm*, and the wide part of the head at the narrow and inferior part of the *pelvis*, the forehead by the force of the pains is gradually moved backwards; and as it advances lower, the *vertex* and *occiput* turn out below the *pubes*, as in the next Table. Hence may be learnt 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.

Vide Vol. I. Book I. Chap. 1. Sect. 3, 5. Also Book III. Chap. 3. Sect. 3, 4. N° 3. Vol. II. Coll. 14.

The first part of the report
 deals with the general
 situation of the country
 and the progress of
 the various branches of
 industry and commerce.
 It is found that the
 country is in a state of
 general prosperity and
 that the various branches
 of industry and commerce
 are all making rapid
 progress.

The second part of the
 report deals with the
 financial condition of
 the country. It is found
 that the public debt is
 increasing rapidly and
 that the government is
 unable to meet its
 obligations. It is
 recommended that the
 government should
 reduce its expenditure
 and increase its revenue
 in order to meet its
 obligations.

Plate XIV



A. Bell. Sculp.

THE FOURTEENTH TABLE,

IN a similar view and section of the parts with Table XII. shows the forehead of the *fœtus* turned [in its progression downwards, from its position in the former Table] 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 *ossa ischiûm*. 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 ischiûm*, turns out below the *pubes*; 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 tumor, as is more fully described in the following Table.

Vide Vol. I. II. as referred to in the preceding Table.

A the *uterus* contracted closely to the *fœtus* after the waters are evacuated.

B.C.D The *vertebræ* of the loins, *os sacrum*, and *coccyx*.

E The *anus*!

F The left hip.

G The *perinæum*.

H The *os externum* beginning to dilate.

I The *os pubis* of the left side.

K The remaining portion of the bladder.

L The posterior part of the *os uteri*.

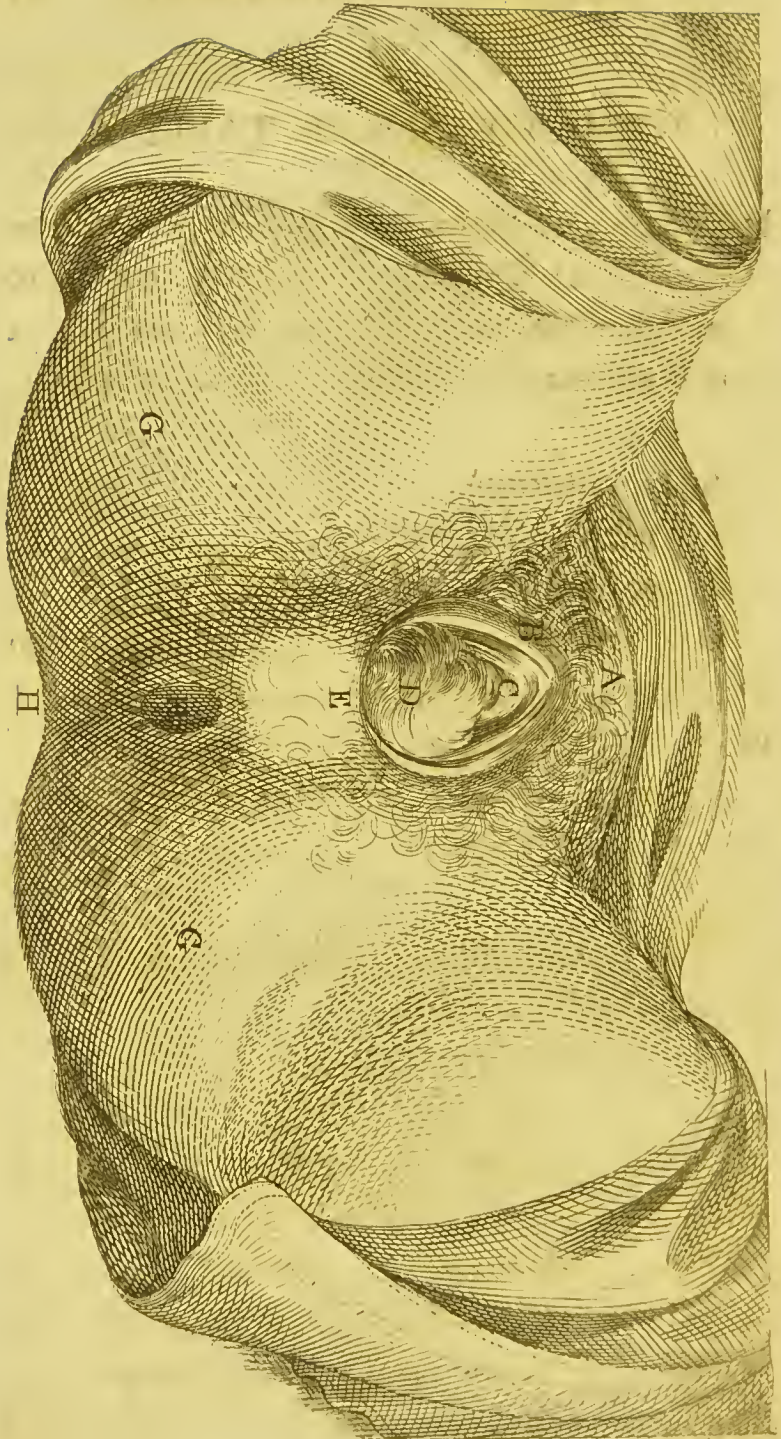
N. B. Although for the most part, at or before this period, the waters are evacuated, yet it often happens, that more or less will be retained, and not all discharged, till after the delivery of the child; occasioned from the presenting part of the *fœtus* coming into close contact with the lower or under part of the *uterus*, *vagina*, or *os externum*, immediately, or soon after the *membranes* break.

1875

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Plate XV.



J. Ball engraver

THE FIFTEENTH TABLE

Is intended principally to show in what manner the *Perinæum* and external parts are stretched by the head of the *Fætus* in a first pregnancy, towards the end of labour.

A The *abdomen*.

B The *labia pudendi*.

C The *clitoris* and its *præputium*.

D The hairy scalp of the *fætus* swelled at the *vertex*, in a laborious case, and protruded to the *os externum*.

E.F The *perinæum* and *anus* pushed out by the head of the *fætus* in form of a large tumor.

G.G The parts that cover the *tuberosities* of the *ossa ischiûm*.

H The part that covers the *os coccygis*.

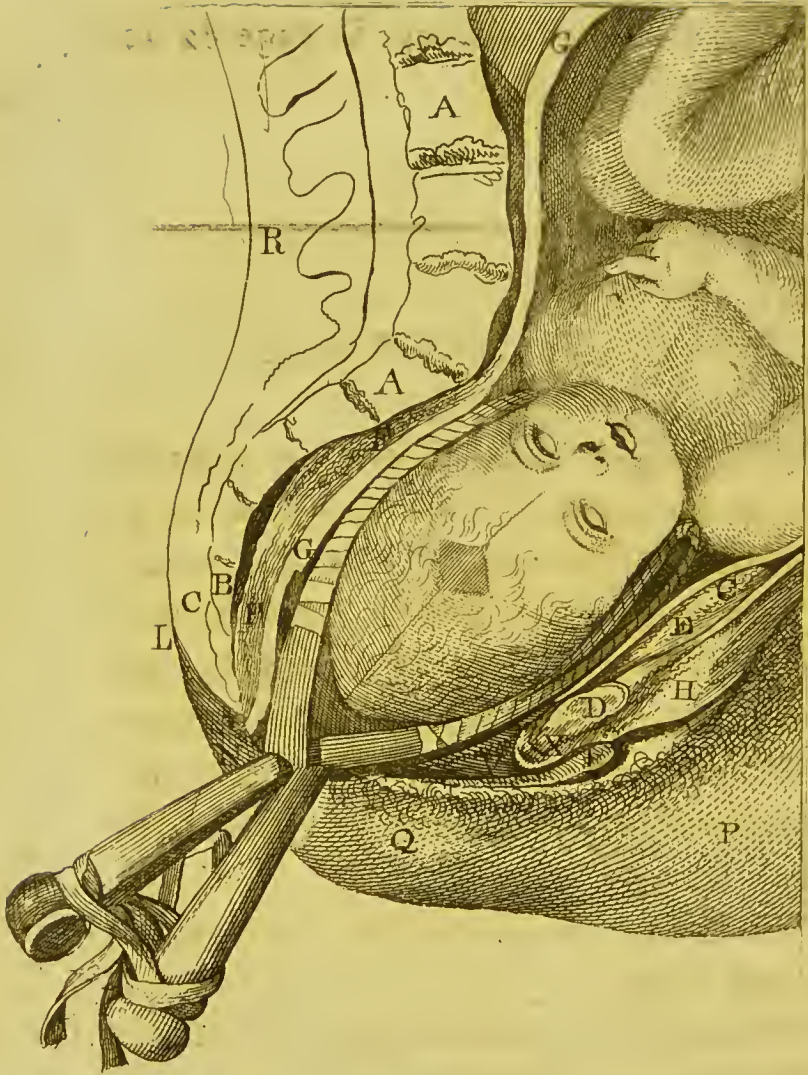
THE *perinæum* in this figure is stretched two inches, or nearly double its length in the natural state; but when the *os externum* is so much dilated by the head of the *fætus* as to allow the delivery of the same, the *perinæum* is generally stretched to the length of three, and sometimes

sometimes four inches. The *anus* is likewise lengthened an inch, the parts also between it and the *coccyx* being much distended. All this ought to caution the young practitioner never to precipitate the delivery at this time; but to wait, and allow the parts to dilate in a slow manner; as, from the violence of the labour-pains, the sudden delivery of the head of the *fœtus* might endanger the laceration of the parts. The palm of the operator's hand ought therefore to be pressed against the *perinæum*, that the head may be prevented from passing till the *os externum* is sufficiently dilated, to allow its delivery without tearing the *frænum*, and parts betwixt that and the *anus*, which are at this time very thin.

Vide Vol. I. Book III. Chap. 2. Sect. 2. Chap. 4. N° 1. and Book IV. Chap. 1. Sect. 1. Vol. II. Coll. 14, 24. Vol. III. Coll. 40. Also directions for the management of natural labour in Dr Hamilton's *Outlines of Midwifery*, page 207. and seq. and the *Judicious Observations and Directions* of Charles White, Esq; F. R. S. Manchester, 3d edition of his *Treatise on the Management of Pregnant* and

The first part of the year was spent in the
 study of the history of the country and
 the progress of the war. The second part
 was devoted to the study of the
 constitution and the principles of
 government. The third part was spent
 in the study of the principles of
 law and the history of the
 courts. The fourth part was spent
 in the study of the principles of
 equity and the history of the
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 courts. The tenth part was spent
 in the study of the principles of
 equity and the history of the
 courts.

Plate XVI



A Bell Sculp!

and Lying-in Women, Chap. V. page 82. to 113.

THE SIXTEENTH TABLE,

And the three following, show in what manner the Head of the *Fœtus* is helped along with the Forceps, as artificial hands, when it is necessary to assist with the same for the safety of either Mother or Child. In this Table the hand is represented as forced down into the *Pelvis* by the labour-pains, from its former position in Table XII.

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.F The *intestinum rectum*.

G.G.G The *uterus*.

H The *mons veneris*.

I The *clitoris*, with the left *nympha*.

X The *corpus cavernosum clitoridis*.

V The

V. The *meatus urinaris*.

K. The left *labium pudendi*.

L. The *anus*.

N. The *perinaeum*.

Q. P. The left hip and thigh.

R. The skin and muscular part of the loins.

THE patient in this case may be, as in this Table; on her side, with her breech a little over the side or foot of the bed, her knees being likewise pulled up to her belly, 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 Table XXI. or if by 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) till the whole hand can be introduced into the *vagina*, and slipped up in a flattish form between the posterior part of the *pelvis*

and child's head. This last is then to be raised up as high as is 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, the fingers are again to be introduced as before, and one of the blades of the forceps (lubricated with lard) is then to be applied along the inside of the hand or fingers, and left ear of the child, as represented in the Table. 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 hand that was introduced is then to be withdrawn, and the handle of the introduced blade held with it 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, the head is to be pulled lower and lower every pain, till the *vertex*, as in this Table, 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*, as in Table XVII. and afterwards the head brought along and delivered as in Table XVIII. and XIX. But if it is found that the delivery will require a considerable degree of force from the head's 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, as in Table XXIV. which is then more convenient
for

for delivering the head than when lying on the side.

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 Table shows 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*. When the forceps are applied along the ears and sides of the head, they are nearer to one another, have a better hold, and mark less than when over the *occipital* and *frontal* bones.

Vide Vol. I. Book III. Chap. 3. from Sect. 1. to 6. and Vol. II. Coll. 25, 26, 27, and 29.

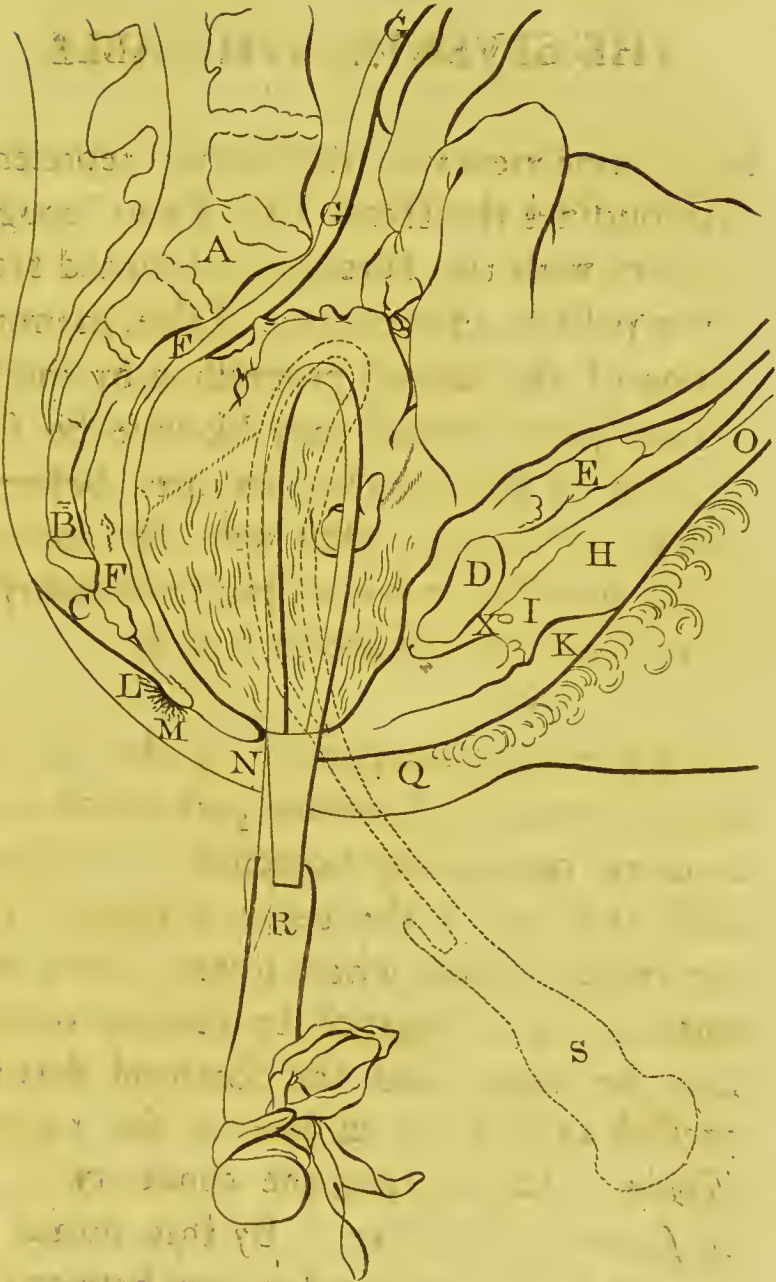
THE SEVENTEENTH TABLE,

In the same view with the former, represents in outlines the Head of the *Fætus* brought lower with the Forceps, and turned from the position in the former Table, in imitation of the natural progression by the labour-pains, which may likewise be supposed to have made this turn, before it was necessary to assist with the forceps, this necessity at last arising from many of the causes mentioned in Vol. I.

IN this view the position of the forceps, along the ears and narrow part of the head, is more particularly expressed. It appears also, that when the *vertex* is turned from the left *os ischiûm*, where it was closely confined, it is disengaged by coming out below the *pubes*, and the forehead that was pressed against the middle of the right *os ischiûm* is turned into the concavity of the *os sacrum* and *coccyx*. By this means the narrow part of the head is now between the *ossa ischiûm* or narrow part of the *pelvis*; and as the *occiput* comes out below the *pubes*,

the

Plate XVII.



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the head passes still easier along. When the head is advanced so low in the *pelvis*, if the position cannot be distinguished by the features, it may for the most part be known by feeling for the back part of the neck of the *fetus*, with a finger introduced betwixt the *occiput* and *pubes*, or towards one of the *groins*. If the head is squeezed into a longish form, as in Table XXI. and has been detained many hours in this position, the pains not being sufficient to complete the delivery, the assistance of the forceps must be taken to save the child, though the woman may be in no danger.

The assistance of the forceps must be taken to save the child, though the woman be in no danger. This may require a little explanation. The exact dimensions of a child's head cannot easily be ascertained before delivery; nor can it be known *how long* a labour may be protracted, without any material injury to the mother. The changes the head of the *fetus* suffers both in its figure and diminution of bulk, by compression, render it capable of passing in some cases where we would little expect it. On the contrary, when the head is but little advanced,

advanced, and wedged in the *pelvis*, the forceps are applied under obvious disadvantages; since it is well known to practitioners, that women suffer the *natural bruises* with more safety than those occasioned by the best constructed modern instruments, in the hands of the most skilful practitioners. The forceps, therefore, in general, should not be used, especially in the early part of a man's practice, except only on the most *urgent occasions*. And if the head is detained at the brim of the *pelvis*, as in the former Table, the case is *unfavourable* for the forceps.

See this important precaution further enforced, page 43. line 3.

This Table also shows that the handles of the forceps are still to be kept back to the *perineum*, and when in this position are in a line with the upper part of the *sacrum*, and if held more backwards, when the head is a little higher, would be in a line with the *scrobiculus cordis*. If the forceps are applied when the head is in this position, they are more easily introduced when the patient is in a supine position, as in Table XXIV. Neither is it necessary to tie the handles, which is only done to prevent their alteration

tion

tion when turning the woman from her side to her back.

As I have had several cases where a longer sort of forceps that are curved upwards are of great use to help along the head, when the body is delivered first, as in Tab. XXXV. the same are represented here by dotted lines. They may be used in laborious cases as well as the others, but are not managed with the same ease.

Most of the parts of this Table being marked with the same letters as the former, the descriptions there given will answer in this, except the following.

L.M The *anus*.

M.N The *perinæum*.

O The common *integuments* of the *abdomen*.

R The short forceps.

S The long curved forceps. The first of these is eleven inches long, and the last twelve inches and a half, which I have, after several alterations, found sufficient; but this need not confine others who may choose to alter them from this standard.

Vide Table XXXVII.

THE EIGHTEENTH TABLE,

In the same view and section of the parts, shows the Head of the *Fætus* in the same position, but brought lower down with the Forceps than in the former Table; for in this the *Os Externum* is more open, the *Occiput* comes lower down from below the *Pubes*, and the forehead past the *Coccyx*, by which both the *Anus* and *Perinæum* are stretched out in form of a large tumour, as in Table XV,

WHEN the head is so far advanced, the operator ought to extract with great caution, lest the parts should be torn. If the labour-pains are sufficient, the forehead may be kept down, and helped 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

Plate XVIII

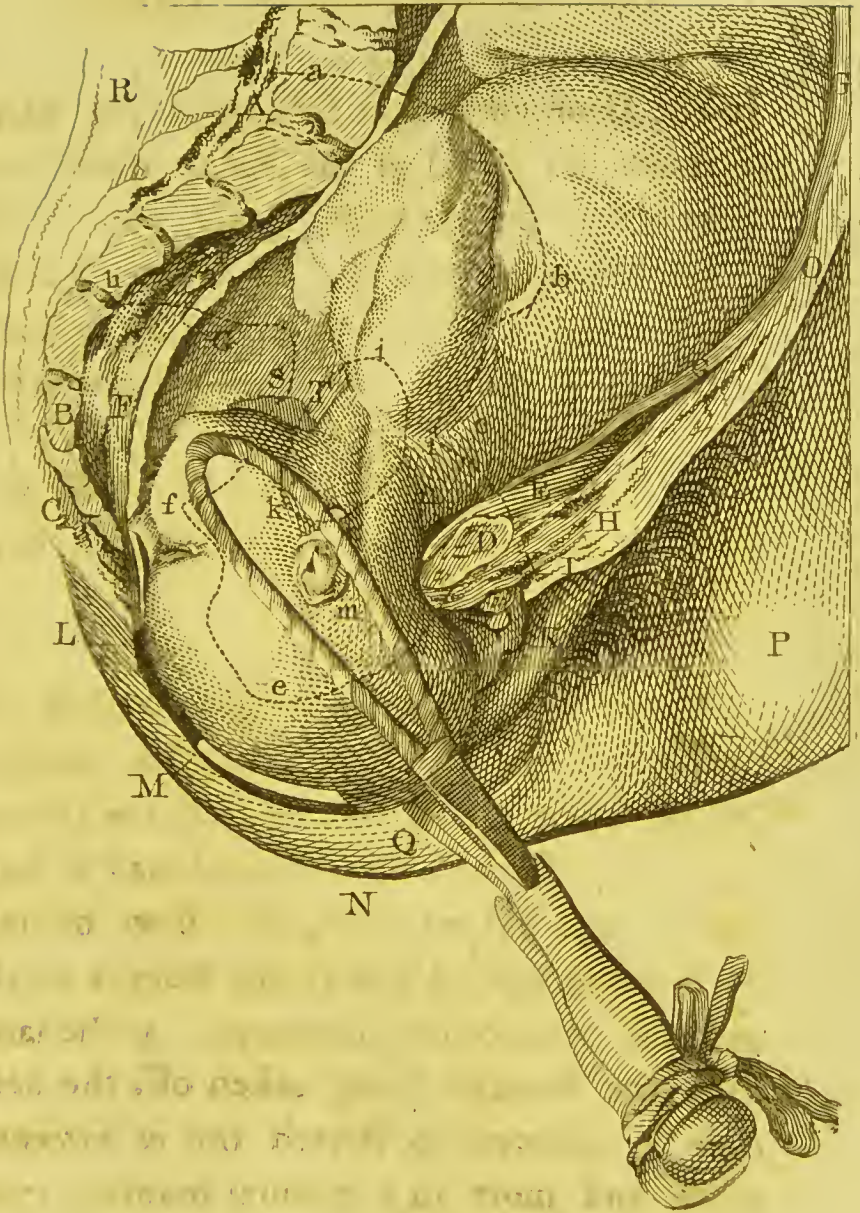






Plate XIX.



J. B. S. Sculp.

are weak and insufficient, the assistance of the forceps must be continued. [*Vide* the description of the parts in Table XVI.] S.T, in this, represent the left side of the *os uteri*. The dotted lines demonstrate the situation 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 out-lines of the *os iliūm*.

D.e.f The same of the *pubis* and *ischium*.

i.i.k The *acetabulum*. And

m.n The *foramen magnum*.

Vide Vol. I. Book III. Chap. 5. Sect. 3.
Vol. II. Coll. 25.

THE NINETEENTH TABLE,

In the same view and section of the *pelvis*, is intended by outlines to show, that as the external parts are stretched, and the *os externum* is dilated, the *occiput* of the *fœtus* rises

G up

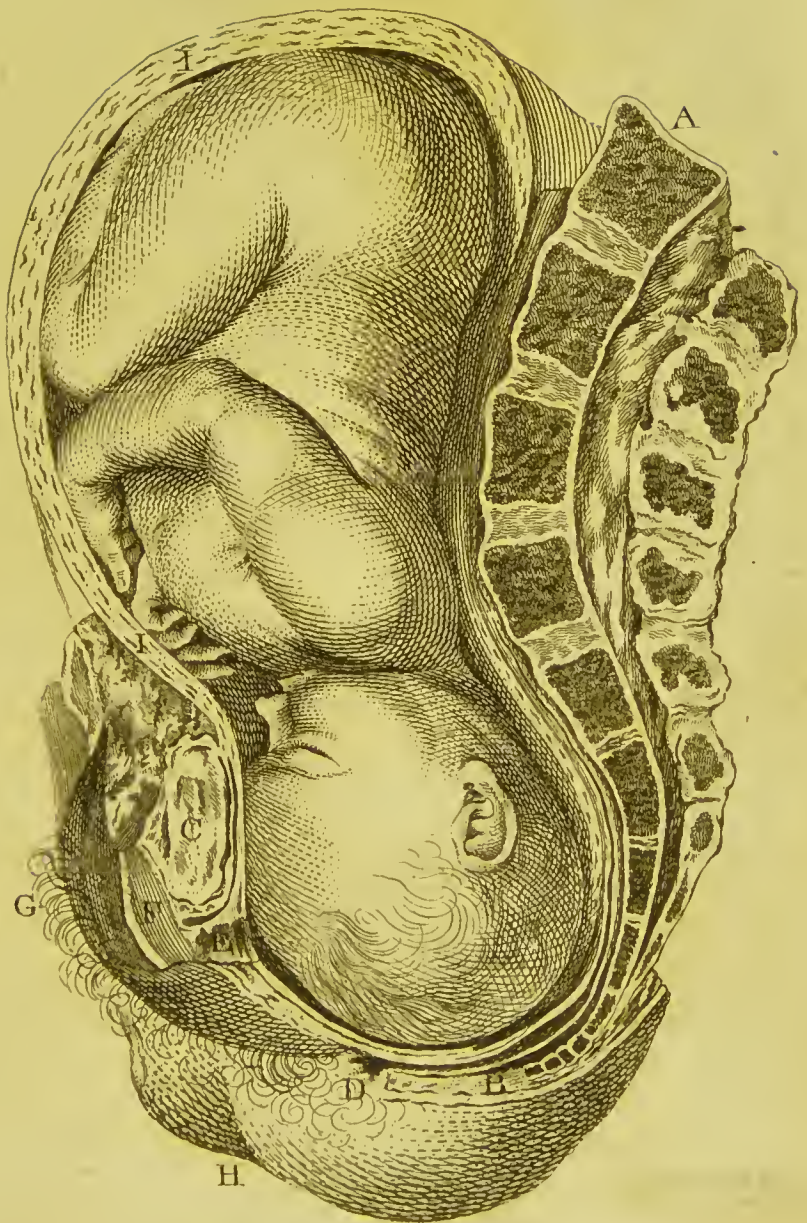
up with a semicircular turn from out below the *pubes*, the under part of which bones are as an axis, or fulcrum, on which the back part of the neck turns, whilst at the same time the forehead and face, in their turn upwards, distend largely the parts between the *coccyx* and *os externum*. This is the method observed by nature in stretching these parts in labour; and as nature is always to be imitated, the same method ought to be followed when it is necessary to help along the head with the forceps.

Vide the three former Tables for the descriptions and references.

THE TWENTIETH TABLE,

In the same section of the parts, but with a view of the right side, shows the Head of the *Fœtus* in the contrary position to the three last figures, the *Vertex* being here in the concavity of the *Sacrum*, and the Forehead turned to the *Pubes*.

Plate XX.



A. Bell. sculp.

A.B The *vertebræ* of the loins, *os sacrum*, and *coccyx*.

C The *os pubis* of the right side.

D The *anus*.

E The *os externum* not yet begun to stretch.

F The *nympha*.

G The *labium pudendi* of the right side.

H The 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 form of a large tumor, as in Table XV. till the face comes down below the *pubes*, when the head will be safely delivered. But if the same be large, and the *pelvis* narrow, the difficulty will be greater, and the child in danger; as in the following Table.

Vide Vol. I. Book III. Chap. 3. Sect. 4. N° 3. Vol. II. Coll. 16. N° 2.

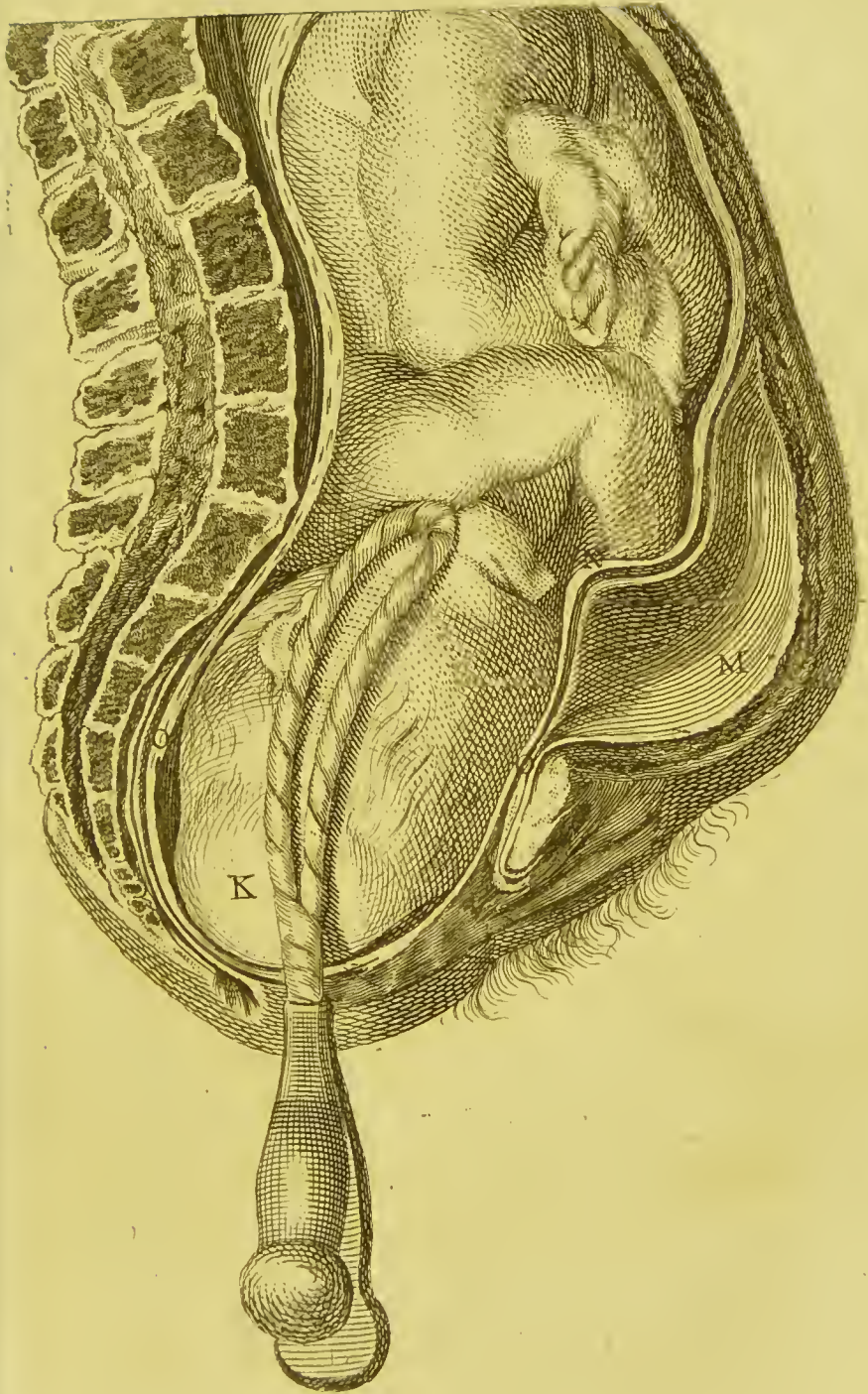
THE TWENTY-FIRST TABLE

Shows the Head of the *Fœtus* in the same position as in the former Table; but, being much larger, it is by strong labour-pains squeezed into a longish form with a Tumor on the *Vertex*, from the long compression of the head in the *Pelvis*. If the Child cannot be delivered with the labour-pains, or turned and brought footling*, the Forceps are to be applied on the head, as described in this figure, and brought along as it presents; but if that cannot be done without running the risk of tearing the *Perinæum*, and even the *Vagina* and *Rectum* of the Woman, the Forehead must be turned backwards to the *Sacrum*. To do this more effectually, the Operator must grasp firmly with both hands the handles of the Forceps, and at the same time pushing upwards raise the Head as high as possible, in order to turn the

the

* *Turning*, when the head is so far advanced in the pelvis, and of a more than usual size, is a *dreadful* practice, and should never be attempted.

Plate XXI



A. Bell Sculp.

the Forehead to one side, by which it is brought into the natural position; this done, the Head may be brought down and delivered as in Table XVI. &c.

Vide Vol. I. Book III. Chap. 3. Sect. 4. N^o 2. and Vol. II. Coll. 28. Also the former Table for the description of the parts, except

K The tumor on the *vertex*. The same compression and elongation of the head, as well as the tumor on the *vertex*, may be supposed to happen in a greater or less degree in the XVI. XVII. XVIII. XIX. Tables, as well as in this, where the difficulty proceeds from the head being large, or the *pelvis* narrow. *Vide* Tables XXVII. and XXVIII.

L The forceps. Sometimes the forehead may be moved to the natural position by the assistance of the fingers, or only *one blade* of the forceps.

N. B. Though the use of a single blade of the forceps, or the simple lever, is still retained in practice, and in a few particular cases may be employed in preference to the double lever, the application is more difficult, more slight and professional judgment

ment are necessary in the management, and the two bladed forceps can be employed with more safety and equal success, in general, by young practitioners. The forceps may either be the straight kind, or such as are curved to one side, when it is necessary to use one or both blades.

M The *vesica urinaria* much distended with a large quantity of *urine* from the long pressure of the head against the *uræthra*; which shows, that the *urine* ought to be drawn off with a *catheter*, in such extraordinary cases, before you apply the forceps, or in preternatural cases where the child is brought footling.

N The under part of the *uterus*.

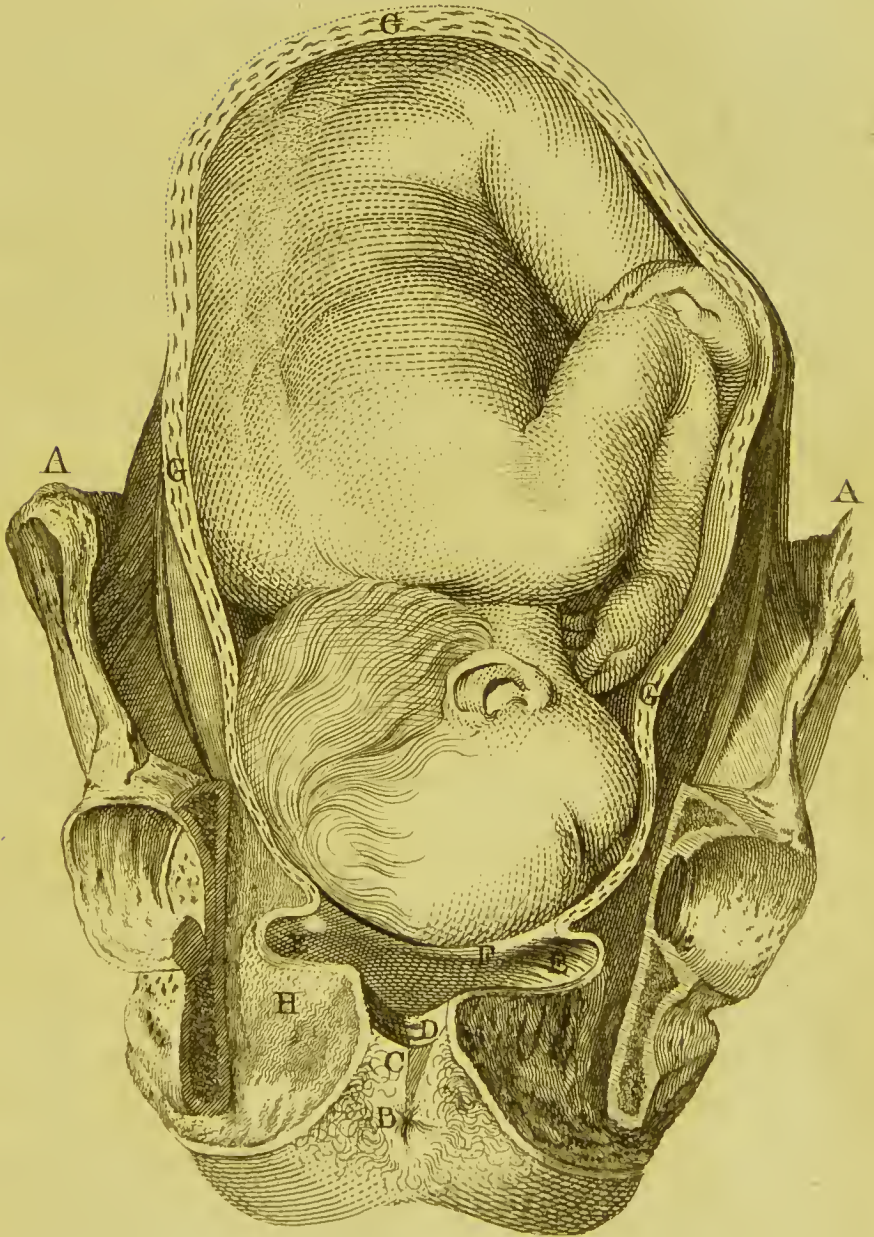
O.O The *os uteri*.

THE TWENTY-SECOND TABLE

Shows, in a front view of the parts, the Fore-head of the *Fætus* presenting at the brim of the *Pelvis*, the Face being turned to

one

Plate XXII



A Bell Sculp.

one side, the *Fontanelle* to the other, and the Feet and Breech stretched towards the *Fundus Uteri*.

A.A The superior part of the *ossa 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 child.

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 come along in this manner ; in which case the *vertex* will be flattened, and the forehead raised in a conical form ; and when the head comes down to the lower part of the *pelvis*, the face or *occiput* will be turned from the side, and come out below 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 they

they should fail, recourse must be had to *embryulcia*.

Vide Vol. I. Book III. Chap. 2. Sect. 3.
Chap. 3. Sect. 4. N° 3. Vol. II. Coll. 16. N° 4.
Coll. 28.

THE TWENTY-THIRD TABLE .

Shows, 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 likewise being all discharged, the *Uterus* appears closely joined to the body of the Child, round the neck of which is one circumvolution of the *Funis*.

A.B The *vertebræ* of the loins, *os sacrum*, and *coccyx*.

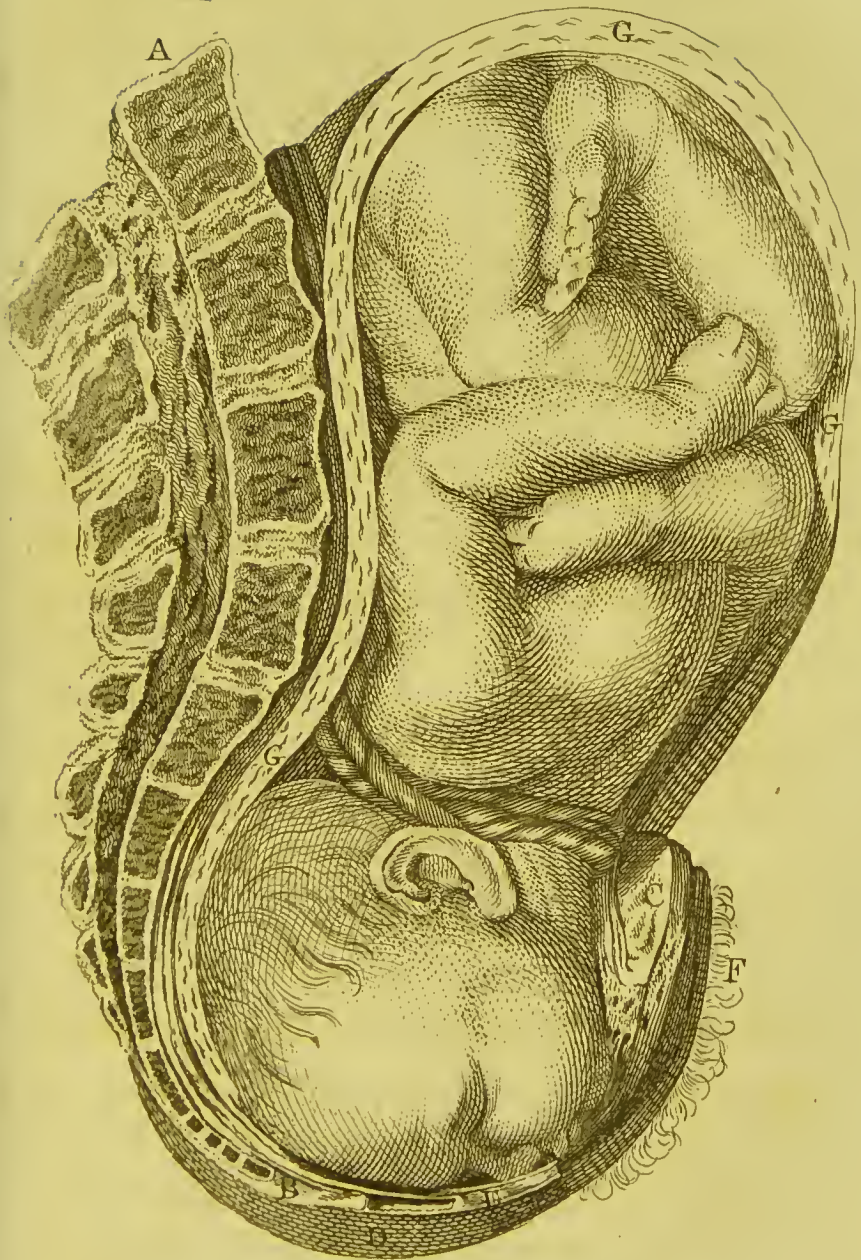
C The *os pubis* of the left side.

D The inferior part of the *rectum*.

E The *perineum*.

F The

Plate XXIII



PHYSICS DEPARTMENT

CHICAGO, ILL.

Dear Sir,

I have the pleasure to inform you that your application for admission to the Ph.D. program in Physics has been reviewed and approved by the Department. You are hereby admitted to the program for the fall semester of 1957.

Your proposed advisor, Professor [Name], has agreed to accept you as a student. You should contact him at his office, [Address], to discuss the details of your program.

You should also contact the Registrar's Office, [Address], to complete the necessary administrative procedures for enrollment.

Very truly yours,
 [Signature]

F The left *labium pudendi*.

G.G.G The *uterus*.

WHEN the *pelvis* is large, the head, if small, will come along in this position, and the child be saved: for, as the head advances lower, the face and forehead will stretch the parts between the *frænum labiorum* and *coccyx* in form of a large tumor. 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*, turn up 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 child ought to be turned, and delivered footling.

See *N. B.* at the end of explanation of Table XXV. p. 61.

If the *pelvis*, however, is narrow, and the waters not all gone, the *vertex* should, if possible, be brought to present; but if the *uterus* is so closely contracted that this cannot be effected, on account of the strong

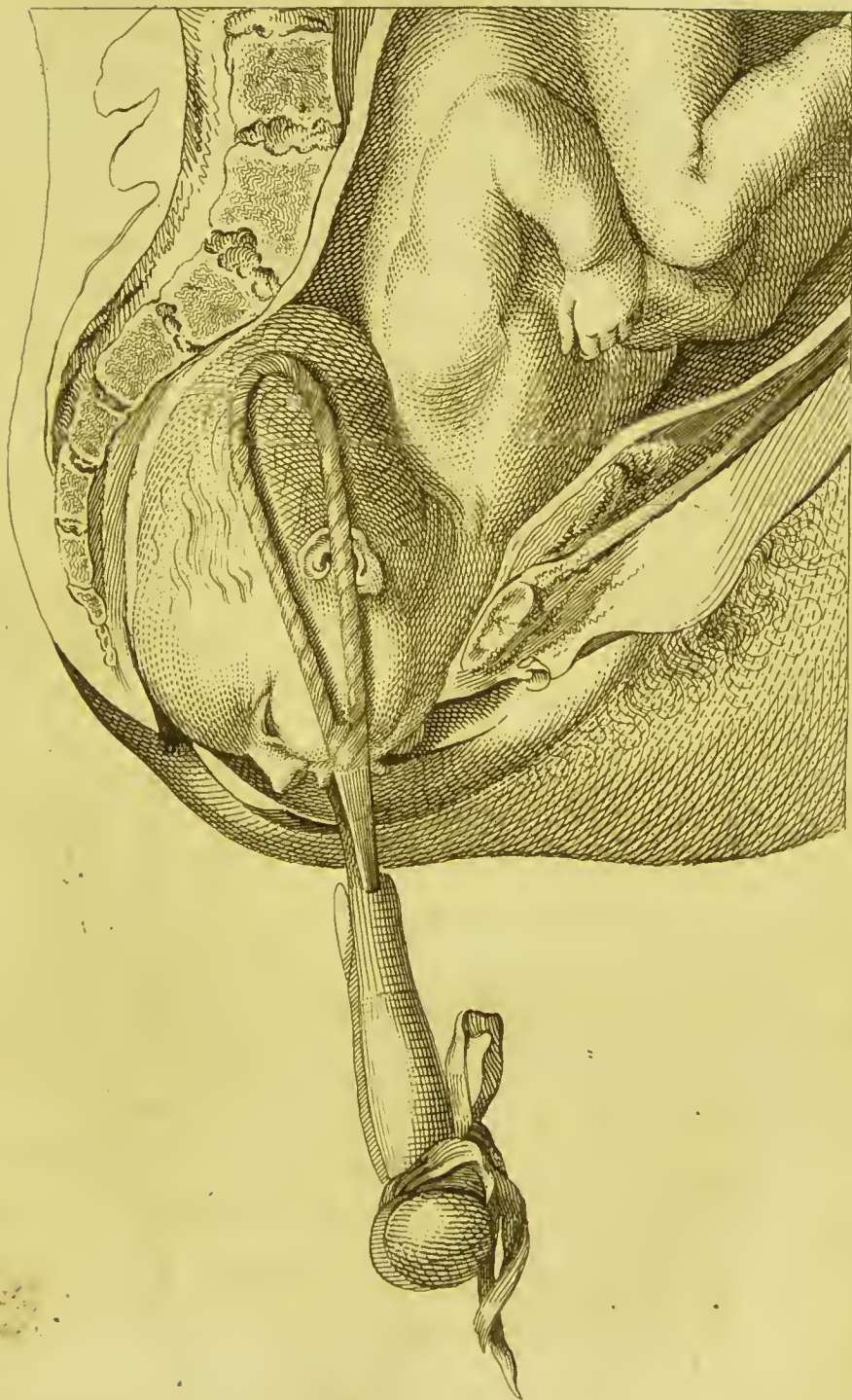
pressure of the same, and slipperiness of the child's head, in this case the method directed in the following Table is to be taken.

THE TWENTY-FOURTH TABLE

Represents, in the lateral view, the Head of the *Fœtus* in the same position as in the former Table; but the delivery is supposed to be retarded from the largeness of the head, or a narrow *Pelvis*.

IN this case, if the head cannot be raised, and pushed up into the *uterus*, it ought to be delivered with the forceps, in order to save the child. This position of the chin to the *pubes* is one of the safest cases where the face presents, and is most easily delivered with the forceps; the manner of introducing of which over the ears is shown in this Table. The patient must lie on her back, with her breech a little over the bed, her legs and thighs

Plate XXIV



A. Bell Sculp.

thighs being supported by an assistant sitting on each side. After the parts have been slowly dilated with the hand of the operator, and the forceps introduced, and properly fixed along the ears of the child, the head is to be brought down by degrees, that the parts below the *os externum* may be gradually stretched: the chin then is to be raised up over the *pubes*, whilst the forehead, *fontanelle*, and *occiput*, are brought out slowly from the *perinæum* and *fundament* to prevent the same from being hurt or lacerated. But if the *fœtus* cannot be extracted with the forceps, the delivery must be left to the labour-pains, as long as the patient is in no danger; but if the danger is apparent, the head must be delivered with the curved crotchets. *Vide* Table XXXIX.

When the face presents, and the chin is to the side of the *pelvis*, the patient must lie on her side; and after the forceps are fixed along the ears, the chin is to be brought down to the lower part of the *os ischiûm*, and then turned out below the *pubes*, and delivered in a slow manner as above.

Vide Vol. II. Coll. 16. N° 6. as also Tables XVI.

XVII. XVIII. and XIX. for the description of the parts,

THE TWENTY-FIFTH TABLE

Shows, in a lateral view of the right side, the Face of the *Fœtus* presenting, as in Table XXIII. but in the contrary position; that is, with the chin to the *Os Sacrum*, and the *Bregma* to the *Pubes*, the Waters evacuated, and the *Uterus* contracted.

A The *os externum* not yet begun to stretch.

B The *anus*. *Vide* Table XX. for the further description of the parts.

IN such cases, as well as in those of the last-mentioned Table, if the child 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



B

A. Bell Sculp.

The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

The second part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

The third part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

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The eighth part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

The ninth part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

The tenth part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is determined by the laws of quantum mechanics.

below the *pubes*, and rises up on the outside; 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 child. To prevent which, if called in time, before the head is far advanced in the *pelvis*, the child ought to be turned, and brought footling. 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, or as in the following Table. See the references in the preceding Table.

N. B. Alarming floodings only excepted, it is bad practice to turn the child when *the head presents*; and, in cases of *relative disproportion* between it and the pelvis, we can never propose to save the child by *turning*.

See note Table XXI. p. 52.

THE TWENTY-SIXTH TABLE

Represents, by outlines, in a lateral view of the left side of the subject, the *Fœtus* in the same situation as in the former Table.

THE head here is squeezed into a very oblong form; and though forced down so as fully to dilate the *os externum*, yet the *vertex* and *occiput* cannot be brought so far down, as to turn out from below the *pubes* (as in the foregoing Table), without-tearing the *perinæum* and *anus*, as well as the *vagina* and *rectum*.

The best method in this case, after either the short or long curved forceps have been applied along the ears (as represented in the Table), is to push the head as high up in the *pelvis* as is possible; after which the chin is to be turned from the *os sacrum* to either *os ischiûm*, and afterwards brought down to the inferior part of the last-mentioned bone. This done, the operator must pull the forceps with one hand, whilst



two fingers of the other are fixed on the lower part of the chin or under-jaw, to keep the face in the middle, and prevent the chin from being detained at the *os ischiūm*, as it comes along; and in this manner move the chin round with the forceps, and the above fingers, till brought under the *pubes*; which done, the head will be easily extracted, as in Table XXIV.

If, before assistance has been called, the head is so squeezed down into the *pelvis*, that it is impossible to move the chin from the *sacrum* to either *os ischiūm*, so as to deliver with the forceps for the safety of the child, the operator must wait with patience, as long as the woman is not in danger, or there is no certainty of the death of the *fœtus*: but if the patient runs the least risk, the head must be delivered with the crotchet.

In general, with respect to the posture of the woman in the application of the forceps, when the ears are to the sides of the *pelvis*, the forceps, as was observed in Table XXIV. are most easily introduced when the patient lies upon her back, and her breech over the side of the bed; but when the ear is to the
pubes

pubes or *groin*, they are better applied when the patient lies on her side, as was observed in the cases where the *vertex* presented.

Vide Table XXIV, for the description of the parts, and the references. Also Table XXXIX, for the manner of using the crotchet. See also *general rules* for using the forceps in Dr *Hamilton's* Outlines of Midwifery, p. 269, and seq. and Dr *Denman's* Aphorisms on laborious and preternatural presentation.

THE TWENTY-SEVENTH TABLE

Gives a lateral internal view of a distorted *Pelvis*, divided longitudinally, with the Head of a *Fœtus* of the seventh month passing the same. *Vide* the Explanation of Table III.

A.B.C The *os sacrum* and *coccyx*.

D The *os pubis* of the left side.

E The *tuberosity* of the *os ischium*, of the same side.

Plate XXVII



THE head of the *fœtus* here, though small, is with difficulty squeezed down into the *pelvis*, and changed from a round to an oblong form before it can pass, there being only the space of two inches and one quarter between the projection of the superior part of the *sacrum* and the *ossa pubis*. If the head is soon delivered, the child may be born alive: but if it continues in this manner many hours, it is in danger of being lost, on account of the long pressure on the brain. To prevent which, if the labour-pains are not sufficiently strong, the head may be helped along with the forceps, as directed in Table XVI.

Dr Osburn has endeavoured to prove, “ that the fœtal head, at full maturity, cannot bear compression to a volume much smaller than three inches, from one parietal bone to the other, consistently with safety to the child’s life.” He therefore concludes: “ Thro’ a *pelvis* which has its cavity so contracted, that the bones approach nearer to each other than three inches, it is utterly impossible for a living
I “ child,

“ child, at full maturity, by any means to
 “ pass.”

See Dr Osburn's Essay on Laborious Parturition, p. 28. et seq.

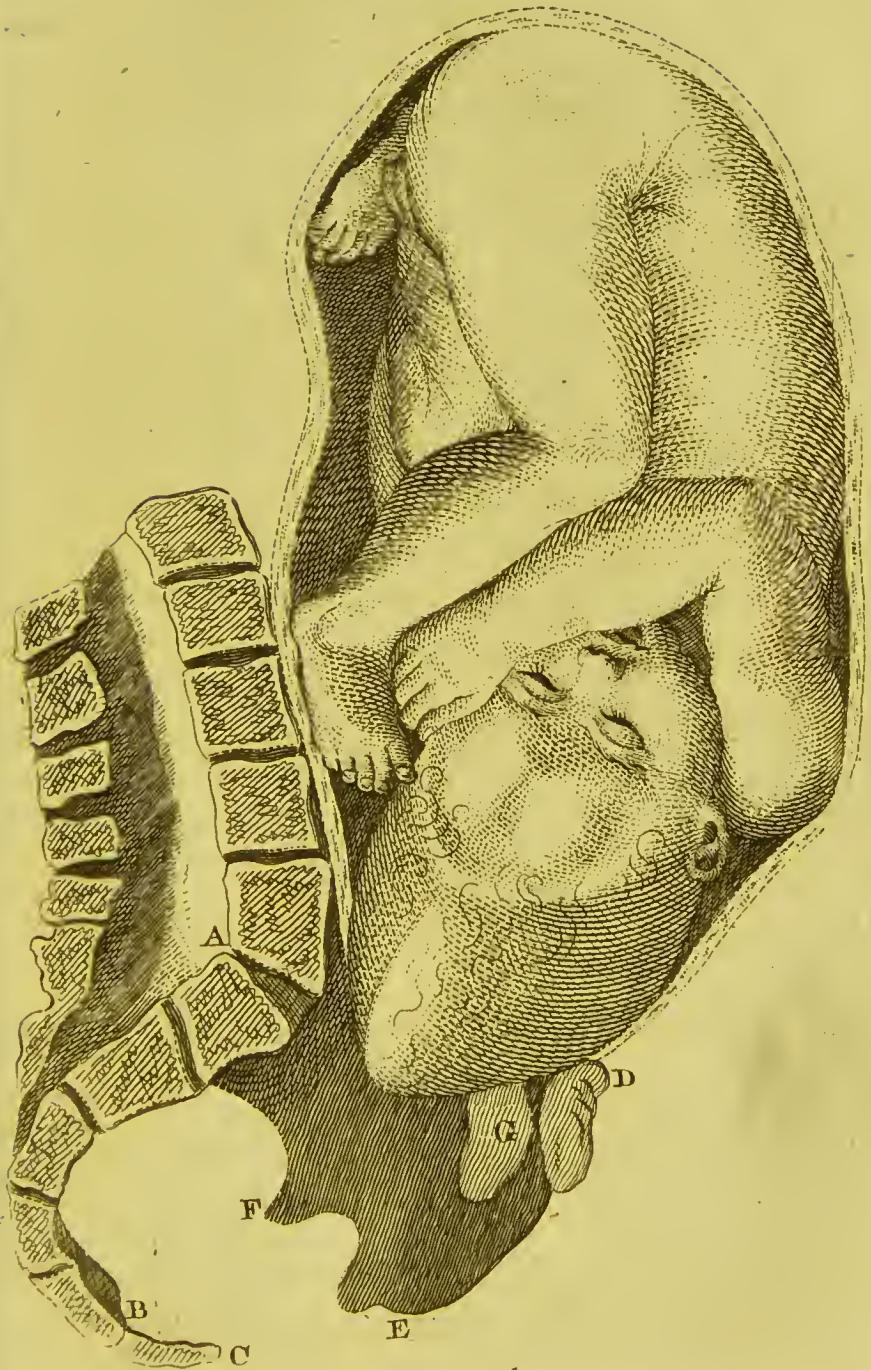
This figure may serve as an example of the extreme degree of distortion of the *pelvis*, between which and the well-formed one are many intermediate degrees, according to which the difficulty of delivery must increase, or diminish, as well as from the disproportion of the *pelvis* and head of the *fœtus*; all which cases require the greatest caution, both as to the management and safety of the mother and child.

Vide Vol. I. Book III. Chap. 2. Sect. 3. N° 5. Chap. 3. Sect. 4. N° 3. Vol. II. Coll. 21. N° 1. and Coll. 29.

THE TWENTY-EIGHTH TABLE

Gives a side-view of a distorted *Pelvis*, as in the former Table, with the Head of a full-grown

Plate XXVIII



A. Bell Sculp.

grown *Fætus* squeezed into the Brim, the *Parietal* Bones decussating each other, and compressed into a conical form.

- A.B.C The *os sacrum* and *coccyx*.
 D The *os pubis* of the left side.
 E The *tuberosity* of the *os ischium*.
 F The *processus acutus*.
 G The *foramen magnum*.

THIS Table shows the impossibility in such a case to save the child, unless by the *Cæsa-rian* operation; which, however, ought never to be performed, excepting when it is impracticable to deliver at all by any other method. Even in this case, after the upper part of the head is diminished in bulk, and the bones are extracted, the greatest force must be applied in order to extract the bones of the face and basis of the skull, as well as the body of the *fætus*.

Vide Vol. I. Book III. Chap. 3. Sect. 7. Chap. 5. Sect. 3. and Vol. III. Coll. 31. 39.

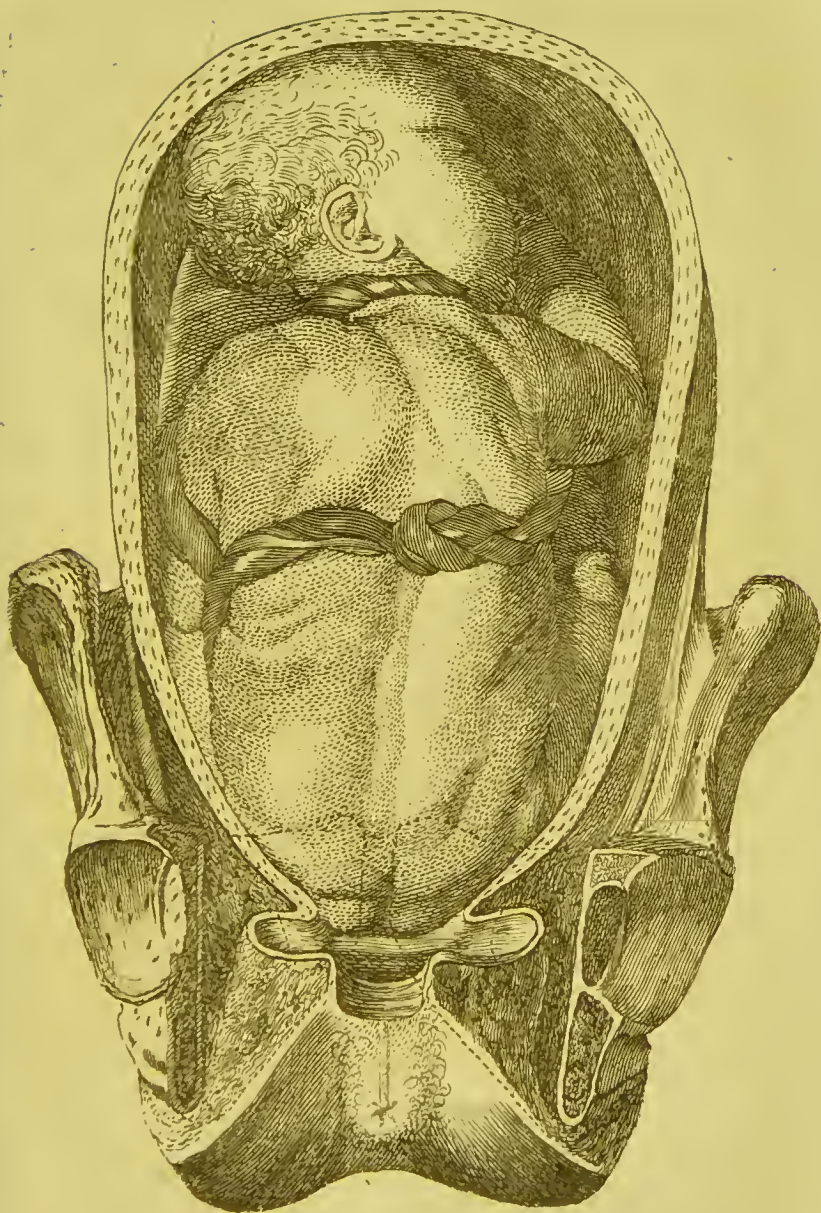
N. B. In opposition to the opinion of Dr Smellie, and sentiments of former authors, Dr Osborn has proved, from the case of Eli-

fabeth Sherwood, that “ a child at full maturity may be extracted by the crotchet through a *pelvis* whose aperture does not exceed one inch and a half from *pubes* to *sacrum*, with tolerable facility to the operator, and perfect safety to the mother; dimensions much less than what have been supposed to require the *Cæsarian* operation, even in the latest and best books.” Essay on Laborious Parturition, p. 64.—251.&c.

THE TWENTY-NINTH TABLE

Represents, in a front view of the *Pelvis*, as in Table XXII. the Breech of the *Fætus* presenting, and dilating the *Os Internum*, the *Membranes* being too soon broke. 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 and the following Tables were engraved, Dr *Kelly* showed me



a subject he had opened, where the breech presented itself, and lay much in the same position with its body as in the ninth Table, supposing the breech in that figure turned down 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 private parts 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 private parts to the *sacrum*, as in this Table; though sometimes to the *pubes*, as in the following Table. As soon as the breech advances to the lower part of the basin, the hips again return to their former position, *viz.* one hip turned out below the *os pubis*, and the other at the back parts of the *os externum*.

N. B. In this case the child, 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 of the *funis* may obstruct

struct the circulation. In most cases where the 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 stretched before with the waters and *membrales*. 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 open the parts, 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 directed in Table XXXVII. As soon as the breech or legs are brought down, the

the

the body and head are to be delivered as described in the next Table, only there is no necessity here to alter the position of the child's body.

Vide Vol. I. Book III. Chap. 4. Sect. 1, 2. Vol. III. Coll. 32.

The description of the parts in this, and the following Table, is the same as in Table XXII. only the dotted lines in this describe the place of the *ossa pubis*, and anterior parts of the *ossa ischiūm* which are removed, and may serve in this respect as an example for all the other front views, where, without disfiguring the Table, they could not be so well put in.

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.

THE THIRTIETH TABLE

SHOWS, in the same view, and with the same references as the former, the breech of the *fœtus* presenting; with this difference, however, that the fore parts of the child are to the fore part of the *uterus*. In this case, when the breech coming double as it presents is brought down to the hams, the legs must be extracted, a cloth wrapped round them, and the fore parts of the child turned to the back parts of the woman. If a pain should in the mean time force down the body of the child, it ought to be pushed up again in turning, as it turns easier when the belly is in the *pelvis*, than when the breast and shoulders are engaged; and as sometimes the face and forehead are rather towards one of the groins, a quarter turn more brings these parts to the side of the *pelvis*, and a little backwards, after which the body is to be brought down. If the child is not large, the arms need not be brought down, and the head may be delivered by pressing back the shoulders and body

Plate XXX.



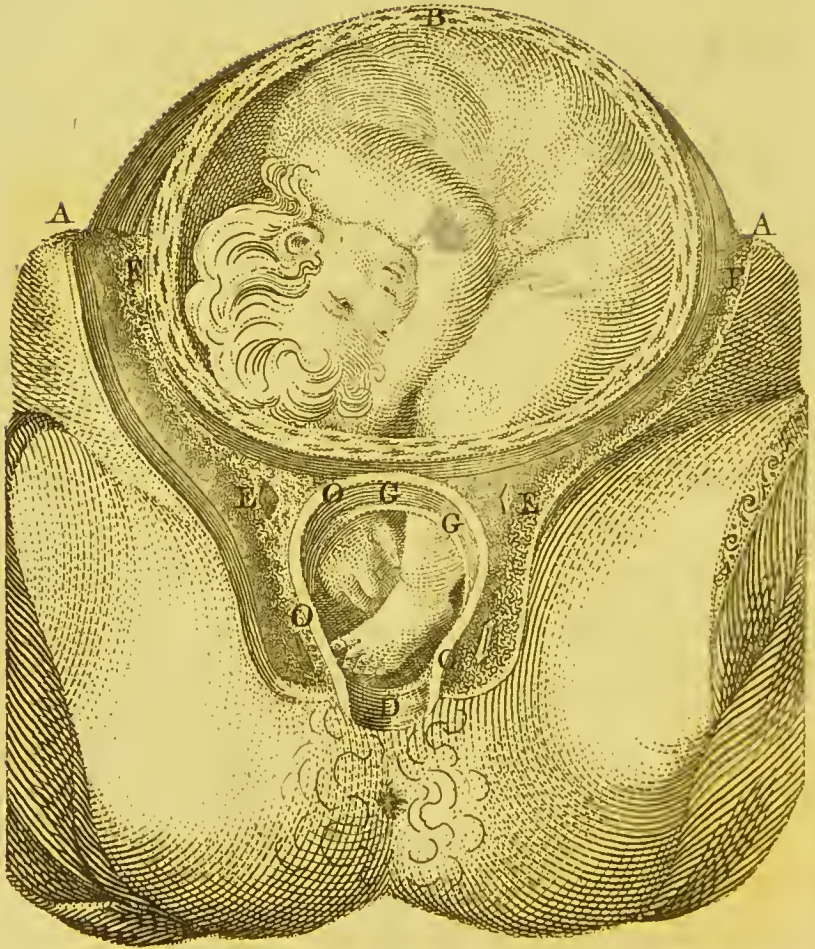
A Bell, sculp. to

of the child to the *perinæum*, and whilst the chin and face are within the *vagina*, to bring the *occiput* out from below the *pubes*, according to *Daventer's* method. Or the operator may introduce a finger or two into the mouth, or on each side of the nose, and, supporting the body on the same arm, fix two fingers of the other hand over the shoulders, on each side of the child's neck, and in this manner raise the body over the *pubes*, and bring the face and forehead out with a semicircular turn upwards, from the under part of the *os externum*. All this may be easily done when the woman lies on her side; but if the child is large, and the *pelvis* narrow, it is better to turn the patient on her back, as described in Table XXIV.; and after the legs and body are extracted as far as the shoulders, the arms are to be cautiously brought down, and the head delivered. If the woman has strong pains, and when by the felt pulsation of the vessels of the *funis umbilicalis*, or the struggling motions of the *fœtus*, it is certain that the child is still alive, wait with patience for the assistance of the labour: but if that and the hand

are insufficient, and the pulsation of the *funiculus* turns weaker, and if the child cannot be brought double, the breech must be pushed up; and if the resistance of the *uterus* is so great as to prevent the extraction of the legs, the patient ought to be turned on her knees and elbows. When the legs are thus brought down, the woman, if needful, is to be again turned to her back, to allow more freedom to deliver the body and head, as before described. If the head, after several trials, cannot be delivered, without endangering the child, from overstraining the neck, the long curved forceps ought to be applied, as in Table XXXV. If these fail, and the patient is not in danger, some time may be allowed for the effect of the labour pains; which likewise proving insufficient, the crotchet must be used as in Table XXXIX. and when it is certain that the child is dead, or that there is no possibility of saving it.

N. B. Under proper management, if there is no considerable relative disproportion between the head and the *pelvis*, the hand of the operator will be sufficient to relieve the head (when retained after the delivery of the
the

Plate XXXL



A. Bell. Sculp.²

the body) in breech, and other preternatural presentations. See Dr *Hamilton's* Outlines of Midwifery, page 366. to 368.

THE THIRTY-FIRST TABLE

Represents, in a front view of the *Pelvis*, the *Fætus* compressed by the contraction of the *Uterus* into a round form, the fore-parts of the former being towards the inferior part of the latter, and one Foot and Hand fallen down into the *Vagina*. In this figure the anterior part of the *Pelvis* is removed by a longitudinal section through the middle of the *Foramen Magnum*.

A.A The superior parts of the *ossa ilium*.

B.B The *uterus*.

C The mouth of the *womb* stretched, and appearing in

O.O.O.O The *vagina*.

D The inferior and posterior part of the *os externum*.

E.E.E.E The remaining part of the *ossa pubis* and *ischium*.

F.F.F.F The *membrana adiposa*.

THIS and the three following Tables, representing four different preternatural positions of the *fœtus in utero*, may serve as examples for the manner of delivery in these as well as in all other preternatural cases.

In all preternatural cases, the *fœtus* may be easily turned and delivered by the feet, if known before the *membranes* are broke, and the waters discharged; or if the *pelvis* is narrow, and the patient is strong, the head, if large, may be brought down so as to present in the natural way: but if all the waters are discharged, and the *uterus* is strongly contracted to the body of the *fœtus*, this last method can seldom take place, on account of the strong pressure of the *uterus*, and slipperiness of the child's head.

In the present case, the woman may either be laid on her back or side, as described in Tables XVI. and XXIV. and the operator, having slowly dilated the *os externum* with his fingers, must introduce the same into the

vagina,

vagina, and push up into the *uterus* the parts of the *fœtus* that present; or if there is space for it, his hand may pass in order to dilate the *os internum* if not sufficiently stretched previously by the *membranes* and waters. This done, he must advance his hand into the *uterus*, to know the position of the *fœtus*; and, as the breech is rather lower than the head, search for the other leg, and bring down both feet without the *os externum*. A cloth must then be wrapped round them; and, having grasped them with one hand, he is to introduce the other into the *uterus*, in order to raise the head of the *fœtus*, whilst the legs and thighs are pulled down by the hand that holds the feet. When the head is raised, and does not fall down again, the hand of the operator may be withdrawn from the *uterus*, and the delivery completed as directed in the two former Tables. By the artless method of taking hold and pulling one or both feet, the breech may come down and the head rise to the *fundus*; but if this should not happen, there will be great danger of overstraining the *fœtus*, which is prevented by the former method. If the

membranes are broken before the *os uteri* is largely opened, and the hand of the operator cannot be introduced, which sometimes happens in a first pregnancy, the parts of the *fœtus* should be allowed to protrude still further, by which means the rigidity of the *os internum* will in time be lessened.

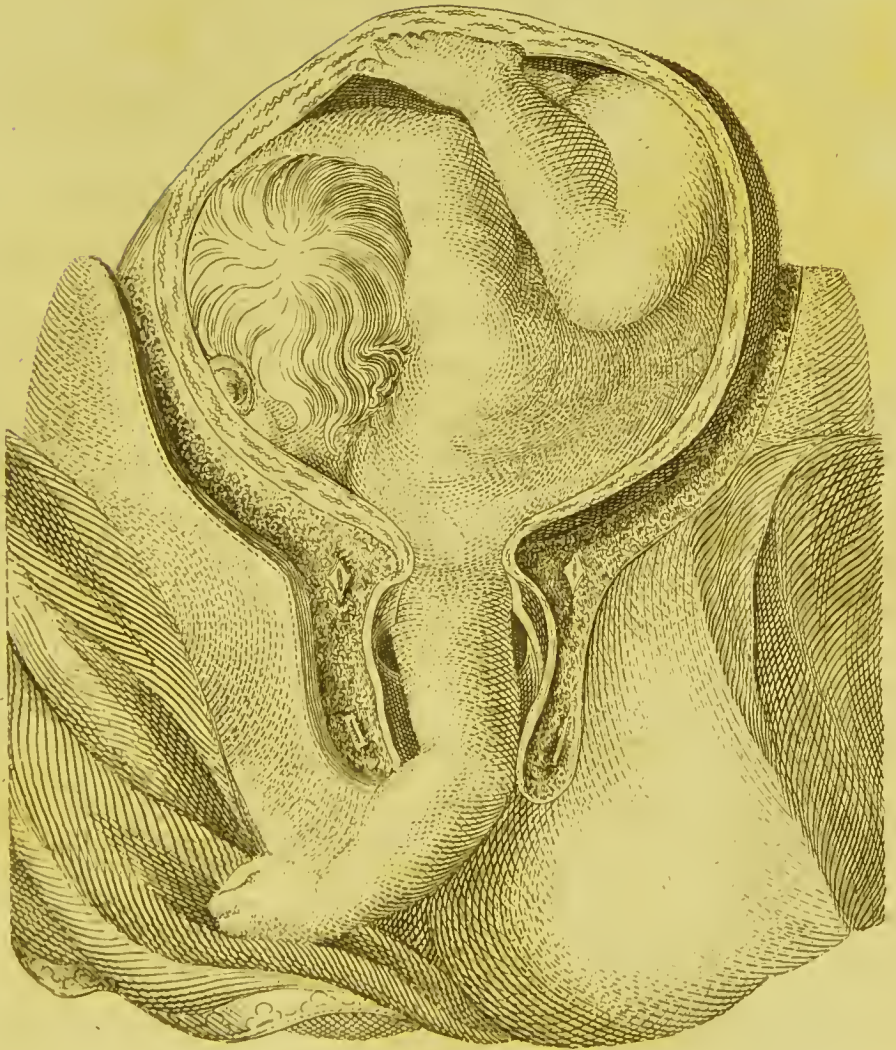
Vide Vol. I. and III. on preternatural labours.

See also directions for the management of preternatural labours in Dr *Hamilton's* Outlines of Midwifery, page 357. et seq.; and Dr *Denman's* Aphorisms respecting the Distinction and Management of preternatural Presentation.

THE THIRTY-SECOND TABLE

Represents, in the same view with the former, the *Fœtus* in the contrary position; the Breech and Fore-parts being towards the *Fundus Uteri*, the left Arm in the *Vagina*, and fore Arm without the *Os Externum*,
the

Plate XXXII.



A. Bell. Sculp.

the Shoulder being likewise forced into the *Os Uteri*.

THE operator in this case must introduce his fingers between the back part of the *vagina* and the arm of the *fœtus*, in order to raise the shoulder and make room for pressing his hand into the *uterus* to distinguish the position. This being known, he ought to push up the shoulder to that part of the *uterus* where the head is lodged, in order to raise the same to the *fundus*. If the body of the *fœtus* does not move round, and thereby lie in a more convenient position for bringing down the legs, the hand of the operator ought to be pushed up still higher to search for and take hold of the feet, which are to be brought down as far as is possible. If this should not change the position, the shoulder is to be pushed up, and the legs pulled down, alternately, till they are brought down into the *vagina*, or without the *os externum*; after which the delivery may be completed as in the former case.

If the feet cannot be brought down lower than into the *vagina*, a noose may be introduced

duced over both ankles, by which the legs are brought lower by pulling the noose with one hand, whilst the other, previously introduced into the *uterus*, pushes up the shoulders and head. By this double force the position of the *fœtus* is to be altered, and the delivery effected. In these cases, as the shoulder is raised to the *fundus*, the arm commonly returns into the *uterus*; but if the arm is so swelled as to prevent the introduction of the operator's hand, and cannot be folded up or returned into the *uterus*, it must be taken off at the shoulder, or elbow, in order to deliver and save the woman *. If both arms come down when the breast presents, the methods above described are to be used.

Vide The explanations and references of the foregoing Table to illustrate this and the following.

THE

* The protruding arm of the child does not impede the introduction of the operator's hand in turning; and the horrid expedient of *amputation* recommended here, and by former practitioners, is seldom necessary, even in cases of considerable narrowness of the pelvis from distortion.

See Dr Hamilton's *Outlines of Midwifery*, p. 392. et seq.

Plate XXXIII.



THE THIRTY-THIRD TABLE

Exhibits, in the same view likewise of the *Pelvis* with the former, a third position of the *Fætus* when compressed into the round form; the Belly, *viz.* or *Umbilical* Region, presenting at the *Os Internum*, and the *Funis* fallen down into the *Vagina*, and appearing at the *Os Externum*.

THE delivery in this case is to be effected as in the former Table, by pushing up the breast, and bringing down the legs. When the belly presents, it is easier coming at the legs than when the breast presents, because in the former case the head is nearer to the *fundus uteri*, and the legs and thighs lower. If the belly or breast is forced down into the lower part of the *pelvis*, the child will be in danger from the bending of the *vertebræ*, and the pressure of the spinal marrow. So great force is also required to raise these parts up into the *uterus*, in order to come at the feet, that it will sometimes be necessary to turn the woman to her knees and elbows, to di-

L

diminish

minish the resistance of the *abdominal* muscles. When the *funis* comes down without the *os externum*, if there is a pulsation felt, it must immediately be replaced, and kept warm in the *vagina*, to preserve the circulation, and prevent a stagnation from its being exposed to the cold air. If the *funis* comes down when the head presents, the child is in danger, if not speedily delivered with the pains, or brought footling.

N. B. For an ingenious method of reducing the prolapsed cord, See London Medical Journal, Vol. VII. 1786, p. 38.

See the two former Tables for the explanations and references.

THE THIRTY-FOURTH TABLE

Shows, in a lateral view of the *Pelvis*, one of the most difficult preternatural cases. The left Shoulder, Breast, and Neck of the *Fætus* presenting, the head reflected over the *Pubes* to the right Shoulder and Back, and the



the Feet and Breech stretched up to the *Fundus*, the *Uterus* contracted at the same time, in form of a long Sheath, round the Body of the *Fœtus*.

A.B.C The *os sacrum* and *coccyx*.

D The *os pubis* of the left side.

E Part of the *urinary* bladder.

F The *rectum*.

H.I.K The private parts.

M The *anus*.

M.N The *perinæum*.

V The *meatus urinarius*.

O The *os uteri*, not yet opened, and situated backwards towards the *rectum* and *coccyx*.

R.S The same represented in dotted lines, as opened when the labour is begun.

T.U The same more fully dilated, but nearer to the posterior than anterior part of the *pelvis*.

W.P The same not fully stretched at the fore part, though entirely obliterated at the back-part, the *uterus* and *vagina* being there only sometimes one continued surface.

HENCE it appears why the anterior part

of the *os uteri* is frequently protruded before the head of the *fœtus* at the *pubes*, which, if it retards delivery, is removed by sliding it up with a finger or two between the head and last-mentioned part. The practice recommended here is attended with considerable hazard; and in a favourable presentation of the *fœtus* the dilatation may be safely trusted to nature. *Vide* Tables IX. X. XI. XII. XIII.

The manner of delivery, *in the position of the fœtus, as represented in this Table*, is to endeavour with the hand to force up the part presenting, in order to raise the head to the *fundus*. If this is impossible from the strong contraction of the *uterus*, the operator must push up his hand in a slow and cautious manner along the breast and belly of the child, in order to come at the legs and feet, which are to be taken hold of, and brought down as far as the position of the *fœtus* will admit of. The body is then to be moved round by pushing up the lower parts, and pulling down the upper, till the feet are brought without the *os externum*, and the delivery completed as in Table XXXI. But if the
feet

Plate XXXV.



feet cannot be got down, so as to be taken hold of without the *os externum*, a noose must be fixed over the ankles, as in Table XXXII. *Vide* Vol. I. and III. as directed in Table XXXI.

THE THIRTY-FIFTH TABLE

Shows, in a lateral view of the *Pelvis*, the Method of assisting the Delivery of the Head of the *Fœtus* with the long curved Forceps in preternatural Cases, when it cannot be done with the hands, as described in Tables XXIX. and XXX.

A The three lowest *vertebræ* of the loins, with the *os sacrum* and *coccyx*.

B The *os pubis* of the left side.

C.C The *perineum* and *anus* pressed backwards with the forceps.

D. The *intestines*.

E.E The *parietes* of the *abdomen*.

F.F.F The *uterus*.

G The

G The posterior part of the *os uteri*.

H The *rectum*.

I The *vagina*.

AFTER the body and arms of the child are delivered, and the different methods used to bring down the head with the hands, as directed in the above Table, and more fully described in Vol. I. and III. the following method is to be tried in order to save the child, which must otherwise be lost by overstraining the neck and spinal marrow. The woman being in the supine position, as in Table XXIV. one of the assistants ought to hold the body and arms of the child up towards the *abdomen* of the woman, to give more room to the operator, who having introduced one hand up to the child's face, and moved it from the side a little backwards, for the easier application of the forceps along the sides of the head, must then turn his hand to one of the ears, and introduce one of the blades with the other hand between the same and the head, with the curved side towards the *pubes*, as in this Table. This done, the hand is to be brought down to hold the
handle

handle of the blade of the forceps, till the other hand is introduced to the other side of the head; by which means the same is pressed against the blade that is up, and which is thus prevented from slipping, whilst the other hand introduces the second blade on the opposite side. The blades being thus introduced, care must be taken, that in joining them no part of the *vagina* is locked in. After the forceps are firmly fixed along the sides of the head, the face and forehead must be turned again to the side of the brim of the *pelvis*, by which means the wide part of the head is to the wide part of the brim. This done, the head is to be brought lower, and the force gradually encreased, according to the resistance from the largeness of the head, or narrowness of the *pelvis*. The forehead, when brought low enough down, is then to be turned into the concavity of the *os sacrum* and *coccyx*, the handles of the forceps raised upwards, and the same caution used in bringing the head through the *os externum*, as described in Table XIX. and XXX. By this method the head will be delivered, the child frequently saved, and the use of the crotchet

prevented, except in those basins that are so narrow, that it is impossible to deliver without diminishing the bulk of the head.

Vide Table XXXIX. Also Vol. I. Book III. Chap. 4. Sect. 5. Vol. III. Coll. 34, 35.

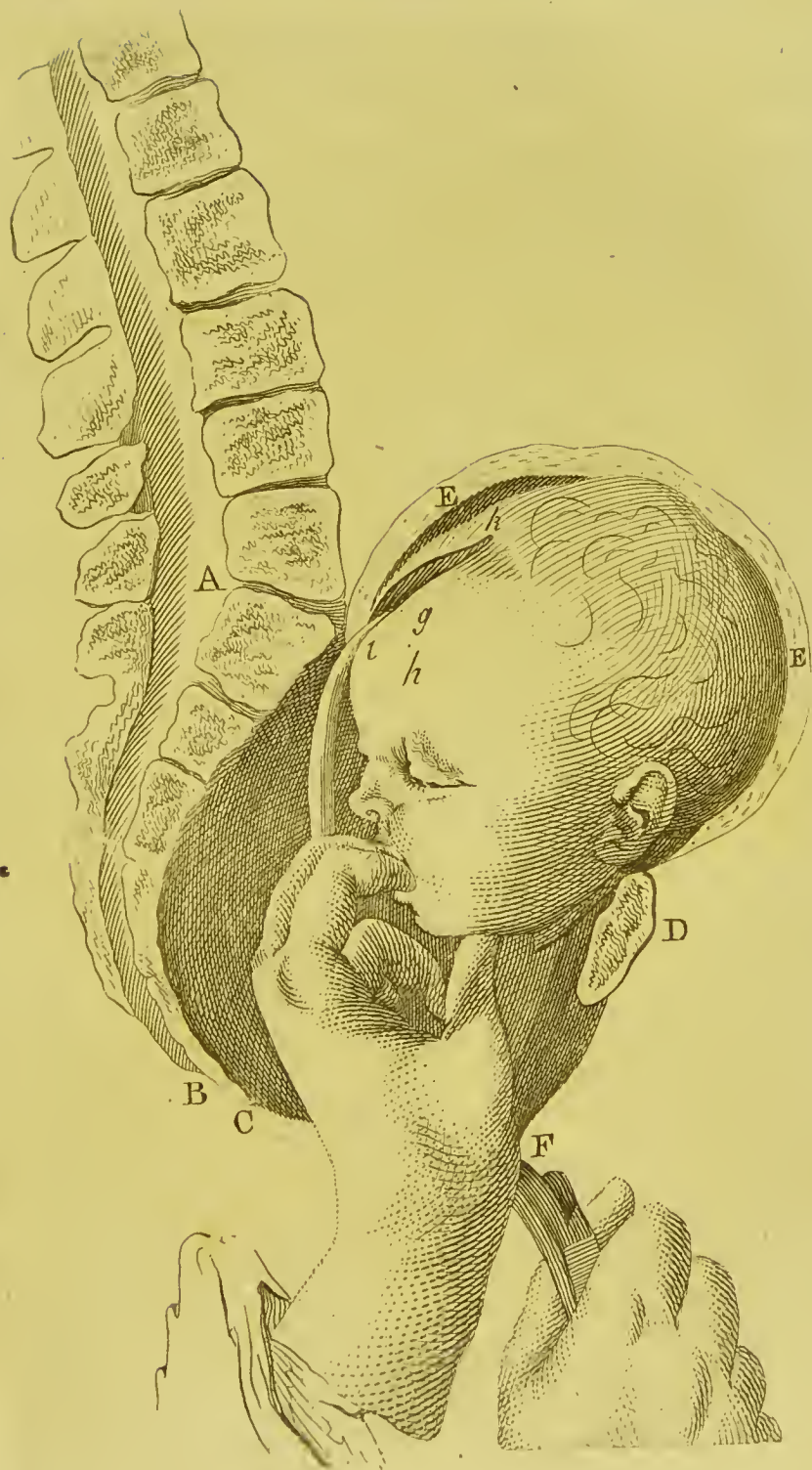
N. B. In preternatural labours, if the head cannot be relieved by the hands of the operator, the child can seldom be saved by mechanical expedients. In difficult cases the long curved forceps may, however, be attempted to be applied. Those of Dr *Leak*, in those circumstances, are preferable to any others. See note after explanation of Table XXX.

THE THIRTY-SIXTH TABLE

Represents, in a lateral view of the *Pelvis*, the method of extracting, with the assistance of a curved Crotchet, the Head of the *Fœtus*, when left in the *Uterus*, after the Body is delivered and separated from it, either by its being too large, or the *Pelvis* too narrow.

A.B.C

Plate XXXVI.



A.B.C The *os sacrum* and *coccyx*.

D The *os pubis* of the left side.

E.E The *uterus*.

F The locking part of the crotchet.

g.h.i The point of the crotchet on the inside of the *cranium*.

IF this case happens from the forehead's being towards the *pubes*, or the child long dead, and so mortified that both the body and under-jaw are separated unexpectedly, the long forceps that are curved upwards will be sufficient to extract the head; but if the same is large, and the *pelvis* narrow, and the delivery cannot be effected by the above method, then the head must be opened, that its bulk may diminish as it is extracted. The patient being placed either on her back or side, as in the explanation of Table XVI, and XXIV. the left hand of the operator is to be introduced into the *uterus*, and the forehead of the *fœtus* turned to the right side of the brim of the *pelvis*, and a little backwards, the chin being downwards; after which the palm of the hand and fingers are to be advanced as high as the *fontanelle*, and the head

grasped with the thumb and little finger on each side, as firm as is possible, whilst an assistant presses on each side of the *abdomen* with both hands, to keep the *uterus* firm in the middle and lower part of the same. This done, the operator having with his right hand introduced and applied the crotchet to the head (the point being turned towards the fore-head, and the convex part towards the *sacrum*), he must go up along the inside of the left hand as high as the *fontanelle*, and there, or near it, fix the point of the crotchet, keeping still the left hand in the former position, till with the other he pierces the *cranium* with the point of the instrument, and tears a large opening in it from K to I; after this, keeping the crotchet steady, he may slide down his left hand in a cautious manner, lest the former position should be altered, and the head will sink lower down by the assistant's pressing on the *abdomen*. The two fore-fingers of the left hand are then to be introduced into the mouth, and the thumb below the under-jaw, the hand being above the blade of the crotchet. When this firm hold is taken, the operator may begin
and

and pull slowly with both hands; and as the brain discharges through the perforation, the head will diminish, and come along. If this method should fail from the slipperiness of the head, or its being so much ossified that a sufficient opening cannot be made, the *vertex* must be turned down to the brim of the *pelvis*, the *fontanelle* backwards, and each blade of the long forceps introduced along the sides of the head, with the curved side towards the *pubes*. After they are joined and locked, the handles are to be tied together with a fillet, to keep them firm on the head; an assistant is to keep the handles backwards till the *cranium* is largely opened with the long scissars shown in Table XXXIX. This done, the head is to be extracted in a slow manner, first turning the forehead to the side of the brim; and as the brain evacuates and the head comes lower down, again turning the forehead into the concavity of the *sacrum*, and completing the delivery, as in Table XVI.

This Table may also serve for an example, to show the method of fixing the crotchet on the head, when although the body is not separated from it, yet it cannot be delivered

with the operator's hands, or the long forceps, as in Table XXIX. and XXXV.

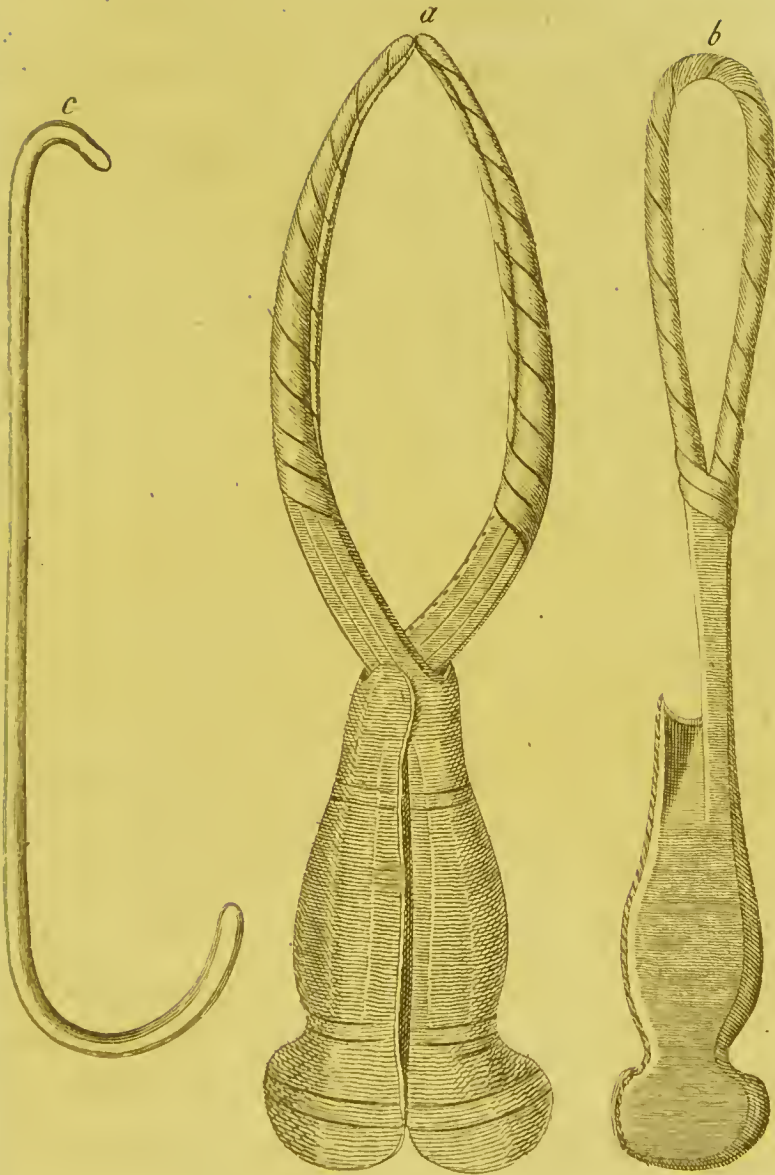
Vide Vol. I. Book III. Chap. 3. sect. 7. Chap. 4. Sect. 5. Also Vol. III. Coll. 31, 36.

N. B. It is the safest practice, *where the resistance is considerable from relative disproportion*, to diminish the volume of the child's head previous to the extraction with the hook.

THE THIRTY-SEVENTH TABLE

And the two following, represent several kinds of Instruments useful in laborious and difficult Cases.

A The straight short forceps, in the exact proportion as to the width between the blades, and length from the points to the locking part: the first being two and the second six inches, which five inches and a half (the length of the handles), makes in all eleven inches and a half. The length of
the



the handles may be altered at pleasure. I find, however, in practice, that this standard is the most convenient, and with less difficulty introduced, than when longer, having also sufficient force to deliver in most cases where their assistance is necessary. The handles and lowest part of the blades may as here be covered with any durable leather; but the blades ought to be wrapped round with something of a thinner kind, which may be easily renewed when there is the least suspicion of venereal infection in a former case: by being thus covered, the forceps have a better hold, and mark less the head of the child. For their easier introduction, the blades ought likewise to be greased with hog's-lard.

B Represents the posterior part of a single blade, in order to show the open part of the same, and the form and proportions of the whole. The handles, however, as here represented, are rather too large.

Vide Table XXI. for the figure and proportions of the long forceps, that are curved upwards, and covered in the same manner as the former.

The forceps were at first contrived to save the *fœtus*, and prevent, as much as possible, the use of sharp instruments; but even to this salutary method recourse ought not to be had but in cases where the degree of force requisite to extract will not endanger by its consequences the life of the mother. For, by the imprudent use of the forceps, much more harm may be done than good.

See the explanation of Table XVI. Also the preface to Vol. II. with the cases in the Collection on that subject.

C The blunt hook, which is used for three purposes.

First, To assist the extraction of the head after the *cranium* is opened with the scissars, by introducing the small end along the ear on the outside of the head to above the under-jaw, where the point is to be fixed; the other extremity of the hook being held with one hand, whilst two fingers of the other are to be introduced into the foresaid opening, by which holds the head is to be gradually extracted.

Secondly, The small end is useful in abortions in any of the first four or five months,

to hook down the *secundines*, when lying loose in the *uterus*, when the patient is much weakened by floodings from the too long retention of the same, the pains also being unable to expel them, and when they cannot be extracted with the fingers. But if the *placenta* still adheres, it is dangerous to use this or any other instrument to extract the same, as it ought to be left till it separates naturally. If a small part of the *secundines* is protruded through the *os uteri*, and pulled away from what still adheres in the *uterus*, the mouth of the *womb* contracts, and that irritation is thereby removed which would have continued the pains, and have separated and discharged the whole.

Thirdly, The large hook at the other end is useful to assist the extraction of the body, when the breech presents; but should be used with great caution, to avoid the dislocation or fracture of the thigh.

N. B. The small extremity of the hook can never be employed without danger to the mother in the former case; nor the large hook without hazard of destroying the child,

or occasioning violent injury to the mother in the latter.

Vide Table XXIX. Also Vol. I. Book II, Chap. 3. Book III. Chap. 3. Sect. 7. and Chap. 4. Sect. 2. Vol. II. Coll. 12. Vol. III. Coll. 31, 32.

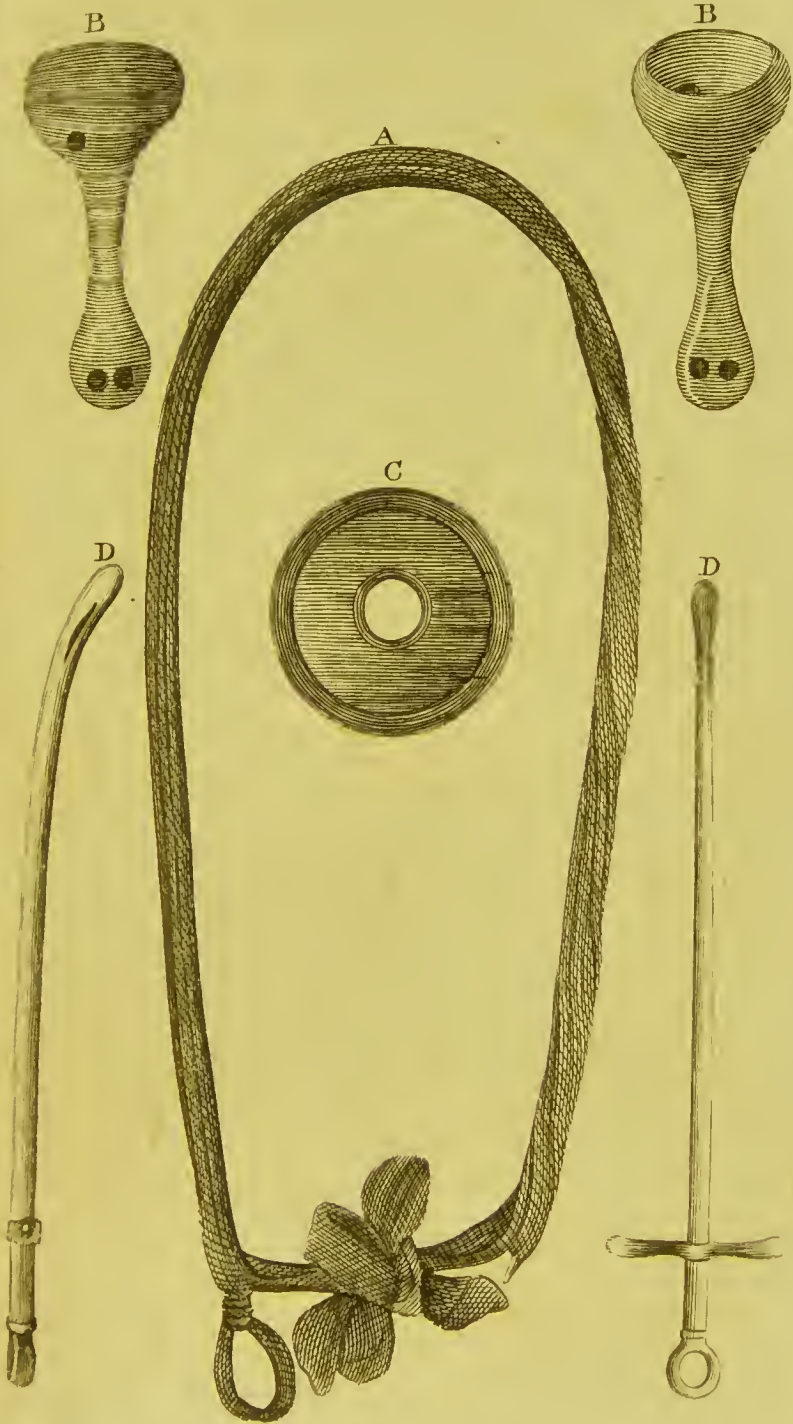
THE THIRTY-EIGHTH TABLE.

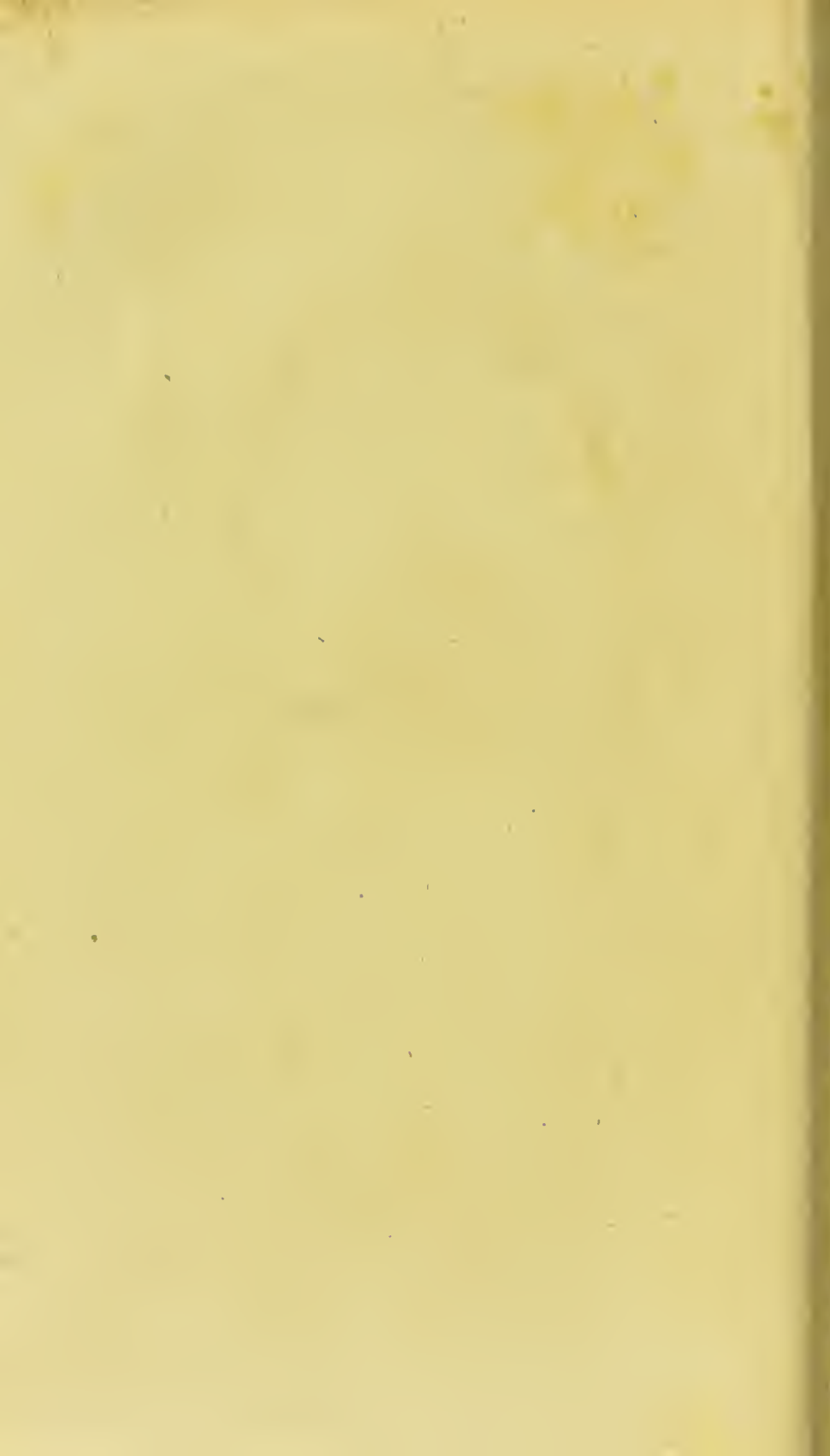
A, REPRESENTS the whale-bone fillet, which may sometimes be useful in laborious cases, when the operator is not provided with the forceps in sudden and unexpected exigencies.

When the *vertex* of the *fœtus* presents, and the head is forced down into the lower part of the *pelvis*, the woman weak and the pains not sufficient to deliver it, the double of the fillet is to be introduced along the forepart of the *parietal* bones to the face, and if possible above the under-jaw; which done, the whale-bone may be either left in or pulled

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Plate XXXVIII.





ed down out of the sheath, and every weak pain assisted by pulling gently at the fillet. If the head can be raised to the upper part of the *pelvis*, the fillet will be more easily got over the chin, which is a safer and better hold than on the face. If the face or forehead presents, the fillet is to be introduced over the *occiput*.

Vide Vol. I. Book III. Chap. 3. Sect. 2. Vol. II. Coll. 24.

In such cases likewise the whale-bone may be supplied by a twig of any tough wood, mounted with a limber garter or fillet sowed in form of a long sheath.

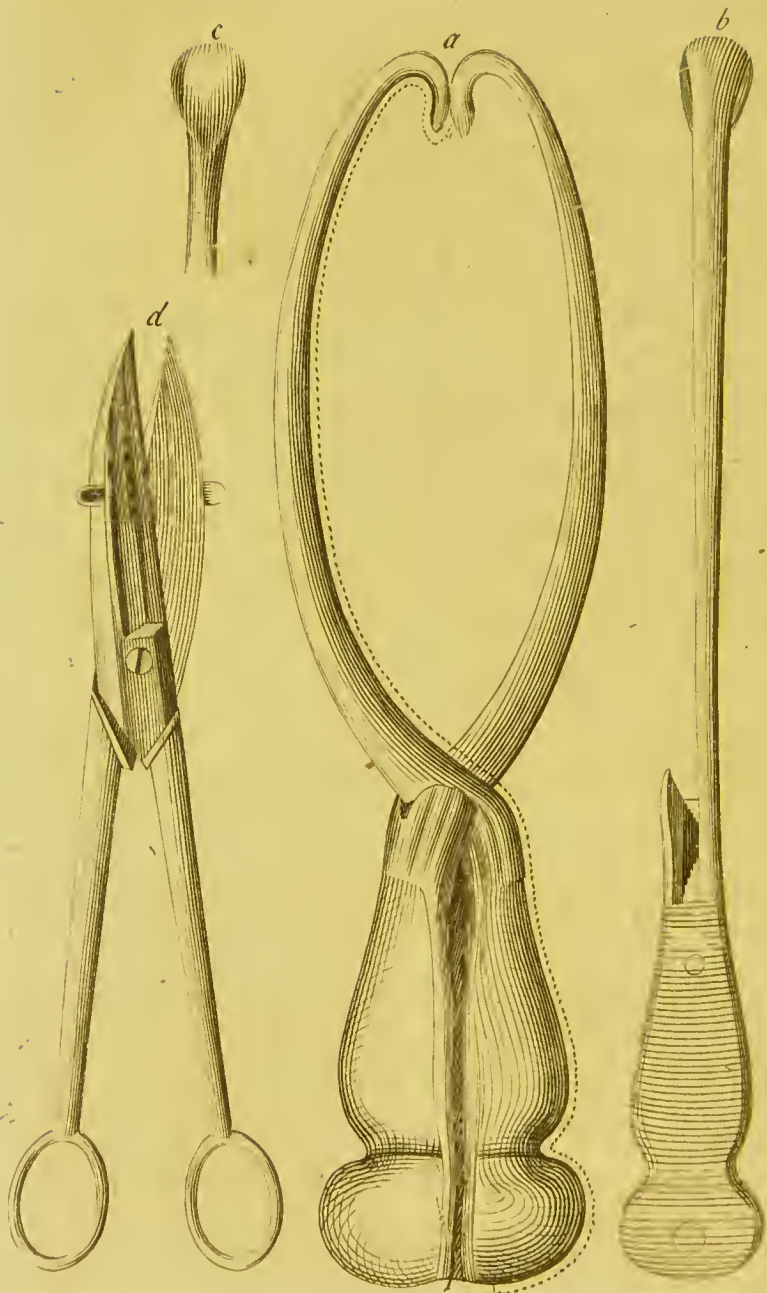
N. B. Fillets, of whatever construction, being difficult of application, trifling in their powers, liable to cut or gall the child's head, though a secure hold should be obtained, and in other respects inferior to the forceps, are now with justice rejected from practice.

B. B Gives two views of a new kind of pessary for the *prolapsus uteri*, being taken from the French and Dutch kind. After the *uterus* is reduced, the large end of the pessary is to be introduced into the *vagina*, and the *os uteri* retained in the concave part,

where there are three holes to prevent the stagnation of any moisture. The small end without the *os externum* has two tapes drawn through the two holes, which are tied to four other tapes, that hang down from a belt that furrounds the woman's body, and by this means keep up the pessary. This fort may be taken out by the patient when she goes to bed, and introduced again in the morning; but as this sometimes rubs the *os externum*, so as to make its use uneasy, the round kind marked C are of more general use. They are made of wood, ivory, or cork, (the last covered with cloth and dipt in wax): the pessary is to be lubricated with pomatum, the edge forced through the passage into the *vagina*, and a finger introduced into the hole in the middle lays it across within the *os externum*. They ought to be larger or smaller, according to the wideness or narrowness of the passage, to prevent their being forced out by any extraordinary straining. *Vide* Vol. I. Book IV. Chap. 1. Sect. 7. Vol. III. Coll. 24.

See A description of a globe-pessary, recom-

Plate XXXIX.



A. Bell, Sculp.

commended by Dr Denman, London Medical Journal, Vol. VII. for 1786, page 56.

D.D Gives two views of a female catheter, to show its degree of curvature and different parts. Those for common use may be made much shorter for conveniency of carrying in the pocket: but sometimes when the head or body of the child presses on the bladder above the *pubes*, it requires one of this length; and in some extraordinary cases I have been obliged to use a male catheter.

Vide Vol. I. Book II. Chap. i. Sect. 1, 2.
Vol. II. Coll. 10. N^o 2.

THE THIRTY-NINTH TABLE

a REPRESENTS a pair of curved crotchets locked together in the same manner as the forceps. It is very rare that the use of both is necessary, excepting when the face presents with the chin turned to the *sacrum*, and when it is impossible to move the head to

N 2

bring

bring the child footling, or deliver with the forceps. In that case, if one crotchet is not sufficient, the other is to be introduced, and when joined together will act both as crotchets, in opening the *cranium*, and as the head advances, will likewise act as forceps in moving and turning the head more conveniently for the delivery of the same. They may also be useful to assist when the head is left in the *uterus*, and one blade is not sufficient. There is seldom occasion, however, for the sharp crotchet, when the head presents; the blunt hook in Table XXVII. being commonly sufficient, or even the forceps, to extract the same, after it is opened with the scissars. Great care ought to be taken, when the sharp crotchet is introduced, to keep the point towards the *fœtus*, especially in cases where the fingers cannot be got up to guide the same. The dotted lines along the inside of one of the blades, represent a sheath that is contrived to guard the point till it is introduced high enough; the ligature at the handles marked with the two dotted lines is then to be untied, the sheath withdrawn,

and

and the point, being uncovered, is fixed as directed in Table XXXVI.

The point, guarded with this sheath, may also be used instead of the blunt-hook.

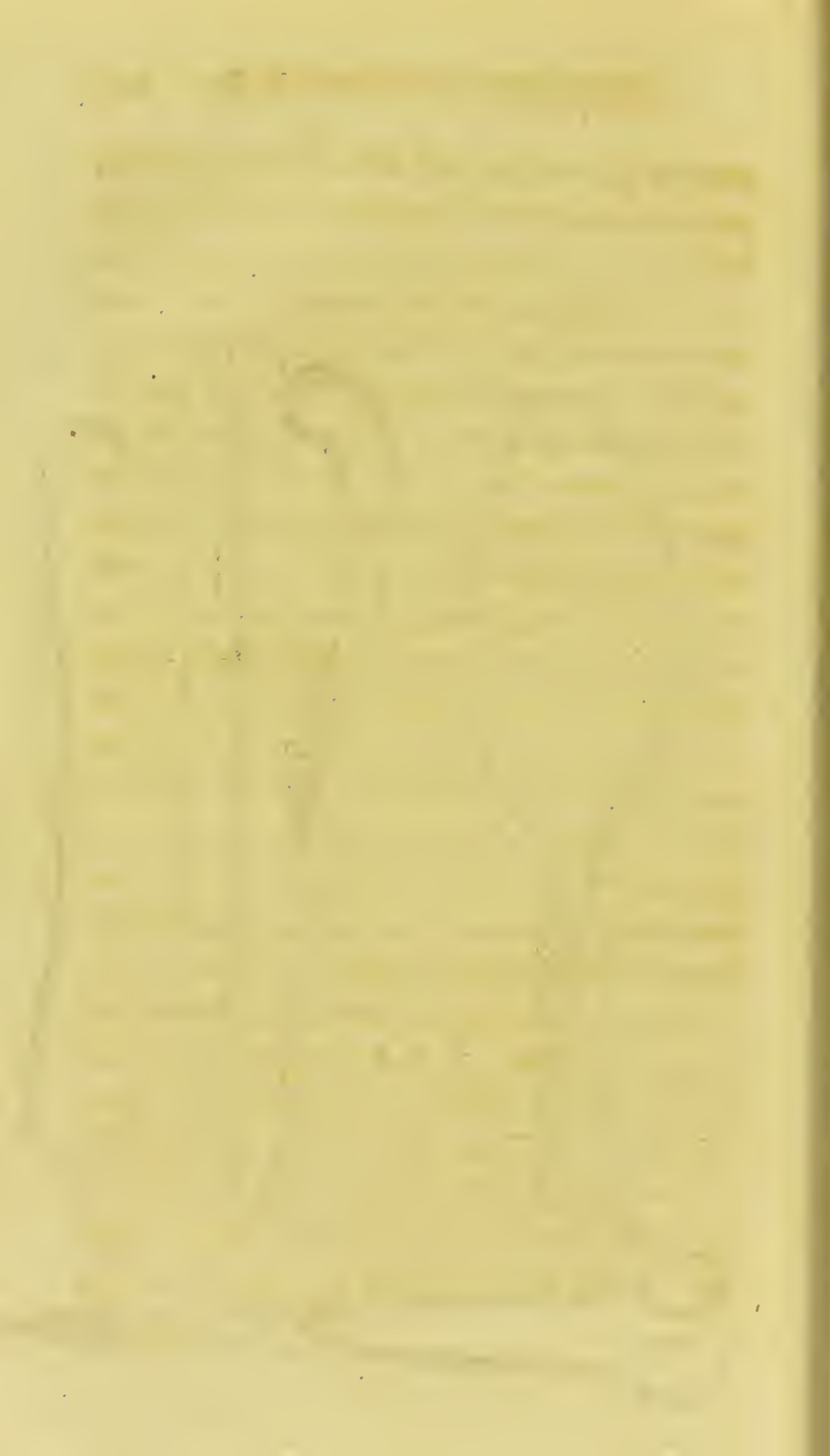
b Gives a view of the back-part of one of the crotchets, which is twelve inches long.

c Gives a front view of the point, to show its length and breadth, which ought to be rather longer and narrower than here represented.

N. B. In the less improved state of the art, when mechanical exertions were chiefly trusted to accomplish delivery, in cases of narrowness from distortion of the bones, two blades of the crotchet were recommended by Dr Smellie. That practice is now rejected; for both blades can never be employed at once with advantage, and seldom with safety.

See Dr Hamilton's *Outlines of Midwifery*, page 285 to 302; also *Appendix*, 420; and Dr Osborne's *Essay on Laborious Parturition*.

d Represents the scissars proper for perforating the *cranium* in very narrow and distorted *pelvises*. They ought to be made very strong,



ing the use of that instrument are obviated, and the operation is rendered more safe and easy.

In contriving these alterations, the intentions were, 1. That the large curves should correspond as nearly as possible with that of the *pelvis*. 2. That their points should be thrown forwards and made round, to prevent their hitching, or even pressing uneasily against any part of the *pelvis*; and likewise to maintain their hold of the head, whilst it is to be brought forwards in that curved line of direction which nature observes. 3. That an inverted curve should be made towards the joints, whereby the *perinæum* may be saved from injury, the extracting force rightly conducted, and the handles at the same time kept from pressing uneasily on the inferior and anterior parts of the *pubes*. 4. That their substance should be reduced as much as possible, so that they are not made flexible, or so thin at the edges as to hurt the part. 5. That their clams be made to press equally on the child's head, and spread gradually from the joint, so as not to dilate the *os vaginae* too suddenly. 6. That the

clams

clams be of a due breadth, with the outer surface a little convex, and extremely smooth, that they may not press uneasily or hurt the woman. 7. That their length be such as can be applied safely and commodiously within the *pelvis*, and at the same time suit the different sizes of the head as much as possible.

The instrument, executed according to these intentions, is called the *Short Curved Forceps*. It consists of two blades, or parts; each of which is distinguished into the handle A, the joint B C, and the clams D E. See fig. 1. which represents one of the blades before it is bent into its perfect state: *a a a*, are three holes for admitting screws to fix the wooden handle.—Fig. 2. shows the instrument finished and locked, in which state it measures about 11 inches; and, when properly made, weighs about 11 ounces Troy. The clams must be covered with the best Morocco leather shaved thin, moistened with water, and sewed on with waxed silk.

N. B. Several inconveniences, both in the introduction and consequences, having been found to attend the use of the forceps with the clams *covered*, practitioners at present

sent very generally prefer those of polished steel.

Fig. 3. A catheter, with a small curve towards the point, which is better adapted to the female urethra than the straight. It may be perforated with 8, 12, or 16 holes in rows, as here represented, and terminated by a slight, very smooth, rounded, or oblong knob. The length should be nearly six inches, and the diameter not trifling.

Fig. 4. The perforators of Dr Denman, now employed by many practitioners, in preference to those of Dr Smellie, *with the angular rests rendered smoother and more rounded*. If the long scissars of Dr Smellie should be still retained in practice, the sharp edges ought to be removed; they should have, like those of Dr Denman, a degree of curve towards the points, and be provided with blunt knobs, instead of the angular rests, which expose the patient to the hazard of having the parts wounded or lacerated.

See Dr Hamilton's Outlines of Midwifery, p. 290.

N. B. With a view to save the child when the mother is in danger, but the head too
 O high.

high for the *common short forceps*, and also to obviate an inconvenience complained of by many practitioners, of *their* locking within the *vagina*, the long forceps of Mr Leveret of Paris, Drs Smellie and Leak of London, and of Mr Pugh of Chelmsford in Essex, have been invented. The lightness and neatness of construction of Dr Leak's, with justice, intitle them to the preference.

Fig. 5. The blunt hook, as presently used, with a swell in the middle, by which a more secure hold can be taken, and the extraction accomplished with more safety and success, than with the straight hook.

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