

TREATISE
~~XXXX~~ ON THE ~~THE~~
THEORY and PRACTICE
OF
MIDWIFERY.

By W. SMELLIE, M.D.

A NEW EDITION.

TO WHICH IS NOW ADDED, HIS

SET OF ANATOMICAL TABLES,

EXHIBITING.

The VARIOUS CASES that occur in PRACTICE;

Accurately engraved on

FORTY COPPERPLATES.

WITH EXPLANATIONS.

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I AT first intended to have published this Treatise in different lectures, as they were delivered in one course of Midwifery; but I found that method would not answer so well, in a work of this kind, as in teaching: because, in the course of my lectures, almost every observation has a reference to the working of those machines, which I have contrived to resemble and represent real women and children; and on which all the kinds of different labours are demonstrated, and even performed by every individual student.

I have, therefore, divided the whole into an Introduction, and four Books, distinguished by Chapters, Sections, and Numbers; and have industriously avoided all theory, except so much as may serve to whet the genius of young practitioners, and be as hints to introduce more valuable discoveries in the art.

The Introduction contains a summary account of the practice of Midwifery, both among the ancients and moderns, with the improvements which have been hitherto made in it; and this I have exhibited for the information of those who have not had time or opportunity to peruse the books from which it is

collected; that by seeing at once the whole extent of the art, they may be the more able to judge for themselves, and regulate their practice by those authors, who have written most judiciously upon the subject. The knowledge of these things will also help to raise a laudable spirit of emulation, that never fails to promote useful enquiries, which often redound to the honour of art, as well as to the advantage of society.

Though I have endeavoured to treat every thing in the most distinct and concise manner, perhaps many directions that occur in the third book, may be thought too minute and trivial, by those who have already had the advantage of an extensive practice; but the work being principally undertaken with a view to refresh the memory of those who have attended me, and for the instruction of young practitioners in general, I thought it was necessary to mention every thing that might be useful in the course of practice.

At first, my design was to have inserted cases, by way of illustration, according to the method of *La Motte*; but, upon further deliberation, I thought such a plan would too much embarrass the student in the progress of his reading: and therefore I have, in imitation of *Mauriceau*, published a second volume of

of histories, digested into a certain number of classes or collections, with proper references to the particular parts of this treatise; so that the reader, when he wants to see the illustration, may turn over to it at his leisure, according to the directions in this edition.

These classes consist of the most useful cases and observations, partly culled from the most approved authors, but chiefly collected from my own practice, and that of my correspondents and former pupils, by whom I have been consulted.

Nor will the reader, I hope, imagine, that such a fund will be insufficient for the purpose; or that this treatise is cooked up in a hurry, when I inform him, that above six years ago I began to commit my lectures to paper, for publication: and from that period have, from time to time, altered, amended, and digested what I had written, according to the new lights I received from study and experience. Neither did I pretend to teach Midwifery, till after I had practised it successfully for a long time in the country; and the observations I now publish, are the fruits not only of that opportunity, but more immediately of my practice in *London*, during ten years, in which I have given upwards of two hundred and eighty courses of Midwifery,

for the instruction of more than nine hundred pupils, exclusive of female students: and in that series of courses, one thousand one hundred and fifty poor women have been delivered in presence of those who attended me: and supported during their lying-in, by the stated collections of my pupils: over and above those difficult cases to which we are often called by midwives, for the relief of the indigent.

These considerations, together with that of my own private practice, which hath been pretty extensive, will, I hope, screen me from the imputation of arrogance, with regard to the task I have undertaken: and I flatter myself, that the performance will not be unserviceable to mankind.

It was my intention to insert in this Compendium, plates of the most useful instruments appertaining to the art of Midwifery; but, as large drawings could not be properly bound in a book of so small a size, I have exhibited them in a large folio, with thirty-six anatomical tables and explanations; and, in this edition I have made proper references to these figures.

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INTRODUCTION.

IT must be a satisfaction to those who begin the study of any art or science, to be made acquainted with the rise and progress of it ; and therefore I shall, by way of Introduction, give a short detail of the practice of Midwifery, with the improvements which have been made in it, at different times ; as I have been able to collect the circumstances, from those authors, ancient as well as modern, who have written on the subject.

By these accounts it seems probable, that in the first ages, the practice of this art was altogether in the hands of women, and that men were never employed but in the utmost extremity : indeed it is natural to suppose, that while the simplicity of the early ages remained, women would have recourse to none but persons of their own sex, in diseases peculiar to it ; accordingly, we find that in *Egypt* Midwifery was practised by women.

Hyginus relates, that in *Athens* a law was made, prohibiting women and slaves from practising physic in any shape : but the mistaken modesty of the sex rendered it afterwards absolutely necessary to allow free women the privileges of sharing this art with the men.

In the *Harmonia Gynæciorum*, there are extant several directions and recipes on the subject of Midwifery, collected from the writings of one *Cleopatra*, interspersed with those of *Moschion* and *Priscian*; and some people imagine this was no other than the famous *Cleopatra* queen of *Egypt*, because in the preface *Arsinoe* is mentioned as the author's sister.

Galen, who lived two hundred years after this *Egyptian* queen, advises the reader to consult the writings of one of that name, but does not inform us whether she was or was not that celebrated princess; so that, in all probability, it was some other person of the same name, as the study and exercise of such an art was not at all suited to the disposition of such a gay voluptuary as queen *Cleopatra* is described to have been.

Ætius transcribes some chapters from the works of one *Aspasia*, touching the method of delivering and managing women in natural labours; but gives no account of the place of her residence, nor of the time in which she wrote. Several other female practitioners are mentioned by different historians; but, as none of their writings are extant, and the accounts given of them are mostly fabulous and foreign to our purpose, I shall forbear to mention them in this place, and referring the curious to *Le Clerc's* History of Physic, begin with *Hippocrates*, the most ancient writer now extant, upon our subject, who may be styled the father of Midwifery as well as medicine; because all the succeeding authors, as far down as the latter end of the sixteenth century, have copied from his works the most material things relating to the diseases of women and children, as well as to the obstetric art. I shall therefore give a succinct account of his practice; and in my detail of the other authors, only observe the improvements they have

have made, and the circumstances in which they have deviated from his method and opinion.

Hippocrates, who practised medicine in *Greece*, about 460 years before the Christian *Æra*, no doubt availed himself of the observations of those who went before him in the exercise of the same profession. He acquired the highest reputation by his wise predictions and successful practice, and by his uncommon sagacity and experience greatly improved the healing art.

In his book *De natura Muliebri*, and those *De Mulierum Morbis*, he mentions and describes many diseases peculiar to the female sex, according to the theory of those times, and prescribes more medicines for the diseases of women than for any other distempers.

Many of his remedies, indeed, are very strange and uncouth, but a number of them are still accounted excellent in the present practice, unless his names of them have been mistaken and misapplied to other medicines: and although his theory is frequently odd and erroneous, his diagnostics, prognostics, and method of cure, are often just and judicious.

In suppressions of the *Menses*, he first of all orders vomits and purges, then sharp pessaries in form of suppositories, composed of lint or wool, with divers kinds of deobstruent powders, wax and oil, to be introduced into the *Vagina*: he likewise prescribes fumigations, fomentations, and hot baths, together with internal medicines. He observes, that such obstructions produce a pain and seeming weight in the lower part of the *Abdomen*, extending to the loins and *Ilia*, attended with a vomiting at intervals, and longings like those of a pregnant woman. If these symptoms of pain and weight affect the *Hypochondria*, producing suffocation and pain in the Head and Neck, the patient is to be relieved by

the application of foetid things to the Nose, with Castor and Fleabane given internally in wine, &c.

When the Menles flow in too great a quantity, he proposes a contrary method: he advises her to abstain from bathing and all laxative and diuretic things; orders astringent pessaries for the *Vagina*, and cold applications to the lower parts; prescribes internally, several kinds of astringent medicines, with the peplum or poppy-seed, and cupping-glasses to be applied to the breasts. When the violence of the discharge is abated, he proposes purges and vomits, then asses milk and a nourishing diet, and various kinds of internal and external medicines.

In a *Fluor albus*, he says the urine is like that of an ass; the patient labours under a pain in the lower part of the *Abdomen*, loins and *Ilia*, together with a swelling in the hands and legs; her eyes water, her complexion becomes wan and yellow, and in walking she is oppressed with a difficulty of breathing: In this case he prescribes emetics, and cathartics, asses milk, whey, fomentations, and different kinds of medicines, to deterge and strengthen the parts affected.

He mentions many complaints which, in his opinion, proceed from different motions and situations of the *Uterus*, and proposes a good many medicines for the cure. As to his theory of conception, and his opinions about the birth in the seventh or eighth month of gestation, they were actually espoused by all medical writers, till the last century.

In his first book of the diseases of women he treats of difficult labours; observing, that if a woman is at her full time, seized with labour-pains, and cannot, after a long time, be delivered, the child either lies across, or presents with the feet; for when the head presents, the case is favourable: whereas if the child lies across, a
difficult

difficult labour ensues. This assertion he illustrates by the example of an olive in a narrow-mouthed jar, which cannot be so easily extracted by the middle, as when it presents with one end. He likewise says, that the birth will be difficult when the feet present, in which case, either mother or child, or both (for the most part) perish : Nor is the birth without difficulty when the *Fœtus* is dead, apoplectic, or double. He then proceeds to direct us how to relieve the woman of several complaints to which she may be subject after delivery : he describes the method of excluding the *Fœtus*, and of assisting in difficult labours ; if the child presents fair, and is not easily delivered, he orders sternalgatories to be administered, and the patient to stop her mouth and nose, that they may operate the more effectually : She must also be shaken in this manner ; let her be fastened to the bed by a broad band crossing her breast, her legs being bended to the lower part of the bed, the other end of which must be elevated by two assistants, who gently shake her by intervals, until her pains expel the child : The parts must be anointed with some unctuous medicine, and cautiously separated ; and care must be taken, that the *Placenta* immediately follow the child. If the *Fœtus* lies across, presenting to the *Os uteri*, whether it be alive or dead, he orders it to be pushed back and turned, so as that it may present with the head in the natural position ; and, in order to effect this purpose, the woman must be laid supine on a bed with her hips raised higher than her head. If the child is alive, and presents with the arm or leg, he advises us to return them as soon as possible, and bring down the head, or if it lies across, presenting with the side or hip, the same methods must be used ; then the woman may be refreshed by sitting over the steams of hot water. The

child is to be managed in the same manner, when it is dead, and presents with leg or arm, or both; but if the *Fœtus* cannot be conveniently delivered, on account of the body's being swoln, he directs us to bring it away piece-meal, in the following manner: If the head presents, let it be opened with a small knife, and the bones of the skull being broken, must be extracted with a pair of forceps, for fear of hurting the woman; or by an embryulus, firmly fixed on the Clavicles, it may be extracted by little and little. After the head is delivered in this manner, should the child stick at the shoulders, he directs us to divide the arms at the articulations; and they being brought away, the rest of the body, generally, follows with ease: but if it will not yet give way, the whole breast must be divided; and great care taken that no part of the intestines be denuded, or wounded, lest the guts, or their contents, falling out, should retard the operation; then the ribs being broken, and the *Scapulæ* extracted, the rest of the *Fœtus* will easily follow, unless the *Abdomen* is swoln; in which case the belly must be punctured, and on the exit of the *Flatus*, the child will be brought along. If part of the child is already delivered, and the rest will not follow, nor can that which is out be returned, he orders the operator to take away as much as he can of it, and pushing up the remainder, turn the head downwards: but, previous to this operation, he advises him to pare his nails, and to use a crooked knife, the point and back of which must be covered with the fore finger, at its introduction, lest it should hurt the *Uterus*.

In his book *De Superfœtatione*, he directs us, when the child's head appears without the *Os uteri*, and the rest of the body does not follow, the *Fœtus* being dead, to wet our fingers with water, and introducing them
between

between the *Os uteri* and head, put one into the mouth, and laying hold of it bring it along. When the body is delivered, and the head remains behind (in those cases when the child comes by the feet) he advises the operator to dip both his hands in water, and introducing them between the *Os uteri* and head of the child, grasp this last with the fingers, and extract it. If the head is in the *Vagina*, it may be delivered in the same manner. When the child remains dead in the *Uterus*, and cannot be delivered, either by the force of nature or medicines, he directs us to introduce the hand, anointed with some unctuous cerate, and dividing the parts with an *unguis* fixed on the great finger, bring the *Fœtus* along, as before.

In the first book of the diseases of women, he gives directions for excluding the *Secundines*, provided they are not expelled in the natural way. He says, if the secundines come not away immediately after the birth, the woman labours under a pain in her belly and side, attended with rigors and a fever, which vanish when they are discharged; though, for the most part, the after-birth putrifies and comes away about the sixth or seventh day, and sometimes later. In this case, he orders the patient to hold her breath, and prescribes internally, mugwort, cretan dittany, flowers of white violets, leaves of agnus castus, with garlic boiled or roasted, small onions, castor, spikenard, rue, and black wine.

In the book *De Superfætatione*, after having described the methods of delivering a dead child, he says, if the *Secundines* come not away easily, the child must be left hanging to them, and the woman seated on an high stool, that the *Fœtus*, by its weight, may pull them along; and lest this should be too suddenly effected, the
child

child may be laid on wool newly plucked, or on two bladders filled with water, and covered with wool, which being pricked, as the water evacuates, they will subside, and the child sinking gradually, will gently draw the *Secundines* away ; but should the navel-string happen to be broke, proper weights must be tied to it, in order to answer the same purpose ; these being the easiest and least hurtful methods of extracting the *Placenta*.

He afterwards observes, that if the woman has had a difficult labour, and could not be delivered without the help of machines, the child is generally weak, and therefore the navel-string ought not to be divided, until it shall have either urined, sneezed, or cried aloud ; and, in the mean time, it must be kept very near the mother : for, tho' the child does not seem to breathe at first, nor to give any other signs of life, the navel-string, by remaining uncut, may be in a little time inflated, and the life of the infant saved.

With regard to the *Lochia* or *Menses* after delivery, he takes notice, that if they are altogether suppressed, or the discharge insufficient, and the *Uterus* is indurated, the patient is afflicted with pains in the loins, groins, sides, thighs, and feet, together with an acute fever, accompanied with horrors. When the pains happen, unattended with a fever, he orders bathing, and the head to be anointed with oil of dill ; and a decoction of mallows, with oil of *Cyprus*, to be applied externally, in order to assuage the pain. He says, in all disorders where fomentations are necessary, the parts ought, afterwards, to be anointed with oil : but, when there is a fever in the case, bathing must be avoided, warm fomentations used, the uterine medicines prescribed in draughts, and garlic, castor, or rue boiled with oatmeal : he likewise
observes,

observes, that if the *Uterus* is inflamed after delivery, the patient is in imminent danger of her life, unless a stool can be procured, or the symptom removed by bleeding. He likewise ascribes several complaints and disorders of women, to the different positions and motions of the *Uterus*, of which last, *Plato*, who lived immediately after *Hippocrates*, gives a very odd and romantic description, in his *Timæus*. After affirming that there is implanted in the genitals of man, an imperious, headstrong, inobedient power that endeavours to subject every thing to its furious lusts ; he says, the *Vulva* and *Matrix* of women is also an animal ravenous after generation, which being baulked of its desire for any length of time, is so enraged at the disappointment and delay, that it wanders up and down through the body, obstructing the circulation, stopping the breath, producing suffocations, and all manner of diseases.

Although we have a piece in *English*, called *Aristotle's* Midwifery, I find little or nothing of the practice in his works : he hath written on the generation of animals ; and we find in him several hints curious enough, even upon our subject : he tells us, that women suffer more than other animals from uterine gestation and labour ; that those women who take most exercise, endure both with the greatest ease and safety ; and that the *Fœtus* in all animals naturally comes by the head, because there being more matter above than below the navel, the head necessarily tilts downwards. For this reason, he says, every birth in which the head presents, is natural, and those unnatural in which the feet, or any other part of the body, come foremost.

We have nothing written on the subject of Midwifery, from his time to that of *Celsus*, who is supposed to have lived in the reign of the emperor *Tiberius*. This
author

author hath given us a chapter on the delivery of dead children, and the *Placenta*, in which he had copied from *Hippocrates*, tho' he is more full than his master, and mentions several improvements on his practice. After having given directions with regard to the woman's position, he advises the operator to introduce one finger after another, until the whole hand shall gain admittance : he says, that the largeness of the *Uterus*, and the strength and courage of the patient, are great advantages to the birth ; that the woman's *Abdomen*, and extremities must be kept as warm as possible ; that we must not wait until an inflammation is produced, but assist her without delay ; because should her body be swelled, we can neither introduce our hands, nor deliver the child, without great difficulty ; and vomitings, tremors, and convulsions often ensue. When the crotchet is fixed upon the head, he directs us to pull with caution, lest the instrument should give way, and lacerate the mouth of the womb ; by which means, the woman would be thrown into convulsions, and imminent danger of her life. When the feet present, he says, the child is easily delivered, by laying hold on them, with the hands, and so bringing them along. If the *Fœtus* lie across, and cannot be brought down, he orders the crotchet to be fixed on the armpit, and drawn along by little and little ; by these endeavours the neck will be almost doubled, and the head bent backwards ; in which case, this last must be separated from the body, and the whole extracted piece-meal. The operation (he says must be performed with a crotchet, the internal surface of which is edged, and the head be brought away before the body ; because, if the greatest part be extracted first, and the head left alone in the *Uterus*, the case will be attended with great difficulty

ficulty and danger. Nevertheless, should this misfortune happen, he directs a double cloth to be laid on the woman's belly, and a skilful assistant to stand at her left side, and with both hands on the *Abdomen*, to press from side to side, with a view of forcing the head against the *Os uteri*; which being effected, it must be delivered by fixing the crotchet in the skull. With regard to the *Placenta*, he directs us to deliver it in this manner: The child being delivered, must be given to a servant, who holds it on the palms of his hands, while the operator gently pulls the umbilical cord, for fear of breaking it, and tracing it with his right hand as far as the *Secundines*, separates the *Placenta* from the *Uterus* with his fingers, and extracts it entire, together with the grumous blood: then the woman's thighs being placed close together, she must be kept in a moderately warm room, free from wind, and a cloth dipped in *Oxyrrhodon* must be laid on her *Abdomen*: the rest of the cure consisting in the application of those things which are used in inflammations and wounds of the tendons.

Moschion, who is supposed to have lived at *Rome* in the reign of *Nero*, says, That in difficult births, the parts are first of all to be relaxed with oil: if the passage of the urine is obstructed by a stone in the neck of the bladder, he advises us to draw off the water with a catheter; if the *Fæces* are indurated, he prescribes a clyster, and orders the membranes to be pierced with a lancet. He says, the best position is that of the head presenting, the hands and feet being mingled and disposed along the sides. If the position is not right, and cannot be amended by putting the woman in proper postures, he advises us to introduce the hand, when the *Os uteri* is opened, and turn the child. If a foot presents

sents (says he) push it back, and bring the *Fœtus* by both feet, the arms being pressed down along the sides: if the knee or hip presents, they must be also pushed back, and the child brought by the feet: if the back presents, introduce the hand, and alter the position, by turning to the feet or to the head, if it be nearest; and if the head is large, it must be opened, &c.

Rufus Ephesus, who lived in the reign of *Trajan*, gives a short account of the *Uterus* and its appendages, and describes those tubes which are now called Fallopiian, as opening into the cavity of the womb; though *Galen* arrogates this discovery to himself, so particularly, as to say upon this subject, that he was surprized to find they had escaped the notice of the common herd of anatomists; but more especially amazed that a man of *Herophilus's* accuracy, should be ignorant of them: and *Rufus* has expressly mentioned the opinion of *Herophilus* on this particular.

Galen was born in the time of the emperor *Adrian*, *Anno Dom.* 131. about six hundred years after *Hippocrates*, upon whose works he writes commentaries, and gives some reasonable aphorisms relating to women and children: we have two books of his writing, *de Semine*; (the third being accounted spurious) one, *de Uteri Dissectione*, *de Fœtuum Formatione*, *de Septimestri Partu*, lib. 14 & 15. *de usu Partium*. He hath also written several books on anatomy and physiology, but nothing *de Morbis Mulierum*. In his physiology he is prolix and inaccurate: his anatomy is pretty exact in many things; but upon the whole, he contains little or nothing to our purpose.

In *Oribasius*, who was a physician to *Julian*, we have a description of the parts, and, in several places of his works, an account of the medicines used by the
antients

antients in the diseases of women and children: he has also a chapter on the choice of a nurse, and another upon the milk, but says nothing of the operation.

Ætius, who (according to *Le Clerc*) lived in the end of the fourth, but in the opinion of *Dr. Friend*, in the end of the fifth century, was likewise a collector from the antients: for neither he nor *Oribasius* can be stiled original writers; the last indeed copied from none (almost) but *Galen*, and was therefore stiled *Simia Galeni*; whereas the other compiled from all the authors that went before him, many of whom would have been lost in oblivion, had not they been mentioned in his works; he is very particular upon the diseases and management of women; his fourth *Sermo* of the 4th *Tetrad*, being expressly written on this subject and containing almost every thing which had been said before him.

In his first chapter, *De uteri situ, magnitudine, ac forma*, he distinctly divides the womb into a fundus and neck, and describes the *Os Tincæ*, as ending in the *Sinus Muliebris, sive Pudendum*, which plainly appears to be no other than what we now call the *Vagina*; for, he says, it is above six inches in length; but his description of the figure of the *Uterus* is imperfect. His seventh chapter treats of conception, from *Soranus*. The tenth of the *Pica*, taken from some of *Galen's* works that are lost. His description of this disease, is to the following purpose. Young women with child have vitiated appetites, and long for earth, ashes, coal, shells, &c. The distemper continues till the second or third month of gestation; but commonly abates in the fourth. To remedy the nausea and vomiting that attend it, he orders aloes, dried mint, and other stomachics.

In his twelfth and fifteenth chapters, he gives a detail of *Aspasia's* practice in the care and management

ment of women, during pregnancy, and in time of labour; but the greatest part of these and the other chapters, are taken from *Hippocrates*, to whom he has made a few insignificant additions, until we come to the twentieth and second, in which there is a very full and distinct account of difficult births.

Among the causes that produce difficult labours, he enumerates weakness of mind or body, or both, a confined *Uterus*, a narrow passage, natural smallness of the parts, obliquity of the neck of the *Uterus*, a fleshy substance adhering to the *Cervix* or mouth of the womb, inflammation, abscess or induration of the parts, rigidity of the membranes, premature discharge of the waters, which ought to be detained for moistening and lubricating the parts, a stone pressing against the neck of the bladder, and extraordinary fatness; an *Anchylosis* of the *Ossa Pubis* at their juncture, by which they are hindered from separating in time of parturition, too great pressure of the *Uterus* on the cavity of the loins, or too great quantity of *Fæces* and urine retained in the *Rectum* and bladder, an enfeebled constitution, advanced age, slender make, and greenness of years, attended with weakness and inexperience.

He observes, that difficult labours likewise proceed from circumstances belonging to the child that is to be born: from the extraordinary size of the body, or any part of it: from its being unable (thro' weakness) to facilitate the birth by its leaping and motion: from the crowding of two or three *Fœtuses*: from twins presenting together at the mouth of the womb: from the death of the child, as it can give no assistance in promoting labour; from its tumefaction after death, and wrong presentation.

He says, the natural position is when the head presents

sents and comes forwards, the hands being extended along the thighs; and the preternatural, that in which the head is turned either to the right or left side of the *Uterus*; when one or both hands present, and the legs within are separated from one another: that the danger is not great when the feet present; especially if the child comes forwards with the hands along the thighs; and that if, while one leg presents, the other is kept up or bent in the *Vagina*, this last must be brought down: nor is the difficulty great in those that lie across, a circumstance that may happen in three different ways; namely, when the child presents with either side, or with the belly: Nevertheless, he observes, that the case is easiest when the side presents, because there is more room for the operator to introduce his hand, and turn the *Fœtus*, so as that it may come either by the head or feet. The worst position, he says, is when the child presents double, especially if the hip bones come foremost: This double presentation happens with the hips, the head and legs, and the belly; in which last case, he observes, that if the *Abdomen* is opened, and the intrails taken out, the parts collapse, and the position is easily altered.

Over and above the fore-mentioned causes of difficult labour, he affirms it may be owing to an over-thickness or thinness of the membranes which break too late or too soon; as also to external causes, such as cold weather, by which the pores and passages of the body are constricted; or very hot weather, by which they are too much relaxed. All these circumstances, he says, ought to be minutely inquired into, and duly considered by the physician who directs the midwife; nor ought this last to be permitted to tear or stretch the parts with violence. If the difficulty proceeds from

the form of the *Pelvis*, he directs the woman to be seated on a stool, her knees being bent and kept asunder; by which means the *Vulva* will be dilated, and the *Cervix* extended in a straight line: And those that are gross or fat, are to be placed in the same manner. If the difficulty arises from straitness, stupor, or contractions, he says it will be proper to relax the parts, by seating the patient over warm steams and fumigations in a place conveniently warmed; by pouring into the *Vagina* warmed oils, and by the application of emollient ointments and cataplasms: for this purpose, he likewise recommends the warm bath, unless a fever or complaint render it improper. Some, he observes, are carried about in a litter, in a warm place; and others have been subjected to violent concussions: but, those who, by a weak, loose habit, are too much enfeebled to undergo labour, ought to be treated with prescriptions that consolidate, strengthen, and constrict: they ought to be sprinkled with perfumes and vinegar, anointed with cooling ointments of wine and oil of roses, and sit over infusions of roses myrtle, pomegranates, and vinetwigs. If the difficulty is owing to the preternatural position of the *Fœtus*, it must be as much as possible reduced into the natural way. If the foot or hand is protruded, the child must not be pulled by either; the limb must be returned, twisted, or lopt off, and the shoulder or hip moved with the fingers into a more convenient situation. When the whole body of the *Fœtus*, is strongly pressed down in a wrong position, he advises us to raise it to the uppermost part of the *Uterus*, and turn it downwards again in a right posture: this operation must be performed gently and slowly, without violence; oil being frequently injected into the parts that no injury may be sustained by

by either mother or child. If the mouth of the womb continues close shut, it must be softened and relaxed with oily medicines: If there is a stone in the neck of the bladder, it must be pushed up with the catheter, and the urine (if in great quantity) drawn off. If the *Rectum* is filled with *Fæces*, it must be evacuated by clysters: and proper methods are to be taken, when delivery is prevented by inflammation, abscess, ulcer, soft or hard tumors, or any other such obstacles.

If the difficulty proceeds from a fleshy substance, adhering to the neck of the womb, or from a thick membrane found in those women who are imperforated, the obstacle in both cases must be removed by the knife; and if the membranes that surround the child are too rigid to give way at the proper time, they must be cut without delay: if, on the contrary, the waters are discharged too soon, so as that the parts are left dry, the want of them must be supplied with lubricating injections, made with the whites of eggs, decoctions of mallows, fenugrec, and the cream of barley pisan.

If the difficulty proceeds from the smallness or strong contraction of the *Uterus*, the parts are likewise to be rendered soft and distensible with lubricating ointments and fomentations; the mouth of the womb must be dilated with the fingers and the child extracted by force; but should this method fail, the *Fœtus* must be cut in pieces, and brought away by little and little. This, he says, is the only resource when the *Fœtus* is too large, and the most proper when it is dead; and its death may be certainly pronounced, when the presenting part is felt cold and without motion. When two, or three children present in the neck of the *Uterus*, those that are highest must be raised up to the *Fundus*, until the lowest be first delivered.

If the difficulty is owing to the excessive largeness of the head, breast, or belly, he says, it will be absolutely necessary to open these cavities; and observes, that the most proper time for placing the woman in labour upon the stool, is when the membranes are felt presenting in a round extended bag.

His twentieth and third chapter contains the method of extraction and exsection of the *Fœtus*, from *Philumenus*; and is an accurate detail of the operations recommended above. He says before the operator begins to deliver by exsection, he ought to consider the strength of the patient, and determine with himself, whether or not there is a probability of saving her life; because, if she is exhausted, enervated, lethargic, seized with convulsions *subsultus tendinum*, with a disordered pulse, it is better to decline the operation, than run the risque of her perishing under his hands: But, if he thinks her strength and courage sufficient for the occasion, let her be laid in bed, on her back, her head being low, and her legs held asunder by strong experienced women; she may take by way of cordial, two or three mouthfuls of bread dipped in wine, in order to prevent her fainting; for which purpose, her face may be also sprinkled with wine during the operation. The surgeon having opened the *Pudenda* with an instrument and observed the source of the difficulty, whether tumour, callus, or any of the causes already mentioned, he must take hold of it with a forceps, and amputate with a bistory: If a membrane obstructs the mouth of the womb, it must be divided: If the delivery is prevented by the rigidity of the membranes that envelop the *Fœtus*, they must be pinced up with a pair of small forceps, and cut with a sharp knife; then the perforation
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may be dilated with the fingers, so as to effect a sufficient opening for the passage of the child.

If the passage is obstructed by the head of the *Fœtus*, it must be turned and delivered by the feet; but if the head is so impacted, as that it cannot possibly be returned, a hook or crotchet must be fixed in the eye, mouth, or over the chin, and in this manner the child may be extracted with the operator's right hand; but, besides this crotchet, which ought to be gently introduced, and guarded with the fingers of the left hand, another must be insinuated in the same manner, and fixed on the opposite side, that the head may be extracted more equally, without sticking in one place, and one of the instruments hold, in case the other should slip; and when these crotchets are properly applied, the operator must pull, not only in a straight line, but also from side to side.

He directs us to introduce our fingers besmeared with unctuous medicines, betwixt the mouth of the womb and the impacted body, in order to lubricate it all round. When the *Fœtus* is delivered as far as the middle, the extracting instrument must be fixed in the upper parts: if the head is either naturally too large or dropical, it must be opened with a sharp pointed knife, that it may be evacuated, contracted, and delivered: but if, notwithstanding this operation, it cannot be brought along, the skull must be squeezed together, the bones pulled out with the fingers or bone-forceps, and the crotchet fixed for delivery. If, after the head is extracted, there should be a contraction round the *Thorax*, a perforation must be made near the clavicles, into the cavity of the breast, that the bulk may be diminished by the evacuation of the contained humours: if
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the child is dead, and the belly distended with air or water, the *Abdomen* must also be opened, and, if need be, the intestines extracted.

If the arm presents, it must be separated at the joint of the shoulder: for this purpose, a cloth must be wrapt round it, that it may not slip, while it is pulled down to the shoulder; then opening the *Labia*, the joint will appear at which the limb may be taken off: This amputation being performed, the head must be pushed up, and the *Fœtus* delivered. The same method must be pursued when both arms present, and when, though the feet are forced out, the rest of the body will not follow; in which case, the legs must be separated at the groins.

If, when the *Fœtus* presents double, and cannot be raised up, the head is farthest down, the bones of the skull are to be squeezed together, without opening the scalp or skin, and the crotchet being fixed in some part of it, will bring it forth, the body following in a straight line: but if the legs are nearest, they must be amputated at the *Coxa*, and the hips pushed up, so as to allow the head to be squeezed and prepared for extraction. When the *Fœtus* presents double, he says, it is better to divide the head from the body than to push up the *Thorax*, and deliver by the feet: but should the rest of the body be delivered, and the head left behind, the left hand anointed must be introduced into the *Uterus*, and the head being brought down with the fingers to the mouth of the womb, one or two crotchets must be fixed on it, in order to bring it along; the most proper places in the head for the application of this instrument, being the eyes, ears, mouth, or under the chin. For the extraction of the *Thorax*, it may be fixed in the armpits, clavicles, *Præcordia*, breast, and joints of
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the back and neck: for the lower parts, on the *Pubis*, or in the *Pudenda* of female children.

If the mouth of the womb be shut by an inflammation, he cautions us against using any violence; but orders it to be softened and relaxed by oily medicines, fumigations, baths, cataplasms; by these means, the inflammation will be lessened or removed, and the *Os internum* dilated so as to allow the *Fœtus* to be delivered. If the body hath been extracted piecemeal, he directs the parts to be laid together, in order to observe if the whole is delivered, and if any thing remains, it must be extracted without delay.

In his twentieth and fourth chapter, (the substance of which is also taken from *Philumenus*) he lays down the following directions for extracting the *Secundines*.

The *Os internum* (when the *Secundines* are detained) is sometimes shut, sometimes open, and often inflamed; the *Placenta* sometimes adhering to the *Fundus*, and sometimes in a state of separation. If the *Os internum* is open, and the *Secundines*, separated from the *Uterus*, lie rolled up like a ball, they are easily extracted by introducing the left hand warmed and anointed; and after having taken hold of them, drawing them gently down from side to side, and not straight forwards, for fear of a *Prolapsus vulvæ*. If the *Os uteri* is shut, it must be opened slowly with the finger, after it hath been lubricated with oil, or auxunge: If this method should fail, a poultice of barley-meal malaxed with oil, must be applied to the belly, the oily injections repeated, and if the patient's strength will permit, she must take ster-nutatories of castor and pepper, and potions of those medicines that bring down the *Menses*, sitting at the same time over a fumigation.

All these things must be tried on the first and second days; and if they succeed, so as to open the mouth of the womb the *Secundines* will be easily extracted as above: but, if all these methods fail, the woman must be no longer fatigued; they will in a few days putrify and come off in a dissolved sanies; and should the fetid smell effect the head and stomach, he prescribes such medicines as are used in obstructions of the *Menses*.

His next chapter, which is taken from *Aspasia*, treats of the management of women after delivery; and he writes several more on the diseases incident to women, such as inflammations, imposthumes, and cancers of the breast and *Uterus*; compiled from *Philumenus*, *Leonides*, *Archigenes*, *Philagrius*, *Soranus*, *Rufus*, *Aspasia*, and *Asclepiades*.

The next considerable author on this subject, is *Paulus Ægineta*, whom *Le Clerc* supposes to have lived in the latter end of the fourth century; though *Dr. Friend* brings him down to the seventh: He was the last of the old *Greek* medical writers.

His method of practice is much the same with that of *Ætius* and *Philumenus*, as above described; and though not so full as they, he is very distinct and particular. He tells us in his preface, that he had collected from others; and although he was the first who had the name of man-midwife from the *Arabians*, the writings of *Ætius* plainly shew, that there had been many male-practitioners before him. In the seventy-sixth chapter of his third book, which treats of difficult births, he gives the appellation of natural to all those in which the head or feet present; and all other positions he deems preternatural.

In another place, he observes that the woman ought to be seated on the stool or chair, when, by the touch, the

the mouth of the womb is felt open, and the membranes pushed down. As to his method of extracting a dead child and the *Placenta*, it is much the same with that already described from *Philumenus*, in the preceding article.

Paulus is supposed to have studied at *Alexandria*: for, long before his time, the *Roman* empire in the west had been overrun and ruined by the *Goths* and *Vandals*. Soon after this period, learning began to decline in the East; the schools of *Alexandria* were removed to *Antioch* and *Haran* by the *Saracens*, who subdued *Egypt*, destroyed the *Roman* empire in *Asia*, and then the *Greek* physicians were translated into the *Syriac* and *Arabic*: at least, the *Arabians* copied from them. This subject is fully discussed by *Dr. Friend*, in his *History of physic*.

Serapion, one of the first *Arabian* writers, in his *Traſtatus Quintus* has several chapters on the diseases of pregnant women, with the method of cure.

The next author of any note, belonging to this country, was *Rhazes*; who, in the latter end of the ninth century, lived at *Badgat*. Like other systematic writers in physic, he hath treated of the diseases of women; and written one book expressly on the diseases of children.

In the last chapter of his *Liber Diviſionum*, he orders the membranes, when they are too tough, to be pierced with the nail of the finger, or with a little knife: And if the waters are discharged a long time before delivery, so that the parts remain dry, he directs us to anoint them with oily cerates.

Avicenna lived at *Iſpahan* about the year one thousand, and was so famous for his writings all over *Asia* and *Europe*, that no other doctrine was taught in the schools

schools of physic, till the restoration of learning. He is a voluminous author, treats largely of every part of Midwifery, so far as it was known in his time; copying from those that went before him: the operation for the dead child he takes from *Paulus*; the extraction of the *Secundines* from *Philumenus*; and the use of the fillet from his countryman *Rhazes*. He is very full of all the diseases of women relating to the *Menses*, uterine gestation, and delivery.

In all preternatural cases he says, the head ought to be reduced into the natural position: but, should this be found impracticable, he advises us to deliver by the feet. He alledges that the head is the only natural way of presenting, and that all other positions are preternatural; tho' of these, the easiest is when the *Fœtus* presents with the feet.

He recommends all the old methods for assisting in natural labours, and if the woman cannot be delivered by these, he orders a fillet to be fixed over the head: if that cannot be done, to extract with the forceps; and should these fail, to open the skull: by which means, the contents will be evacuated, the head diminished, and the *Fœtus* easily delivered.

The next *Arabian* medical writer is *Albucasis*, who, in the eleventh or twelfth century, lived at *Cyropolis*, a city of *Media*, on the *Caspian* sea; and it appears from an *Arabian* manuscript in the *Bodleian* library, that this is the same person who was also known by the name of *Alsaharavius*.

He hath written on natural labours in the same way with his predecessors, advising us to assist the birth with fomentations and ointments, and by reducing the child into the natural position, when any other part than the head presents. His operation for extracting
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the dead child, is literally the same with that described by *Ætius* : but whether he copied it from that author or from other *Arabians* his predecessors is uncertain.

What is most particular in this author is, the description and figures of the instruments then used in midwifry ; namely, a vertigo for opening the matrix, which seems to be much of the same contrivance with that which *Rhazes* calls the *Torculum volvens*. He likewise exhibits the figures of two other instruments for the same purpose : but not one of the three in the least resembles the *Speculum matricis*, described in later writers ; an *Impellens*, to keep up the body of the child while the operator endeavours to reduce the head into the natural position : two kinds of forceps, the larger he calls *Almisdach*, the other *Misdach* : and two different kinds of crotchets. The *Almisdach* is of a circular form, and seems contrived to deliver the head in laborious cases ; the *Misdach* is straight and full of teeth, according to the manuscript in the *Bodleian* library at *Oxford* ; but in the *Latin* edition, both are circular and full of teeth.

After the twelfth century, physic began to decline in *Asia*. *Theodore Gaza* brought the *Greek* manuscripts from *Constantinople*, after that city was taken in the year 1453 ; and about this time the art of printing being found out, all the knowledge of the ancients was soon dispersed over *Europe*.

In the next century, the practice of physic began to be encouraged in *England*. *Linacre*, born at *Canterbury*, and chosen Fellow of *All-souls*, in *Oxford*, in the year 1484, was a man of learning, and projected the foundation of the college of physicians in *London* ; for which he obtained a patent from King *Henry VIII.* and was himself president of it till the day of his death.

In the year 1565, one Dr. *Raynalde* published a book on Midwifery which he had translated into *English* from the original *Latin*. He informs the reader in his prologue (as he terms it) that the book, which was called *De partu hominis*, had been translated about two or three years before, at the request of some women, by a studious and diligent clerk, who having performed the task incorrectly, he (Dr. *Raynalde*) had been at great pains to revise and enlarge it in another translation: He also observes, that the *Latin* edition had been formerly published in *Dutch*, *French*, *Spanish*, and other languages *.

The author of this performance (contrary to the opinions of all other writers) says, when the child presents in the natural way with the head, that the face and foreparts of the *Fœtus* are towards the foreparts of the mother; and that if any other part presents, the position is preternatural. He observes, that in *France* and *Germany* the woman is commonly placed in a sitting position, on a stool made in form of a compass; and advises us, in all preternatural cases, to turn the child to the natural position, even when the feet present: But if this should be impracticable, to bring it footling, and in extracting to bind the feet together with a linen cloth. This however he pronounces a very jeopardous labour. He directs us to provoke and promote the delivery with fumigations and pessaries, and to prescribe internally, assa-foetida, myrrh, castor, and storax: From which

* This author was *Eucharius Rodian*, whose book was in great esteem all over *Germany*, and in the year 1532 being translated into *Latin* and other languages, from the original *High Dutch*, became universally the woman's-book over all *Europe*, and was introduced into *England*; where it was translated by this Dr. *Raynalde*, who nevertheless has taken great liberties with his author.

which circumstances, he seems to have copied from the ancient writers.

Several authors of note lived, and wrote in the sixteenth century, or betwixt the years 1530 and 1590, upon the diseases of pregnant women, and the different methods of delivery. A collection of the most remarkable among these writers, who are called the old moderns, was published at *Basil*, 1586, in quarto, entituled *Gynæciorum Commentaria*; and afterwards, in 1597, republished at *Straßbourg* in folio, by *Israel Spacius*, professor of medicine in that city, with the addition of two authors, who had not been mentioned in the first. At the head of this collection is *Felix Plateras*, born at *Basil*: He published tables, explaining the use and structure of the parts of generation proper to women.

The next is the *Harmonian Gynæciorum*, collected from *Gleopatra*, *Moschion*, *Theodorus Priscianus*, and another uncertain author, freed from repetitions and superfluities by *Casparus Vulphius*.

Then follows *Eros* or *Tortula*, first published among the old *Latin* writers at *Venice*, by the sons of *Aldus*.

The fourth place is held by *Nicolaus Rocheus*, a *Frenchman*, whose works, published at *Paris*, are taken from the *Greeks* and *Arabians*; though he hath added some observations of his own. In his twentieth and eighth chapter, he says, if the child is large, the *Os Uteri* must be dilated; if the hand or foot presents, neither must be laid hold on; but the operator, introducing his hand to the buttock or shoulder, must reduce the *Fœtus* into the natural situation, that is, so as to present with the head. His thirtieth chapter contains directions for extracting the *Placenta* when it adheres: The *Os uteri* must be dilated, and the accoucheur taking hold of the *Funis*, must pull gently from side to

side, lest the *Uterus* should be brought down; then more strength must be exerted by degrees, until the *Secundines* are brought away. His thirty-second chapter treats of monsters.

Ludovicus Banaciolus, of *Ferrara*, is the fifth: His works were published at *Straßbourg*.

The sixth is *Jacobus Silvius*, of *Amiens* in *Picardy*.

Then comes *Jacobus Rueff*, who published at *Zurich*, in *Switzerland*, and afterwards at *Frankfort*. He is the first who give a draught of the *Speculum Matricis*, for dilating the *Os internum*, which he directs to, be stretched in width; but by no means lengthways, lest, the ligaments breaking, the womb should fall down. When the feet present, and the hands are stretched along the sides, he advises us to deliver footling; but if the hands are up over the head, he says the child ought not to be brought by the feet, unless the head be very small. If the knees present, he orders them to be pushed up, and the child to be delivered by the feet: but if the breech comes first, it must be reduced, and the *Fœtus* brought by the head. The same practice he recommends in the presentation of the hands, shoulder, or hands and feet together.

He is succeeded by *Hieron. Mercurialis*, who lived at *Padua*, *Venice*, and *Bologna*, and practised much in the same manner.

The ninth is *Johannes Baptista Montanus* of *Padua*.

Victor Trincavillius, of *Venice*, is the next.

Albertus Bottonus, of *Padua*, is the eleventh.

After him comes *Joannes le Bon Heteropolitanus*.

The author who holds the next place in this collection, is *Ambrosius Paræus*, the famous restorer and improver of Midwifery: He lived at *Paris*, and his works were translated into *Latin* by *Jacob. Guillemeau*.

Next to him *Spachius* places *Albucasis*, the *Arabian*, already mentioned. Then

Franciscus Rouffetus, who wrote on the *Cæsar*ian operation: His work was translated from *French* by *Casparus Baubinus*; and several of his cases are published in the *Memoirs* of the academy of surgeons, by *M. Simon*.

There is also the figure of a petrified child, extracted from the womb after the death of the mother; a particular account of which is added to *Cordæus*'s comment upon *Hippocrates*.

Casparus Baubinus, professor at *Basil*, is the sixteenth.

Then *Mauritius Cordæus*, of *Rheims* and *Paris*.

The next is *Martinus Akakia*, of *Paris*; and the last is *Ludovicus Mercatus*, a *Spaniard*—— This author says, if the child does not present with the head or feet, the case is dangerous, and preternatural; nor is the presentation of the feet without hazard and difficulty. In laborious cases, if the woman be young and vigorous, he prescribes bleeding in the foot, after *Hippocrates*; but is against the use of the bath.

If the *Fœtus* comes double, or presents wrong, he directs us to push it up, and bring down the head, if possible; which ought also to be our aim, when the hand or foot presents. He orders the fingers to be introduced, as *Paulus* directs (*digitis in unum conductis*) that is, the fingers and thumb formed into the shape of a cone. He exclaims against the *Cæsar*ian operation as an unchristian undertaking; directs us, when the *Placenta* adheres, to introduce the hand, and pull the *Funis* gently from side to side; and recommends sneezing to the woman, as conducive to its expulsion.

When he treats of the manner of extracting a dead child, he says, with *Ætius*, we ought first to consider whether or not the woman has strength sufficient to

bear the operation; then gives the method of *Hippocrates*, and in the next page describes the manner of *Ælius*.

Having thus given a short sketch of the authors collected by *Spachius*, I shall return to *Paræus*, who (as I have already hinted) was the first modern that made any considerable improvements in Midwifery; which continued to his time without any material alteration, even after the other branches of physic, had been improved. For example, if the child did not present the natural way, they shook and altered the position of the woman, by which means they imagined the *Fœtus* would turn to the right posture; or they attempted to move it so as that it should present with the head: If this could not be effected, and the feet were near at hand, they brought it footling; but, if they failed in this attempt, the child was supposed to be dead, and extracted with crotchets and hooks of various kinds; and if it could not be delivered in that manner, on account of its extraordinary size, or the narrowness of the *Pelvis*, they dismembered and separated the body with crooked and straight knives, and then extracted it piecemeal.

Paræus was the first that deviated from this practice, and expressly orders the child to be turned and brought away by the feet, in all preternatural cases. He says, the most natural case is that in which the child presents with the head, and is delivered immediately on the discharge of the waters: it is more difficult when the *Fœtus* comes by the feet, and still more so, in the presentation of the arm and legs together, the back, belly, arm alone, or any other unnatural position. He directs us to bring away the *Secundines* immediately after the child is delivered: He retains the old notions relating to the diseases
and

and medicines; for the antient theory was nor altered till after the great *Harvey* found out the circulation of the blood.

Contemporary with him, was the above-mentioned *Jacobus Rueff*, who practised at *Frankfort*, and in his writings recommends the method of the antients; A circumstance from which we learn, that the improvements had not then reached *Germany*. Indeed they were very much retarded by the false modesty of the women, who were shy of male-practitioners, and by the mistaken notions which were at that time entertained of the structure of the *Uterus*; for all the descriptions till the time of *Vesalius*, were very imperfect; and the womb in women supposed to be formed of different parts, resembling that of the brute species.

Jacobus Guillemeau was the pupil of *Ambrosius Paræus*, adopted and confirmed his master's practice, and has written with learning and judgment.

About the end of the sixteenth century, or in *Paræus*'s time, surgery in general was more cultivated and improved in *Paris* than in any other part of the world, by means of the hospitals which had been from time to time erected, especially the *Hotel Dieu*, into which poor women with child, destitute of the necessaries of life, were admitted.

By such opportunities, the surgeons improved their knowledge in midwifery; and by degrees established a better method of practice: The success that attended which, together with the progress of polite literature, that began to flourish about this time in *France*, got the better of those ridiculous prejudices which the fair sex had been used to entertain, and they had recourse to the assistance of men, in all difficult cases of Midwifery. This conduct was justified by experience: and the
lives

lives of many women and children were saved by the skill of the man-practitioner.

In the year 1668, *Francis Mauriceau*, after an extensive practice for several years, in the *Hotel Dieu* and city of *Paris*, published a treatise on Midwifery, which exceeded every thing before made public on that subject. He describes the bones of the *Pelvis*, and all the parts subservient to generation; the diseases, incident to pregnant women, with the methods of prevention and cure; and, after having given a full and distinct account of all the different labours, and the way of delivering in each case, concludes his work with the diseases of women and children.

His method of practice was nearly the same with that of *Paræus* and *Guillemeau*; but he is much fuller than either. In laborious cases, when the head presents, and cannot be delivered by the labour-pains, he orders a fillet, or stripe of linen, to be slit in the middle, and slipped over the head: this contrivance hath since been improved with laces, by which it is contracted on the head. It is introduced by three different instruments, fixed with a great deal of trouble, and, after all, of very little use.

He also invented a *tire-tête*, which cannot be applied until the skull is opened with a knife; consequently can be of no service in saving the child: and granting the *Fœtus* to be dead, other methods are much more effectual. He was ignorant of the forceps. When the head is left in the *Uterus*, he advises us to extract it, by introducing over it a broad fillet like a sling.

He is so full on the diseases, that *Boerhaave* recommended him and *Mercatus* to his scholars, on that subject. In his theory of conception, he hath not deviated from the opinions of *Hippocrates*; and in his second
volume,

volume, he hath published a great many judicious aphorisms, that are now translated into *English* by Mr. Jones : indeed his writings were so universally approved, that they have been translated into several different languages.

Cotemporary with *Mauriceau* were Dr. *Chamberlain* and his three sons, who practised Midwifery in *London* with great reputation. One of these three sons, father to the late Dr. *Hugh Chamberlain*, translated the first volume of *Mauriceau* into *English*; and in a note upon that author's method of extracting the child by the help of the crotchet and tire-tête affirms, that his father, brothers, and himself, were in possession of a much better contrivance for that purpose.

This was no other than the forceps, which they kept as a nostrum, and was not generally known till the year 1733, when a description of the instrument was published by *Chapman*. Long before that period, indeed, several kinds of forceps, or extractors, different from those mentioned by the *Arabians*, were used in *France*, *Germany*, and other places; but all of them fell short of the instrument used by the *Chamberlains*, and said to be contrived by the uncle.

In the last century, although there were such excellent practitioners in *London*, and even before the translation of *Mauriceau*, *Guillemeau's* book on Midwifery had been translated into *English*; and in it all the absurd notions about spells and amulets were left out: Nevertheless, one *Nicholas Culpepper*, who styles himself gent. student in physic and astronomy, published at *London*, a book entituled, *A Directory for Midwives*; in which he has copied the theory and practice of the old writers, many of whom he mentions, namely, *Hippocrates*,

pocrates, Galen, Ætius, &c. and frequently advises the reader to consult his translations of *Sennertus, Riverius, Riolanus, Bartholin, Johnston, Vestlingius, Rulandus, Sanctorius, Cole*, the *London Dispensatory*, and a book which he himself had published under the title of *The English Physician*. His performances were for many years in great vogue with the midwives, and are still read by the lower sort, whose heads are weak enough to admit such ridiculous notions.

He was succeeded in that way of writing by one *Dr. Salmon*, who was also a great translator and compiler. He was partly author of a spurious piece called *Aristotle's Midwifery*, which hath undergone a great many editions, and contributed to keep up the belief of the marvellous effects of various medicines.

Mauriceau, in 1706, published a second volume, containing about eight hundred observations; but, long before that period, he had gained such reputation by his writings, as encouraged others of the same nation to write on the same subject: Accordingly, we have the works of *Portal, Peu, and Dionis*; but all of them fall short of *Mauriceau*. About this time also, *Saviard* wrote several observations on the same art.

Henry Daventer practised at *Dort* in *Holland*; and in 1701, published a book on Midwifery. He observed, that an imaginary straight line falling down from the navel, would pass through the middle of the *Pelvis*. This will nearly hold true, when the *Abdomen* is not distended; but in the last month of uterine gestation, in order to pass through the middle of the *Pelvis*, such a line must be let fall from the middle space, betwixt the navel and *Scrobiculus cordis*. This, however, was a good hint, and useful in practice.

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He pretends to have made several useful discoveries, which seem feasible enough to those who have not had the opportunity of an extensive practice; such as the side or wrong positions of the *Os internum*, and *Fundus uteri*, which (according to him) are chiefly the occasion of lingering, difficult, and dangerous labours: he seems to have been led into this mistake, by supposing that the *Placenta* always adhered to the *Fundus uteri*. As to the difficulties proceeding from the wrong position of the *Os internum*, a practitioner would be apt to believe he had never waited for the effect of the labour-pains, which generally open it, by pushing down the waters, or head of the child.

He was seldom called, except in difficult cases, often proceeding from a distorted *Pelvis*, which is common in *Holland*. When this is the case, the head of the child is commonly cast forwards over the *Pubis* by the jetting in of the *Sacrum*: or, if one *Ilium* is higher than the other, the *Os internum* and *Fundus* are thrown to different sides; but even then, the chief difficulty is owing to the narrowness of the *Pelvis*. The *Uterus* is very seldom turned so oblique as he supposes it to be; or, if it were, provided the child is not too large, nor the *Pelvis* narrow, I never found those difficulties he seems to have met with: and should the labour prove tedious, on account of a pendulous belly, by altering the woman's position, the obstacle is commonly removed.

For example: let her breech be raised higher than her shoulders; or, she may be laid upon her side, in a preternatural case, when it is necessary to turn and deliver the child by the feet. Nevertheless, though he has run into extremes about the wrong positions of the *Uterus*, in which he is the more excusable, as he had the
fondness

fondness of a parent for a theory that he alledges was his own, yet there are some very useful hints in his book, particularly that about floodings; in which, he directs us to break the membranes, in order to restrain the *Hæmorrhage*; and his method of dilating the *Os externum*.

The next noted writer in this way is *Lamotte*, who lived at *Valognes*, near *Caen* in *Normandy*; and in 1715 published a book on Midwifery, which seems to be the best of the kind since *Mauriceau*, and is translated into *English* by Mr. *Tomkins*. It contains about four hundred observations, the greatest part of which are illustrated with many judicious reflections.

In describing a case in which the head presented, he mentions the great fatigue it had cost him to turn and deliver by the feet; and hopes that some easier method will be found out, for extracting the child in such circumstances: so that, although he wrote so lately, he must have been ignorant of the forceps. He, as well as *Daventer*, exclaims against the use of instruments; and in most laborious cases, when the head presented, turned and extracted the *Fœtus* by the feet.

A number of such cases he has recounted; but I am afraid that, like other writers, he has concealed those that would have been more useful to the young practitioner, and only given a detail of his own that were successful: for, certain it is, the head of the child is often so large, or the *Pelvis* so narrow, that labour-pains cannot possibly force it away; and frequently when the *Fœtus* hath been turned with great fatigue, and the body actually extracted, the force required to deliver the head with the hands alone, is such as destroys

stroys the child; and sometimes it is absolutely impossible to bring it along without the help of instruments.

For my own part, when I first began to practise, I determined to follow the method of those gentlemen; but having by these means lost several children, and sometimes the mother, I began to alter my opinion, and consult my own reason: In consequence of which, in cases of such emergency, I opened the head, with a view of saving the woman, if I could not preserve the life of the child. In the course of my deliberations on this subject, I likewise tried to improve upon the forceps, which seemed to me an instrument more mechanically adapted, and easier applied than any other contrivance hitherto used: And surely experience justifies the use of this experiment, by which we are enabled to save many children, which otherwise must have been destroyed.

Not that I would be thought to exult over those authors whom I have mentioned, as mostly enemies to all instruments whatever: In other things they have written very judiciously, and are blame-worthy in nothing so much, as in having suppressed those unsuccessful cases which must have happened to men of their extensive practice.

I own, indeed, when the woman has not strength nor pains sufficient to force along the child, and the difficulty does not proceed from a large head or narrow *Pelvis*, the method of turning will prove successful; but, if in the other extreme, I appeal to all candid practitioners, whether many children are not lost, even when the head does not present, and when the body is first brought down, because the *Fœtus* cannot be delivered in another manner.

The next writer in Midwifery is Mr. *Amand* of *Paris*, who describes the method of extracting the head,

when left in the *Uterus*, by means of a net. The contrivance is ingenious, but is not applied without great trouble, and cannot succeed when the *Pelvis* is too narrow, or the head too large to pass.

Edmund Chapman practised Midwifery several years in the country, before he settled in *London*; where, in 1733, he published a short account of the practice of Midwifery, illustrated with about fifty cases; and is the first person who made public a description of the forceps used by the *Chamberlains*. *Giffard's* observations were published in the following year, by Dr *Hody*, containing many useful remarks and histories of cases in which he had used the extractors or forceps.

Heister, professor at *Helmstadt*, a little town in the dukedom of *Brunswick*, in the year 1739, published at *Amsterdam* a treatise on surgery; in which we find a very concise and distinct account of the practice of Midwifery, as well as of the *Cæsarian* operation.

Mr. *Ould*, surgeon in *Dublin*, in the year 1742, published a treatise on the practice of Midwifery, in which there are two good observations: One relating to a case in which the head presents; and the other specifying what is to be done, when delivery is retarded by the twisting of the *Funis* round the neck of the child. He prefers his *Terebra occulta* to the scissars, probably because he did not know the proper dimensions of this last instrument. The very next year, *Mesnard* published at *Paris* a book on the same subject, by way of question and answer; and is the first who contrived the curved, in lieu of the straight crotchets, which is a real improvement.

Over and above the writings of those authors whom I have mentioned, there are a great many curious and extraordinary observations on the practice of this art,

in *Schenckius*, *Hildanus*, *Bonetus*, the *Philosophical Transactions*, the Academies of Sciences and of Surgeons, and the *Medical essays of Edinburgh*: And besides these, the best modern authors who have written on the diseases of women and children, are *Sydenham*, *Harris*, *Boerhaave*, *Friend*, *Hamilton*, *Hoffman*, and *Shaw*.

On the whole, that the young practitioner may not be misled by the useless theories, and uncertain conjectures of both antient and modern writers, it may be necessary to observe in general, that all the hypotheses hitherto espoused, are liable to many material objections; and that almost every system hath been overthrown by that which followed it.

This will, probably, be always the case, and indeed, as theory is but of little service towards ascertaining the diagnostics and cure of diseases, or improving the practice of Midwifery, such inquiries are the less material. What *Hippocrates* has written about the form of the *Uterus*, and its various motions, conception, the formation of the child, the seventh and eighth month's births, was believed as infallible till the last century, when his doctrine of conception, and the nutrition of the *Fœtus* was overthrown; and many new and uncertain theories, on the same subject, introduced.

Some of the moderns conclude, that the antients never turned and brought children by the feet, because *Hippocrates* directs us, in all cases, to bring the head into the natural situation; and says, that when delivery is performed by the feet, both mother and child are in imminent danger. *Celsus*, and all the writers till the time of *Paræus*, adopted this practice of bringing the head to present: But, at the same time, many of them observe, that if this be not practicable, we must search for the feet, and deliver the *Fœtus* in that manner. *Celsus*

says, if the feet are at hand, the child is easily delivered footling: And *Philumenus* goes still farther, saying, that if even the head should present, and the child cannot be delivered in that position, we must turn and bring it by the feet.

With regard to the fillets and forceps, they have been alledged to be late inventions; yet we find *Avicenna*, recommending the use of both. The forceps recommended by *Avicen*, is plainly intended to save the *Fœtus*; for, he says, if it cannot be extracted by this instrument, the head must be opened, and the same method used, which he describes in his chapter on the delivery of dead children.

To conclude, we find among the ancients several valuable jewels, buried under the rubbish of ignorance and superstition; because the assistance of men was seldom solicited in cases of Midwifery, till the last extremity: And those disadvantages being considered, we ought to be surprized at finding so many excellent observations in the course of their practice: and be ashamed of ourselves for the little improvement we have made in so many centuries, notwithstanding our opportunities, and the advantages we had from their experience.

True it is, we have established a better method of delivering in laborious and preternatural cases; by which many children are saved, that must have been destroyed by their manner of practice: but are not many modern practitioners justly branded for their sordid and unsocial principles, in professing nostrums, both with regard to medicines and methods of delivery? In-somuch, that I have heard a gentleman of eminence in one of the branches of medicine affirm, that he never knew one person of our profession, who did not pretend

tend to be in possession of some secret or another : from whence he concluded, that we were altogether a body of empirics. Such reflections ought to make a suitable impression upon the minds of the honest and ingenuous, prompt them to lay aside all such pitiful, selfish considerations, and, for the future, act with openness and candour ; which cannot fail of redounding to the honour of the profession, and the good of society, as well as their own advantage.





B O O K I.

C H A P. I.

The Structure and Form of the PELVIS, so far as it is necessary to be known in the practice of Midwifery.

S E C T. I.

Of the BONES.

THE *Pelvis* is composed of three bones; the *Os Sacrum*, with its appendix, known by the name of *Coccyx*, and the two *Ossa innominata*. The *Sacrum* in children is divided into five distinct bones, and the *Coccyx* into four cartilages; but in adults, these last are formed into as many moveable bones, and the divisions of the *Sacrum* ossified so as to become one bone.

Each *Os innominatum* is, in infants, composed of three different bones, under the appellation of *Os Ilium*, *Ischium*, and *Pubis*; which are joined to one another at the *Acetabulum*, or cavity that receives the round head of the thigh-bone. This composition is, in point of figure, so irregular, that although in adults the three are
ossified

ossified into one bone, those different names are still used, in order to distinguish one part of it from the other.

The *Ossa innominata* of the opposite sides are joined to one another in the fore-part, at the *Pubes*, by a thick cartilage and strong ligaments; and the posterior part of each *Os ilium* is conducted with the upper and lateral part of the *Sacrum* by the same *apparatus*.

Divers authors and practitioners in this art have alledged, that towards the latter end of gestation, when all the parts of the *Abdomen* are strongly pressed by the increased *Uterus*, an extraordinary quantity of *Mucus* is secreted, not only by the glands of the *Os internum* and *Vagina*, but also by those belonging to the cartilages and ligaments, that connect the bones of the *Pelvis*; by which means, the ligaments and cartilages are softened and relaxed, and the bones are separated from one another in time of labour: But, from experience and observation I may venture to assert, that this separation is by no means an usual symptom, though sometimes it may happen; in which case the patient suffers great pain, and continues lame in those parts for a considerable time after delivery.

In some women indeed, a kind of obscure motion may be perceived, when the child's head is forced into the *Pelvis*, by strong pains: the junctures of the *Sacrum* with the *Ossa Ilium*, as well as that of the *Ossa Pubis*, seem to yield a very little alternately, in order to accommodate themselves to the shape of the head, as it is squeezed down and passes through the *Pelvis*; but the bones are not separated to any considerable distance. See Vol. II. Collect. I. N^o 1.

The *Coccyx* is moveable at its connection with the *Sacrum*: as are also the four bones that compose it, in their articulations one with another; and this motion

continues

continues in adults, as well as in those of more tender years: in old age indeed, and even in young people who have suffered bruises upon the part, attended with great pain and inflammation, we frequently find the different pieces of this bone rigidly cemented together: But, this *Anchilosis* the more seldom happens, because they undergo a gentle motion at every excretion of the *Fæces*, which helps to preserve their mobility. See Vol. II. Collect I. N^o 2.

S E C T. II.

THE brim or upper part of a well shaped *Pelvis* represents a kind of imperfect oval, or something that approaches a triangular figure: If we consider it as an oval, the long axis passes from side to side; but as a triangle, the posterior part forms one side, and the *Ossa pubis* constitute the opposite angle; so that behind it is composed of the broad part of the *Sacrum*, where it joins with the last *Vertebra* of the loins; on each side by the inferior parts of the *Ilia*; and before, by the superior parts of the *Ossa pubis*.

The lower circumference of the *Pelvis* is formed, behind, by the inferior part of the *Sacrum*, and its appendage; on each side, by the lower part of each *Ischium* and a broad ligament which rises from the spine of that bone, and with the *Coccygæus* muscle, is inserted into the edge of the *Coccyx* and the lower part of the *Sacrum*; and before, by the inferior parts of the *Ossa pubis* and the two processes that descend on each side, to join with those that rise from the *Ischia*; by which conjunction the *Foramen magnum Ischii*, is formed on each side.

When the body of a woman is reclined backwards, or half-sitting, half-lying, the brim of the *Pelvis* is horizontal, and an imaginary straight line descending from
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the navel, would pass through the middle of the cavity; but, in the last month of pregnancy, such a line must take its rise from the middle space between the navel and *Scrobiculus cordis*, in order to pass through the same point of the *Pelvis*. See the Anatomical Figures, Tab. I, II, XII.

S E C T. III.

IN the consideration of the *Pelvis*, three circumstances are to be principally regarded and remembered; namely, the width, the depth, and form of the cavity on the inside.

1. The extent of the brim from the back to the fore-part commonly amounts to four inches and one quarter; and from one side to the other, the distance is five inches and a quarter: So that this difference of an inch in the different axes, ought to be carefully attended to in the practice of Midwifery. See Tab. I. But the width of the lower part of the *Pelvis* is the reverse of this calculation, when the *Os coccygis* is pressed backward by the head of the child: because in that case, the distance between the *Coccyx* and the lower part of *Os pubis*, is near five inches; whereas, the inferior and posterior parts of one *Os ischium*, are no more than four inches and a quarter from some parts of the other. Indeed, the width of the lower part of the *Pelvis* is naturally the same in both diameters; so that this difference is occasioned by the yielding of the *Coccyx* in the birth. Yet, though the motion of the *Os coccygis* backward, should make little odds as to the width, the back part of the *Pelvis* when measured from the brim, being three times deeper than at the *Pubis* on the fore-part, answers the same purpose as if it was wider from the back to the fore-part, than from side to side; because by the time

time that the child's head is come down to the lower part of the *Pelvis*, and the forehead turned back to the concavity formed by the *Os Sacrum* and *Coccygis*, part of the *Os Occipitis* is come out below the *Pubis*. See Tab. II, XIV, XVII.

2. The depth of the *Pelvis*, from the upper part of the *Sacrum*, where it is articulated with the last *Vertebrae* of the loins, to the lower end of the *Coccyx*, is about five inches in a straight line; but when this appendix is stretched outward and backward, the distance will be more.

The depth from the sides to the brim towards its fore-part, to the lower parts of the *Ischia*, is four inches; and from the under to the lower parts of the *Ossa pubis*, where they join, the distance is no more than two inches: So that in the dimensions of the *Pelvis*, the side is twice, and the back-part three times the depth of the fore-part.

3. Nor is the form and shape of the inside of the *Pelvis* to be neglected by the practitioners of Midwifery.

The *Sacrum* and *Coccyx* being convex on the outside, exhibit a concave figure on the inside: the curve being increased towards the lower end, so as that from the extremity of the *Coccyx* to the middle of the *Sacrum*, the sweep nearly represents a semicircle; and from thence the bone slopes upward and forward.

From the upper part of the brim on each side, (but nearer the fore than the back part) to the lower parts of the *Ischia*, the descent is perpendicular: and the opening on each side, betwixt the lower parts of the *Sacrum* and the posterior part of each *Ischium* is about three inches deep, and two and an half in width. The upper part of this vacuity on each side, gives passage and

and lodgment to a muscle, vessels, nerves, &c. At its lower part, the *Coccygæus* muscle and ligament above-mentioned, are stretched across from bone to bone; and this ligament is on the outside strengthened with another strong expansion, rising from the tuberosity of the *Ischium*, and fixed into the edge of the *Sacrum* and *Coccyx*. All these parts yield and stretch, forming a concave equal to that of the *Sacrum*, when the fore or hind-head of the child is pushed down at the side and back part of the *Pelvis*.

From the upper to the under parts of the *Ossa pubis*, which form the anterior angle of the *Pelvis*, the descent is almost perpendicular, or rather inclining a little backwards: so that the inside of the basin is bent into a concave behind, and descends in almost a straight line before; while the *Ilia* slope outwards as they rise, and the *Vertebræ* of the loins turn backwards, making an obtuse angle with the *Sacrum*.

On the whole, it is of the utmost consequence to know, that the brim of the *Pelvis* is wider from side to side than from the back to the fore-part; but, that at the under part of the basin, the dimensions are the reverse of this proportion, and that the back-part in point of depth, is to the fore-part as three to one, and to the sides as three to two.

Though those dimensions obtain in a well-shaped *Pelvis*, they sometimes vary in different women; and the reason of this remark will be more fully explained, when we treat of the method of delivery, in the different kinds of labours. See Tab. I, II.

S E C T. IV.

Of a distorted PELVIS.

THE *Pelvis*, in decrepit women, is not always distorted, because the distortion of the spine, in many women, does not happen till the age of eight, ten, twelve, or fourteen; when, being tall and slender, it is occasioned by mismanagement in their dress, lying too much on one side, and other accidents; without having any effect upon the *Pelvis*, the shape of which is by that time ascertained.

But most of those who have been ricketty in their infancy, whether they continue little and deformed, or, recovering of that disease, grow up to be tall stately women, are commonly narrow and distorted in the *Pelvis*; and consequently subject to tedious and difficult labours: for, as the *Pelvis* is more or less distorted, the labour is more or less dangerous and difficult.

In ricketty children, the bones are soft and flexible; and as they cannot run about and exercise themselves like those of a more hardy make, the *Pelvis*, in sitting upon stools or the nurse's knees, is, by the weight of the head and body, often bent and distorted in the following manner:

The *Coccyx* is pressed inwards towards the middle of the cavity of the *Pelvis*; the adjacent or lower part of the *Sacrum* is forced outwards, while the upper part of the same bone is turned forward with the last *Vertebra* of the loins, approaching too near to the upper part of the *Pubes*: So that the distance in some women, from the back to the fore-part of the brim, is not above three inches; in others, no more than two; and some-

times, though rarely, not above one inch and an half. See Collect. I. N^o 3. Tab. III, XXVII, XXVIII.

In others, the lower *Vertebra* of the loins, with the upper end of the *Sacrum*, jet inwards and to one side: the *Ossa Pubis*, instead of being inwardly concave, are sometimes convex; and the lower part of each *Ischium* so near to one another, that the distance, instead of four inches and one quarter, will not amount to more than three, and in some cases not so much. See Collect. I. N^o 4.

Sometimes, the *Vertebrae* that compose the *Sacrum* ride one another, and form a large protuberance in that part which ought to be concave; but the most common circumstance of distortion, is the jetting forward of the last *Vertebra* of the loins with the upper end of the *Sacrum*, forming a more acute angle with the spine; and in this part of the passage the head most commonly sticks. See Collect. I. N^o 5.

S E C T. V.

THE *Pelvis* in women is wider than in men, the *Ili*a spreading more outward, in order to sustain and allow free space for the stretching of the *Uterus*; the *Sacrum* is more concave, and the processes of the *Ossa pubis*, at their junction with the *Ischia*, are not so near to one another.

In order to demonstrate the advantage of knowing the wideness, depth, and figure of the inside of a well-formed *Pelvis*, it will be necessary to ascertain the dimensions of the head of the child, and the manner of its passage in a natural birth.

The heads of those children that have passed easily through a large *Pelvis*, as well as of those that have been brought by the feet, without having suffered any alteration

alteration in point of shape, by the uncommon circumstances of the labour; I say, such heads are commonly about an inch narrower from ear to ear, than from the fore-head to the under part of the hind-head.

That part of the head which presents, is not the *Fontanelle* (as was formerly supposed) but the space between the *Fontanelle* and where the *Lambdoidal* crosses the end of the *Sagittal future*, and the hair of the scalp diverges or goes off on all sides: for, in most laborious cases, when the head is squeezed along with great force, we find it pressed into a very oblong form, the longest axis of which extends from the face to the *Vertex*. From whence it appears, that the crown or *Vertex* is the first part that is pressed down, because, in the general pressure, the bones at that part of the skull make the least resistance, and the face is always turned upward; (see Tab. XXVII, XXVIII.) sometimes, indeed, this lengthening or protuberance is found at a little distance from the *Vertex* backward or forward, or on either side; and sometimes (though very seldom) the *Fontanelle* or forehead presents; in which case they pretuberculate, while the *Vertex* is prest, and remains quite flat: But these two instances do not occur more than once in fifty or an hundred cases that are laborious.

Now, supposing the *Vertex* is that part of the head which presents itself to the touch, in the progress of its descent, the *Fontanelle* is commonly upwards, at one side of the *Pelvis*; and is distinguished by the *Fontanelle* where the *Coronal future* crosses the *Sagittal*, the frontal bones at that part having more acute angles than the parietal; and when the hind head comes down to the *Os ischium* of the contrary side, one may feel the *Lambdoidal future* where it crosses the end of the *Sagittal*,

gittal, and, unless the scalp is very much swelled, distinguish the *Occiput* at its junction with the parietal bones, by the angle, which is more obtuse than those that are formed at that part of the skull: Besides, in this position, the ear of the child may be easily perceived at the *Os pubis*. As the head is forced farther along, the hindhead rises gradually into the open space below the *Ossa pubis*, which is two inches higher than the *Ischium*, while, at the same time, the forehead turns into the hollow of the *Sacrum*.

This, therefore, is the manner of its progression: When the head first presents itself at the brim of the *Pelvis*, the forehead is to one side, and the hindhead to the other, and sometimes it is placed diagonally in the cavity: thus the widest part of the head is turned to the widest part of the *Pelvis*, and the narrow part of the head, from ear to ear, applied to the narrow part of the *Pelvis*, between the *Pubes* and the *Sacrum*. (See Tab. XIII, XVI.) The head being squeezed along, the *Vertex* descends to the lower part of the *Ischium*, where the *Pelvis* becoming narrower at the sides, the wide part of the head can proceed no farther in the same line of direction: But the *Ischium* being much lower than the *Os pubis*, the hindhead is forced in below this last bone, where there is least resistance. The forehead then turns into the hollow at the lower end of the *Sacrum*, and now again the narrow part of the head is turned to the narrow part of the *Pelvis*: (See Tab. XIV, XVII.) The *Os pubis* being only two inches deep, the *Vertex* and hindhead rise upward from below it; the forehead presses back the *Coccyx*, and the head rising upward by degrees, comes out with an half round turn, from below the share-bone: the wide part of the head being now betwixt the *Os pubis* and the
Coccyx,

Coccyx, which being pushed backwards, opens the widest space below, and allows the forehead to rise up also with a half round turn, from the under part of the *Os externum*. See Tab. XVIII, XIX.

From these particulars, any person will perceive the advantage of remembring, that the *Pelvis* at the brim is wider from side to side, than from the fore to the back-part, while below it is the reverse in point of dimension; that the *Pelvis* is much shallower at the *Os pubis* than at the sides and back-part; and that the *Sacrum* and *Coccyx* form a large concave in their descent, whereas that of the *Os pubis* is perpendicular. Neither is it less necessary to consider the form of the head, as above described; for the knowledge of these things will convey a distinct idea of the manner in which the head is to be brought along in laborious cases; on what occasions the use of the forceps may be necessary; and when the method must be varied, as the form of the head or *Pelvis* may chance to vary from our description.

Although the position of the head, in natural and laborious births, is commonly such as we have observed, it is not always the same, but sometimes differs according to the different figures of the *Pelvis* and head, and the posture of the child *in utero*: For, when the waters are in small quantity, or the membranes broke, so that the body of the child is close confined by the womb, if the fore-parts are towards the belly of the mother, that position may hinder the head from making the proper turns as it is pushed down, and the forehead may be forced towards the groin or *Pubes*. (See Tab. XX, XXI.) Sometimes, even in a well-formed *Pelvis*, if the *Fontanelle* presents itself, with the forehead to one side of the brim, and the hindhead to the other, when the head

is forced down by the encreasing pains, there will be less resistance at the *Vertex* than at any other part; consequently, the diameter from the fore to the hind head will be lessened; and this last, by accommodating itself to the circumstances of the pressure, be first squeezed down, and, at length, come forward in the natural way: or, should the ear present itself, the *Vertex* will be first forced down in the same manner. But if the forehead be nearer than the *Vertex* to the middle of the brim of the *Pelvis*, every pain will force it farther down; and, when delivered, it will rise in form of an obtuse cone or sugar-loaf; and, in that case, the crown of the head will be altogether flat. But if, instead of the *Vertex* or forehead, the *Fontanelle* should first appear, the space from the forehead to the crown will then rise in form of a sow's back; and, in all these cases, the head is brought along with greater difficulty, than in those where the *Vertex* is first produced: and in all laborious cases, the *Vertex* comes down, and is lengthened in form of a sugar-loaf, nine and forty times in fifty instances. When the forehead presents, the face is sometimes pressed forwards. (See Tab. XXII.) If the *Pelvis* be as wide from the back to the fore-part, as from side to side, (though this seldom happens) the crown may be pushed down at the *Pubes*, and the forehead afterwards squeezed into the hollow of the *Sacrum*, without making the foregoing turns. If the belly of the child is to the fore-part of the *Uterus*, the *Vertex* may be towards the *Sacrum*, and the forehead to the *Pubes* or groin; so that all these uncommon positions are attended with difficulty.

C H A P. II.

Of the external and internal parts of Generation proper to women.

S E C T. I.

The external parts and VAGINA.

THE *Mons Veneris* is situated at the upper part of the *Pubes*, from which also begin the *Labia pudendi*, stretching down as far as the lower edge, where the *Frænum labiorum* or *Fourchette* is formed.

The *Clitoris*, with its *Præputium*, is found between the *Labia*, on the middle and forepart of the *Pubes*; and from the lower part of the *Clitoris*, the *Nymphæ* rising, spread outwards and downwards, to the sides of the *Os externum*, forming a kind of *Sulcus* or furrow, called the *Fossa magna* or *Navicularis*, for the direction of the *Penis* in coition, or of the finger in touching, into the *Vagina*. See Collect. II. N^o 1, 2.

The *Meatus urinaris* is immediately below the under edge of the *Symphasis* of the *Ossa pubis*, and at the upper part of the *Os externum*, which is the orifice of the *Vagina*, situated immediately below the said bones of the *Pubes*; the lower edge of which bones is equal to the lower edge of the *Frænum* or *Fourchette*, which bounds the inferior part of the *Fossa magna* and *Os externum*, restraining it as if with a bridle.

The *Perinæum* extends from this border to the *Anus*, being about one inch, or one and an half in length; the wrinkled part of the *Anus* is about three quarters of an inch in diameter; from thence to the *Coccyx* the distance is about two inches; so that the whole extent,
from

from the *Fourchette* to this bone, amounts to about four inches, or four and a quarter.

What remains of the lower part of the *Pelvis*, is covered and filled up with the integuments adipose membrane, and the muscles called *Levatores Ani*; while within these, are contained the muscles belonging to the *Clitoris*, mouth of the bladder, *Os externum*, and *Anus*. See Tab. IV.

In young children there is a thin membrane called the *Hymen*, extending over the lower part of the *Os externum*, representing the figure of a crescent; the concave and open side being turned towards the *Meatus urinarius*. In some the middle of this concave is attached to the lower part of the *Meatus*, forming two small openings; nay, in some adults this membrane has entirely shut up the entrance of the *Vagina*, so that they have been altogether imperforated; but when broke, it recedes and forms the *Carunculæ myrtiformes*. See Collect. II. N^o 3, 4, 5.

On each side of the *Meatus urinarius*, are two small *Lacunæ* or openings, the tubes of which, ending in a kind of *Sacculus*, come from the prostrate gland; from these a thin fluid is ejected in time of copulation, and that from some women with considerable force; and sometime, though seldom, to the quantity of several drachms.

The *Urethra* in women is about one inch and an half in length. The *Vagina* is formed of a strong thick membrane, of a spongy texture, more contracted in virgins than in married women. When stretched to its full extent, it may be about five, six, or seven inches long, and two in width, according to the difference of stature in different women; but, when the *Uterus* hangs down in the *Vagina*, the length will not be more than

than two or three inches ; and it may be stretched with the finger to the wideness of three or four. The inside of it in young women, is full of *rugæ*, folds or wrinkles, which are partly obliterated in those who have bore children : The upper end of the *Vagina* is joined to the circumference of the lips of the *Os Uteri*, which resemble the mouth of a puppy, or trench ; and a thin expansion of this membrane, being reflected inwards, covers the exterior part of these lips, which in virgins are smooth and of an oval form : It is also continued along the side of the *Uterus*, constituting the internal membrane of the neck and *Fundus*, which is likewise full of *Plicæ*, especially in young subjects. See Tab. V, VI.

As to the different names of those parts, the book of *Schurigius*, published at *Dresden* in the year 1729, may be consulted. The entry of the *Vagina* is commonly called the *Sphincter vaginae*, and the mouth of the womb is often distinguished by the appellation of *Os tincæ* : but, as the mention of these parts will frequently occur in the course of this treatise, I shall, in order to avoid confusion or mistake, call the first *Os externum*, and the other *Os internum* through the whole book.

S E C T. II.

Of the U T E R U S.

THE *Uterus* is about three inches long from the *Os internum* to the upper part of the *Fundus*, and one inch in thickness from the fore to the back-part. It is divided into the neck and *Fundus*, the length of the neck being an inch and three quarters, while that of the *Fundus* is one inch and one quarter.

the

The width of the *Uterus* at the neck is about one inch, but at the *Fundus* twice as much. The *Uterus* is smaller in young women.

The outside shape of the *Uterus*, in some measure, resembles a flattened cucurbit, or that kind of pear which hath a long neck.

The canal or entrance from the *Os internum* to the cavity of the *Fundus uteri*, will admit a common director; being a little wider in the middle and more contracted at the upper end.

The cavity of the *Fundus* is in point of figure, something between an oval and triangle: one of the angles commencing at the upper end of the foresaid canal, and the other two expanding the sides of the *Fundus*, from which arise the Fallopian tubes. These tubes are about three inches long, and so narrow at their entrance from the *Uterus*, as scarcely to admit an hog's bristle; but the cavity of each turns gradually wider, and ends in an open mouth or sphincter, from the brim of which is expanded the *Fimbria* or *Morsus diaboli*, that generally bears the likeness of jagged leaves, and in some resembles an hand with membranous fingers, which is supposed to grasp the *Ovum* when ripe and ready to drop from the *Ovarium*.

The *Uterus* is formed, first of the inside membrane that rises from the *Vagina*, and lines all the interior part of the womb: immediately above this coat is the thick substance of the *Uterus*, composed of a *Plexus* of arteries, lymphatics, veins, and nerves; and the vessels on its surface, when injected, seems to run in contorted lines. It appears to be of the same glandular texture (though not so compact) as that of the breasts, without any muscular fibres, except such as compose the coats of the vessels: neither is there any
necessity

necessity for that muscle which *Ruyfch* pretended to discover at the *Fundus*, for the convenience of forcing off the *Placenta*; because this cake as frequently adheres to other parts of the womb as to the *Fundus*.

The substance of the *Uterus* appears more compact and pale than that of muscles, or if it be muscular at least the fibres are more close, and more intricately disposed, than in other muscular parts. The blood-vessels of the womb, in the virgin or unimpregnated state, are very small, except just at their approach to its sides, at the roots of the *Ligamenta lata*: But, as soon almost as they enter its substance, they are dispersed into such numbers of smaller branches through the whole, that when it is cut, we can observe but few, and those very small orifices, much less any cavities that deserve the name of *Sinuses*. Indeed when this part is minutely injected, it seems to be almost nothing but a mass of vessels; a circumstance common to it with other parts of the body: And anatomists are agreed, that the greater number of vessels visible in such nice injections, are those thro' which the serum or lymph of the blood circulates in the living body; whence the *Error loci* in an *Ophthalmia* is imitated by subtile injections of coloured matter into the arteries of the dead subject. See Tab. V.

When the *Uterus* stretches in time of gestation, the vessels are proportionably dilated by an increase of the fluid they contain: so that, at the time of delivery, some of them are capacious enough to admit the end of the little finger. Yet the substance of the womb, for the most part, instead of growing thinner, as *Mauriceau* alledges, or thicker, according to *Daventer*, continues of its natural thickness during the whole term of pregnancy; and this equality is maintained by the gradual

gradual distension of the vessels that enter into its composition. In time of labour, indeed, as the waters are discharged, the *Uterus* contracts itself and grows thicker; and the resistance ceasing at the delivery of the child and after-birth, it becomes smaller and smaller, until it has nearly resumed its natural dimensions. See Collect. III. N^o. 1, 2. Tab. IX, XII.

For, as the *Uterus* contracts itself after parturition, the arterial blood cannot flow into it in the same quantity as that with which the vessels are filled in their state of distension. The fluids are gradually emptied into the *Vena cava ascendens*, but chiefly through the mouths of the vessels that open into the cavity of the womb; and the vessels themselves that were stretched, elongated, and seemed to recede from one another, are also contracted by degrees, and that in such a direction, as to reduce the *Uterus* into the same shape and size which it bore before impregnation: Nay, the fibres are again so compacted, that they, and even the vessels, are scarce discernable.

The *Vagina* on its outside is covered with a thick adipose membrane: by means of which it is on the fore-part attached to the lower part of the bladder, and on the back-part to the lower end of the *Rectum* and *Anus*; and by the same means all these parts are connected with the *Peritonæum*, or internal surface of the *Pelvis*.

The *Uterus* is contained in a duplicature of the *Peritonæum*, which covers it every where above, and is connected with its substance by a very thin cellular membrane; as for the *Peritonæum*, in itself, it is a smooth membranous expansion, that covers all the inside of the *Abdomen*, and gives external coats to all the *Viscera* contained in that cavity. On the fore-part

it lines the muscles of the *Abdomen* and *Diaphragma*; backwards, it covers the abdominal *Viscera* in general, the *Aorta* and *Vena cava descendens*, the kidneys, ureters and spermatic vessels, the external and internal *Iliac*, the *Psoas* and muscles that cover the inside of the *Ilium*, whence it rises double, and forms the *Ligamenta lata*, in which are contained the *Ovaria* and Fallopian tubes. This duplicature, where it meets in the middle, envelops all the *Uterus*, as before observed, and gives a covering to the round ligaments that rise from each side of the *Fundus uteri*, and are inserted or lost about the upper and external part of the *Pubes* and groin. The *Peritonæum* is also reflected from the fore-part of the *Uterus* over the upper part of the bladder: and upon the back-part of the *Uterus* it descends even upon the *Vagina*, from which it is again reflected upwards over the *Rectum*. By these attachments, especially the broad and round ligaments, the *Uterus* is kept between the *Vesica urinaria* and *rectum*, loosely suspended in the *Vagina*, within two or three inches of the *Os externum*; the *Epiploon* and intestines occupy the upper and fore-part of the *Pelvis*, by which means the *Uterus* is pressed downwards and backwards, to the lower and concave part of the *Sacrum*. (See Tab. V. fig. 2.) As the *Vesica urinaria* fills and stretches with urine, the *Viscera* are raised: but as the bladder is emptied, they return; and this is the reason that the *Os uteri* is commonly felt backwards towards the *Os coccygis*. Sometimes it is found tilted to one side, at other times forwards towards the *Pubes*, and the *Fundus* pressed low down on the back part. The *Os uteri* is also higher or lower according as the ligaments are more or less lax or tense. In coition, the *Uterus* yields

three or four inches to the pressure of the *Penis*, having a free motion upwards and downwards, so that the reciprocal oscillation, which is permitted by this contrivance, increases the mutual titillation and pleasure. See Tab. V.

The ligaments undergo no extraordinary extension in time of uterine gestation, because they sink down two inches with the *Uterus* in an unimpregnated state; and when the *Fundus* rises, they will be raised, at the same time, to the height of not only these two inches, but as much more, without being stretched in the least: Besides, as the *Uterus* rises still upwards, the sides of it approach the *Iliæ*, from whence the broad ligaments take their origin; and this circumstance is equal to an acquisition of three inches more: So that upon the whole, these ligaments seem to be very little stretched even in the last month of pregnancy.

S E C T. III.

Of the OVARIA, vessels, ligaments, and Fallopian tubes.

THE *Ovaria* are two small oval bodies, one of which is placed behind each Fallopian tube; supposed to be little more than a cluster of *Ova*, whence they derive their present name: for, by ancient authors they are mentioned by the appellation of the female testicles. Each *Ovarium* is about one inch in length, half as broad, and one quarter of an inch in thickness; more convex on the fore than on the back part, of a smooth surface, covered with the *Peritonæum*. See Tab. V.

The blood-vessels are, first, the spermatic arteries and veins, which have nearly the same origin as those in men, are mostly distributed upon the *Ovaria* and tubes,

ties, and at the upper part of the *Uterus* communicate with the hypogastrics; from the branches of which the body of the womb is furnished. All these arteries anastomose, and are supposed to detach small ramifications that open into the cavity of the *Uterus*. The veins are large, communicate one with another, with the *Hæmorrhoidals* and *Vena portarum*, and have no valves.

The *Ligamenta rotunda* are two vascular ropes composed of veins and arteries inclosed in the duplicature of the *Ligamenta lata*; seemingly arising from the crural artery and vein, from whence they are extended to the sides of the *Fundus uteri*.

The nerves come from the intercostals, *Lumbares*, and *Sacri*; as described in *Boerhaave's Institutes*, and *Winslow's Anatomy*.

C H A P. III.

S E C T. I.

Of the CATAMENIA and FLUOR ALBUS, in an unimpregnated state.

THE *Uterus*, according to some, and all the parts subservient to generation arrive at full growth about the age of fifteen: The vessels are then sufficiently dilated, and those that end in the cavity of the womb, so distended with blood, that their mouths are forced open, they empty themselves gradually, and for that time the *Plethora* in the *Uterus* and neighbouring parts is removed.

Several ingenious theories have been erected, to account for the flux of the *Menses*; particularly by Doc-

tors *Friend*, *Simpson*, and *Astruc*; the two last of whom, with many others, alledge, that there are *Sinuses* in the *Uterus*, furnished with side-vessels opening into its cavity; which *Sinuses* are gradually stretched by the blood they receive from the arteries, until the fourth or beginning of the fifth week, the lateral vessels are forced open and the accumulated blood evacuated into the cavity of the womb. But, if this were the case, the same mechanism must prevail in other parts of the body, through which the like periodical discharge is made, when the *Uterus* is obstructed; as from the nose, hairy scalp, lungs, stomach, mesenteric, and hæmorrhoidal vessels, and even through the skin of the legs, and other parts of the body. Besides, such an accumulation in large *Sinuses*, though the blood were not entirely stagnated, would produce a viscosity like that which obtains in the rheumatism and other inflammatory distempers.

Those who live in hot climates, are frequently visited with the *Menses* at the age of twelve; and women who are kept warm, and live delicately, undergo this discharge earlier than those who use a different regimen: and if the *Catamenia* do not flow at the stated time, the patient is soon after seized with the *Chlorosis*, unless some other evacuation happens in lieu of the *Menses*.

They commonly cease to flow about the age of forty-five, except in those with whom they began at twelve, or in such as have born a great many children, in which case, they cease about the age of two and forty, or sooner.

In young people the *Momentum* of the circulating fluid is greater than the resisting force of the solids; so that the vessels continue to be gradually stretched, until,

ail, by their number, capacity, and length, this *Momentum* is dissipated, so as to become no more than equal to the resistance. About this time the superplus of blood begins to be discharged, and thus the *Æquilibrium* is preserved till the age of forty-five; when the fibres growing rigid, the *Incrementum* is lessened, the evacuation is no longer necessary, nor has the blood force enough to make good its wonted passage into the cavity of the womb. In the same manner are produced the symptoms of old age.

The *Catamenia* are, therefore, no more than a periodical discharge of that superplus of blood which is collected through the month, and towards the crisis, attended with pains in the loins, breast, and head, more or less acute, according to the circumstances of the *Plethora*; all which complaints gradually vanish when the *Menses* begin to appear.

This evacuation commonly continues till the fifth or sixth day, in some to the third only, and in others to the seventh: the quantity discharged being, according to *Hippocrates*, two *heminae*, equal, by the computation of some to eighteen or twenty, and in the opinion of others, to twenty four ounces: but this must certainly be a mistake; for they rarely exceed four ounces, except when they flow in too great quantity.

Women that are delicately kept, and plentifully fed, have this discharge more frequently, and in greater quantity, than those who are inured to much exercise, or subject to copious perspiration: yet, both these constitutions may be healthy, and ought not to be tampered with by prescriptions for altering the period or quantity of this evacuation. Indeed, if the flux be so frequent or immoderate as to exhaust the strength of the patient, it will be necessary to prescribe bleeding before the re-

turn of the period, rest, cooling and astringent medicines, not only taken internally, but likewise applied externally, and injected into the *Vagina*. See Collect. IV. N^o 1, 2.

On the contrary, if they flow too seldom, in too small quantity, or do not appear at all, so that a dangerous plenitude ensues, the *Plethora* must be lessened by plentiful bleeding and repeated purges, and the discharge solicited by warm baths, fumigation, and exercise. But if the patient has been long obstructed, from a *Lentor*, viscosity and retarded motion of the fluids in the *Uterus* and neighbouring parts, the fullness must be taken off by the above-mentioned evacuations, unless the constitution be already weakened; then every thing that will gradually attenuate the fluids and quicken their circulating force, ought to be administered; such as chalybeat and mercurial medicines, together with warm, bitter, and stomachic ingredients, assisted with proper diet and exercise, according to the prescriptions to be found in *Hoffman*, *Friend's Emmenologia*, and *Shaw's Practice of Physic*. See Collect. IV. N^o. 3, 4.

Of the FLUOR ALBUS.

The inside membrane of the *Uterus*, according to *Astruc*, is thick set with small glands, which he calls the *Colatura lactea*: These in an unimpregnated *Uterus*, separate a *Mucus* that lubricates the cavity and canal of the neck, by which means the sides are prevented from coalescing or growing together. The *Fluor Albus* is no other than this *Mucus* discharged in too great quantity, from the *Uterus*, as well as from the *Vagina*; and this excess, when it happens from plenitude, in those who feed plentifully, without taking sufficient exercise, is often

often remedied by general evacuation, such as venæ-section, emetics, cathartics, and a more abstemious diet, with a greater share of exercise than usual. But the cure is more difficult when the complaint is of a long standing, and proceeds from a bad habit, the constitution being weakened by the inordinate discharge: In this case, it will be necessary to use repeated emeticks, gentle exercise, and all those medicines that contribute to strengthen a lax habit of body; or if the distemper be cancerous, it must be palliated with anodynes: As to the form of prescription in all these cases, *Hoffman* may be consulted. See Collect. IV. N^o 5, 6.

S E C T. II.

Of CONCEPTION.

THE *Minutice*, or first principles of bodies, being without the sphere of human comprehension, all that we know is by the observation of their effects; so that the modus of conception is altogether uncertain, especially in the human species, because opportunities of opening pregnant women so seldom occur.

Although the knowledge of this operation is not absolutely necessary for the practice of Midwifery, an investigation of it may not only gratify the curious, but also promote further enquiries; in the course of which, many material discoveries may be made, in the same manner as many valuable compositions in chymistry were found out in the last century, by those who exercised themselves in search of the philosopher's stone.

From the time of *Hippocrates* to the sixteenth century it was generally believed that the *Embryo* and *Secundines* were formed by the mixture of the male and female semen in the *Uterus*; but during the last hundred

hundred years, anatomy received great improvement by the frequent dissection of human bodies; and in some female subjects, the *Fœtus* was found in one of the Fallopian tubes, in others, it was discovered in the *Abdomen*, with the *Placenta* adhering to the surface of the *Viscera*. See Collect. V.

Malphigius and others, between the years 1650 and 1690, wrote expressly upon the incubation of eggs, their formation, and the gradual increase of oviparous animals: The great *Harvey* observed the progress of the viviparous kind, in a great number of different animals which he had opportunities of opening. *De Graaf* dissected near one hundred rabbits, and is very particular and accurate in the observations he had made. *Ruyfch*, *Aldes*, *Needham*, *Steno*, *Kerkringius*, *Swammerdam*, *Bartholine* the son, and *Drelincourt*, employed themselves in the same enquiries; and, in consequence of their different remarks, a variety of theories have been erected; yet all of them have been subject to many objections, and even the following, though the most probable, is still very uncertain.

When the parts in women, subservient to generation, attain their *Acme* or full growth, one or more of the *Ova* being brought to maturity, that part of the *Peritonæum* which covers the *Ovarium* begins to stretch; the nervous fibres are accordingly affected, and contract themselves so as to bring the *Fimbria* of the Fallopian tube in close contact with the ripe *Ovum*: by which mechanism, this last is squeezed out of its *Nidus* or husk into the cavity of the tube, thro' which it is conveyed into the *Uterus*, by a vermicular or peristaltic motion; and, if it is not immediately impregnated with an *Animalcule* of the male semen, must be dissolved and lost, because

because it is now detached from the vessels of the *Ovarium*, and has no *Vis Vitæ* in itself.

The external coat of the *Ovum* is the membrane *Chorion*, one fourth part of which is the *Placenta*, supposed to be the root by which it was formerly joined to the vessels of the *Ovarium*; and the navel-string is no other than a continuation of the vessels belonging to this cake.

The *Chorion* is on the inside lined with another membrane called *Amnion*, and both are kept distended in a globular form by a clear serous fluid, or thin *Lymph*.

As for the male semen, according to the observation of the celebrated *Leuwenhoek*, it abounds with *Animalcula*, that swim about in it like so many tadpoles; and these are larger and more vigorous the longer the semen hath remained in the *Vesiculæ seminales*.

The parts of both male and female being thus brought to maturity, the following circumstances are supposed to happen in coition, especially in those embraces which immediately follow the evacuation of the *Menses*: In the woman, the friction of the *Penis* in the contracted *Vagina*, the repeated pressure and shocks against the external parts, the alternate motion upwards and downwards of the *Uterus*, with its appendages, the *Ovaria*, Fallopian tubes, and round ligaments, produce a general titillation and turgency; in consequence of which, the nervous fibrils are convulsed, and a fluid ejected from the prostrate or analogous glands, as well as from those of the *Uterus* and Fallopian tubes. The *Fimbria* belonging to one of which, now firmly grasps the ripened *Ovum*, which, at the same instant, is impregnated with the male seed that in the orgasm of coition had been thrown into the *Uterus*, and thence conveyed into the cavity of the tube, by
some

some absorbing & controlling power. When the two matured principles are thus mingled, one of the *Animalcula* insinuates itself into the *Ovum*, and is joined with its belly to that ruptured part of it from which the navel-string is produced; or, entering one of the vessels, is protruded to the end of the *Funis*, by which a circulation is carried on from the *Embryo* to the *Placenta* and membranes. The *Ovum*, being impregnated, is squeezed from its *Nidus* or husk into the tube, by the contraction of the *Fimbria*; and thus disengaged from its attachments to the *Ovarium*, is endowed with a circulating force by the *Animalculum*, which has a *Vis vitæ* in itself: the vessels on the surface of the *Ovum*, being opened, in consequence of its detachment from the *Ovarium*, absorb the surrounding fluid which is secreted by the glands, in the cavity of the tube and *Uterus*, or forced into them by motion, heat, and rarefaction, and carried along the umbilical vein, for the nourishment and increase of the impregnated mass.

Of the semen that is injected or absorbed into the *Uterus*, part is mixed with the fluid secreted by the glands, in the canal of the neck, which is blocked up with a sort of gluten formed by this mixture; so that the *Ovum* is thereby prevented from sinking too far down, and being discharged.

This theory of conception, though very ingenious, and, of all others, the best supported with corroborating considerations, such as, that *Fœtuses* and *Embryos* have been actually found in the cavity of the tube, and *Abdomen*, without any marks of exclusion from the *Uterus*; besides other presumptions that will be mentioned when we come to treat of the nutrition of the *Fœtus*; I say, notwithstanding the plausibility of the scheme, it is attended with circumstances which are
hitherto

is inexplicable; namely, the manner in which the *Animalculum* gains admission into the *Ovum*, either while it remains in the *Ovarium*, sojourns in the tube, or is deposited in the *Fundus uteri*; and the method by which the vessels of the navel-string are inosculated with those of the *Animalcula*. Indeed, these points are so intricate, that every different theorist has started different opinions concerning them, some of which are rather jocular than instructive.

S E C T. III.

Of the increase of the UTERUS after conception.

IT is supposed, that the *Ovum* swims in a fluid, which it absorbs so as to increase gradually in magnitude, 'till it comes in contact with all the inner surface of the *Fundus*; and this being distended in proportion to the augmentation of its contents, the upper part of the neck begins also to be stretched.

About the third month of gestation, the *Ovum* in bigness equals a goose egg; and then nearly one fourth of the neck, at its upper part, is distended equal with the *Fundus*. At the fifth month, the *Fundus* is increased to a much greater magnitude, and rises upwards to the middle space betwixt the upper part of the *Pubes* and the navel; and at that period, one half of the neck is extended. At the seventh month, the *Fundus* reaches as high as the navel; at the eighth month, it is advanced midway between the navel and *Scrobiculus cordis*; and in the ninth month, is raised quite up to this last mentioned part, the neck of the womb being then altogether distended. See Tab. V, VI, VII, VIII.

Now

Now that the whole substance of the *Uterus* is stretched, the neck and *Os internum*, which were at first the strongest, become the weakest part of the womb, and the stretching force being still continued by the increase of the *Fœtus* and *Secundines*, which are extended by the inclosed waters in a globular form, the *Os uteri* begins gradually to give way. In the beginning of its dilatation, the nervous fibres in this place, being more sensible than any other part of the *Uterus*, are irritated, and yield an uneasy sensation: to alleviate which the woman squeezes her *Uterus*, by contracting the abdominal muscles, and at the same time filling the lungs with air, by which the *Diaphragm* is kept down; the pain being rather increased than abated by this straining, is communicated to all the neighbouring parts, to which the ligaments and vessels are attached, such as the back loins, and inside of the thighs; and by this compression of the *Uterus*, the waters and membranes are squeezed against the *Os uteri*, which is, of consequence, a little more opened. See Tab. IX, X, XI, XII.

The woman being unable to continue this effort, for any length of time, from the violence of the pain it occasions, and the strength of the muscles being thereby a little exhausted and impaired, the contracting force abates; the tension of the *Os tincæ* being taken off, it becomes more soft, and contracts a little; so that the nervous fibres are relaxed. This remission of pain the patient enjoys for some time, until the same increasing force renews the stretching pains, irritation, and something like a tenesmus at the *Os uteri*; the compression of the womb again takes place, and the internal mouth is a little more dilated, either by the pressure of the waters and membranes, or when the fluid is in small quantity,

the child's head forced down by the contraction of the *Uterus*, which in that case is in contact with the body of the *Fœtus*. See Tab. XII, XIII, XIV.

In this manner the labour pains begin, and continue to return periodically, growing stronger and more frequent, until the *Os uteri* is fully dilated, and the membranes are depressed and broke; so that the waters are discharged, the *Uterus* contracts, and, with the assistance of the muscles, the child is forced along and delivered.

Although this account may be liable to objections, especially in those cases when the child is delivered before the full time, it nevertheless seems more probable than that hypothesis, which imputes the labour pains to the motion of the child calcitrating the *Uterus*: for it frequently happens, that the woman never feels the child stir during the whole time of labour, and dead children are delivered as easily as those that come alive, except when the birth is retarded by the body's being swelled to an extraordinary size.

S E C T. IV.

Of the Magnitude, Weight, and different Appellations given to the O V U M and CHILD.

WHEN the *Ovum* descends into the *Uterus*, it is supposed to be about the size of a poppy-seed, and in the third month augmented to the bigness of a goose egg. Ten days after conception, the child (according to some authors) weighs half a grain; at thirty days, is increased to the weight of twenty-two grains; at three months, weighs betwixt two and three ounces; and at nine months, from ten to twelve, and sometimes sixteen pounds: by which calculation it

would appear, that the progress of the *cœtus* is most rapid in the beginning of its growth: for, from the tenth to the thirtieth day (according to this supposition) it increases to three and forty times its weight. All these calculations are uncertain.

The conception is called an *Embryo*, until all the parts are distinctly formed, generally in the third month; and from that period to delivery, is distinguished by the appellation of *Fœtus*.

S E C T. V.

Of TWINS.

WHEN two or more children are included in the *Uterus*, at the same time, each has a separate *Placenta*, with umbilical cords and vessels: sometimes these *Placentæ* are altogether distinct, and at other times they form but one cake.

Yet by an instance that lately fell under my observation, it appears, that sometimes twins have but one *Placenta* in common: whether or not they were two sets of membranes, I could not discover, because they had been tore off by the gentleman who delivered the woman; but, when the artery in one of the navel-strings was injected, the matter flowed out at one of the vessels belonging to the other, and the communication between them is still visible, though they are separated at the distance of three or four inches.

When two children are distinct, they are called twins; and monsters when they are joined together; the first (according to the foregoing theory) are produced when different *Animalcula* impregnate different *Ova*; and the last are engendered when two or more

Animalcula

Animia introduce themselves, and are included in the *Ovum*. See Tab. X.

S E C T. VI.

Of SUPERFOETATION.

IT was formerly imagined that a woman might conceive a second time during pregnancy, and be delivered of one child some weeks or months before the other could be ready for the world: but this opinion is now generally exploded; because the *Ovum* fills the whole *Fundus Uteri*, and the gelatinous substance, already mentioned, locks up the neck and *Os internum*, so as to hinder more semen from entering the womb and impregnating a second egg, in any subsequent coition. Wherefore, in all those cases which gave rise to this supposition, it may be taken for granted, that the woman was actually with child of twins, one of which, lying near the *Os internum*, might chance to die and mortify, so as that the membranes give way, and the dead *Fœtus* is discharged while the other remains in the *Uterus*, and is delivered at the full time. On the other hand, by some accident, the first and largest may be born some days or weeks before the full time, and afterwards the *Os tincæ* contract so as to detain the other till the due period. At other times the child that lies next to the *Fundus*, is the smallest, and follows after the birth of the other, sometimes dead and putrified, and sometimes in an emaciated condition. See Collect. VI.

S E C T. VII.

Of ABORTIONS.

A Miscarriage that happens before the tenth day, was formerly called an efflux, because the *Embryo* and *Secundines* are not then formed, and nothing but the liquid conception, or *Genitura*, is discharged. From the tenth day to the third month it was known by the term expulsion, the *Embryo* and *Secundines* being still so small, that the woman is in no great danger from violent flooding.

If she parted with her burden betwixt that period and the seventh month, she was said to suffer an abortion; in which case she underwent greater danger, and was delivered with more difficulty than before; because the *Uterus* and vessels being more distended, a larger quantity of blood was lost in a shorter time, the *Fœtus* was increased in bulk, and the neck of the womb is not yet fully stretched: besides, should the child be born alive, it will be so small and tender that it will not suck, and scarce receive any sort of nourishment.

When delivery happens between the seventh month and full time, the woman is said to be in labour: but, instead of these distinctions, if she loses her burden at any time from conception to the seventh or eighth, or even in the ninth month, we now say indiscriminately, she has miscarried.

Hippocrates alledges, that a child born in the seventh month, sometimes lives; whereas, if it comes in the eighth, it will probably die, because all healthy children, says he, make an effort to be delivered in the seventh month, and if they are not then born, the *Nifus* is repeated in the eighth, when the child must be weakened

by its former successful attempt, and therefore not likely to live; whereas, should the second effort be deferred 'till the ninth, the *Fœtus* will by that time be sufficiently recovered from the fatigue it had undergone in the seventh. Experience, however, contradicts this assertion; for, the older the child is, we find it always (*cæteris paribus*) the stronger, consequently the more hardy and easily nursed: neither is there any sufficient reason for adhering to the opinion of *Pythagoras* on this subject, who declares that number eight is not so fortunate as seven or nine.

The common term of pregnancy is limited to nine solar months, reckoning from the last discharge of the *Catamenia*: yet in some, tho' very few, uterine gestation exceeds that period; and as this is a possible case, we ought always to judge on the charitable side, in the persuasion, that it is better several guilty persons should escape, than one innocent woman suffer in point of reputation. See Collect. VII.

S E C T. VIII.

Of false CONCEPTIONS and MOLES.

IT was formerly supposed, that if the parts of the *Embryo* and *Secundines* were not separated and distinctly formed from the mixture of the male and female semen, they formed a mass, which, when discharged before the fourth month, was called a false conception; if it continued longer in the *Uterus*, so as to increase in magnitude, it went under the denomination of a *Mola*. But these things are now to be accounted for, in a more probable and certain manner. Should the *Embryo* die (suppose in the first or second month)

some days before it is discharged, it will sometimes be entirely dissolved : so that, when the *Securants* are delivered, there is nothing else to be seen. In the first month, the *Embryo* is so small and tender, that this dissolution will be performed in twelve hours ; in the second month, two, three, or four days will suffice for this purpose ; and even in the third month it will be dissolved in fourteen or fifteen : besides, the blood frequently forms thick *Laminæ* round the *Ovum*, to the surface of which they adhere so strongly, that it is very difficult to distinguish what part is *Placenta*, and what membrane. Even after the *Embryo* and *Placenta* are discharged, in the second or third month, the mouth and neck of the womb are often so closely contracted, that the fibrous part of the blood is retained in the *Fundus*, sometimes to the fifth or seventh day ; and when it comes off, exhibits the appearance of an *Ovum*, the external surface, by the strong pressure of the *Uterus*, resembling a membrane ; so that the whole is mistaken for a false conception.

This substance, and bigness, commonly equals a pigeon or hen egg ; or, if it exceeds that size, and is longer retained, is distinguished by the appellation of *Mola* ; but this last generally happens in women betwixt the age of forty-five and fifty, or later, when their *Menses* begin to disappear ; sometimes from internal or external accidents that may produce continued floodings. If the *Catamenia* have ceased to flow for some time, in elderly women, and return with pain, such a symptom is frequently the fore-runner of a cancer ; before or after this happens, sometimes a large flesh-like substance will be discharged with great pain, resembling that of labour ; and upon examination, appears to be no more than the fibrous part of the blood, which

which assumes that form by being long pressed in the *Uterus* or *Vagina*. See Collect. VIII.

In this place, it will not be amiss to observe, that the glands of the *Uterus* and *Vagina* will sometimes increase, and distend the adjacent parts to a surprizing degree: if (for example) one of the glands of the *Uterus* be so obstructed as that there is a pressure on the returning vein and excretory duct, the arterial blood will gradually stretch the smaller vessels, and consequently increase the size of the gland, which will grow longer and larger, as long as the force of the impelled fluid is greater than the resistance of the vessels that contain it; by which means, a very small gland will be enlarged to a great bulk, and the *Uterus* gradually stretched as in uterine gestation, though the progress may be so slow as to be protracted for years instead of months. Nevertheless, the *Os internum* will be dilated, and the gland (if not too large to pass) will be squeezed into the *Vagina*, provided it adheres to the *Uterus*, by a small neck; nay, it will lengthen more and more, so as to appear on the outside of the *Os externum*; in which case, it may be easily separated by a ligature. This disease will be the sooner known and easier remedied, the lower its origin in the *Uterus* is. But should the gland take its rise in the *Vagina*, hard by the mouth of the womb, it will shew itself still sooner, and a ligature may be easily introduced, provided the tumour is not so large as to fill up the cavity, and hinder the neck of it from being commodiously felt. Though the greatest difficulty occurs, when the gland is confined to the *Uterus*, being too much enlarged to pass through the *Os internum*.

Sometimes all, or most of the glands of the *Uterus*, are thus affected, and augment the womb to such a degree,

degree, that it will weigh a great many pounds, and the woman is destroyed by its pressure upon the surrounding parts: but, should this indolent state of the tumour be altered by any accident that will produce irritation and inflammation, the parts will grow schirrous, and a cancer ensue.

This misfortune, for the most part, happens to women, when their menstrual evacuations leave them; and sometimes (tho' seldom) to child-bearing women, in consequence of severe labour.

Some people have affirmed, that the *Placenta* being left in the *Uterus*, after the delivery of the child, grows gradually larger; but the contrary of this assertion is proved by common practice; from which it appears, that the *Placenta* is actually pressed into smaller dimensions, and sometimes into a substance almost demi-cartilaginous: for, after the death or delivery of the child, the *Secundines* receive no farther increase or growth. Dropsies and hydatides are also supposed to be formed in the *Uterus*, and discharged from thence, together with air or wind: the *Ovaria* are sometimes affected in the same manner, are inflamed, imposthumate, grow schirrous, cancerous, and the patient is destroyed by the discharge, which gradually fills the *Abdomen* with *Pus* and *Icor*; so that all these complaints, if known, ought to be obviated in the beginning. See Collect. IX.

S E C T. IX.

Of the PLACENTA.

I HAVE already observed, that the *Ovum* is formed of the *Placenta*, with the *Chorion* and *Amnion*,
which

which are globularly distended by the inclosed waters that surround the child. The *Placenta* is commonly of a round figure, somewhat resembling an oat-cake, about six inches in diameter, and one inch thick in the middle, growing a little thinner towards the circumference; it is composed of veins and arteries, which are divided into an infinite number of small branches, the venous part of which unite in one large tube, called the umbilical vein, which brings back the blood, and is supposed to carry along the nutritive fluid from the vessels of the *Chorion* and *Placenta*, to the child, whose belly it perforates at the navel; from thence passing into the liver, where it communicates with the *Vena Portarum* and *Cava*. It is furnished with two arteries, which arise from the internal *Iliacs* of the child, and running up on each side of the bladder, perforate the belly where the umbilical vein entered; they then proceed to the *Placenta*, in a spiral line, twining around the vein, in conjunction with which, they form the *Funiculus umbilicalis*, which is commonly four or five hand-breadths in length, some times only two or three, and sometimes it extends to the length of eight or ten. The two arteries, on their arrival at the inner surface of the *Placenta*, are divided and subdivided into minute branches, which at last end in small capillaries that inosculate with the veins of the same order. These arteries, together with the umbilical vein, are supposed to do the same office in the *Placenta* which is afterwards performed in the lungs, by the pulmonary artery and vein, until the child is delivered and begins to breathe: and this opinion seems to be confirmed by the following experiments. If the child and *Placenta* are both delivered suddenly, or the last immediately after the first, and if the child, though

though alive, does not yet breathe, the blood may be felt circulating, sometimes slowly, at other times with great force, through the arteries of the *Funis* to the *Placenta*, and from thence back again to the child, along the umbilical vein. When the vessels are slightly pressed, the arteries swell between the pressure and the child, while the vein grows turgid between that and the *Placenta*, from the surface of which no blood is observed to flow, although it be lying in a basin, among warm water. As the child begins to breathe, the circulation, though it was weak before, immediately grows stronger and stronger, and then in a few minutes, the pulsation in the navel-string becomes more languid, and at last, intirely stops. If, after the child is delivered, and the navel-string cut, provided the *Placenta* adheres firmly to the *Uterus*, which is thereby kept extended; or, if the womb is still distended by another child, no more blood flows from the umbilical vessels, than what seemed to be contained in them at the instant of cutting; and this, in common cases, does not exceed the quantity of two or three ounces; and finally, when, in consequence of violent floodings, the mother expires, either in time of delivery, or soon after it, the child is sometimes found alive and vigorous, especially, if the *Placenta* is sound; but if tore, then the child will lose blood as well as the mother.

The external surface of the *Placenta* is divided into several lobes, that it may yield and conform itself more commodiously to the inner surface of the *Uterus*, to which it adheres, so as to prevent its being separated by any shock or blows upon the *Abdomen*, unless when violent.

Those groups of veins and arteries which enter into
the

the composition of the *Placenta*, receive external coats from the *Chorion*, which is the outward membrane of the *Ovum*, thick and strong, and forms three fourths of the external globe that contains the waters and the child; the remaining part being covered by the *Placenta*; so that these two in conjunction constitute the whole external surface of the *Ovum*. Some indeed alledge, that these are enveloped with a cribriform or cellular substance, by which they seem to adhere by contact only, to the *Uterus*; and that the inner membrane of the womb is full of little glands, whose excretory ducts opening into the *Fundus* and neck, secrete a soft thin mucus (as formerly observed) to lubricate the whole cavity of the *Uterus*, which beginning to stretch in time of gestation, the vessels that compose these glands are also distended; consequently, a greater quantity of this mucus is separated and retained in this supposed cribriform and cellular substance, the absorbing vessels of which take it in, and convey it along the veins, for the nourishment of the child. The womb being therefore distended in proportion to the increase of the child, those glands are also proportionably enlarged; by which means a larger quantity of the fluid is separated, because the nutriment of the child must be augmented in proportion to the progress of its growth; and this liquor undergoes an alteration in quality as well as in quantity, being changed from a clear thin fluid into the more viscous consistence of milk. In some cases this mucus hath been discharged from the *Uterus* in time of pregnancy, and both mother and child weakened by the evacuation, which may be occasioned by the *Chorion's* adhering too loosely, or being in one part actually separated from the womb.

Formerly,

Formerly, it was taken for granted by many, that the *Placenta* always adhered to the *Fundus uteri*; but this notion is refuted by certain observations, in consequence of which, we find it as often sticking to the sides, back, and fore-parts, and sometimes as far down as the inside of the *Os uteri*. See Tab. V, VI, VIII, IX, X, XI, XIII.

When the *Placenta* is delivered, and no other part of the membrane tore, except that through which the child passed, the opening is generally near the edge or side of the *Placenta*, and seldom in the middle of the membranes; and a hog's bladder being introduced at this opening, and inflated, when lying in water, will shew the shape and size of the inner surface of the womb, and plainly discover the part to which the *Placenta* adhered.

The *Chorion* is, on the inside, lined with the *Amnion*, which is a thin, transparent membrane, without any vessels so large as to admit the red globules of blood: it adheres to the *Chorion* by contact, and seems to form the external coat of the *Funis umbilicalis*.

This membrane contains the *Serum*, in which the child swims; which fluid is supposed to be furnished by lymphatic vessels that open into the inner surface of the *Amnion*. If this liquid is neither absorbed into the body of the *Fœtus*, nor taken into the stomach, by suction at mouth, there must be absorbing vessels in this membrane, in the same manner as in the *Abdomen*, and other cavities of the body, where there is a constant renovation of humidity.

The quantity of this fluid, in proportion to the weight of the *Fœtus*, is much greater in the first than in the last month of gestation, being in the one, perhaps ten times the weight of the *Embryo*; whereas, in the

the other, it is commonly in the proportion of one to two : for, six pounds of water surrounding a *Fœtus* that weighs twelve pounds, is reckoned a large proportion, the quantity being often much less ; nay, sometimes there is very little or none at all.

In most animals of the brute species, there is a third membrane called *Allantois*, which resembles a long and wide blind gut, and contains the urine of the *Fœtus* : it is situated between the *Chorion* and *Amnion*, and communicates with the *Urachus* that rises from the *Fundus* of the bladder, and runs along with the umbilical vessels, depositing the urine in this reservoir, which is attached to its other extremity. This bag hath not yet been certainly discovered in the human *Fœtus*, the *Urachus* of which, tho' plainly perceivable, seems hitherto to be quite imperforated.

From the foregoing observations upon nutrition, it seems probable, that the *Fœtus* is rather nourished by the absorption of the nutritive fluid into the vessels of the *Placenta* and *Chorion*, than from the red blood circulated in full stream, from the arteries of the *Uterus* to the veins of the *Placenta*, and returned by the arteries of the last to the veins of the first, in order to be renewed, refined, and made arterial blood in the lungs of the mother.

Yet this doctrine of absorption is clogged with one objection, which hath never been fully answered ; namely, that if the *Placenta* adheres to the lower part of the *Uterus*, when the *Os internum* begins to be dilated, a flooding immediately ensues ; and the same symptom happens upon a partial or total separation of the *Placenta* from any other part of the womb ; whereas, no such consequence follows a separation of the *Chorion*.

The new theorists indeed observe, that there is no necessity for a supply of red blood from the mother ; because, the circulating force in the vessels of the *Fœtus*, produces heat and motion sufficient to endue the fluids with a sanguine colour ; that neither is there occasion for returning and refining this blood in the lungs of the mother, because that office is sufficiently performed in the *Placenta*, until the *Fœtus* is delivered, when its own lungs are put to their proper use ; and lastly, that the blood of the mother is too gross a fluid to answer the occasions of the *Fœtus*. Certain it is, the chick in the egg is nourished by the white which is forced along the vessels, and the quantity of red blood increases in proportion to the growth of the contained *Embryo* or *Fœtus*, without any supply from the hen.

On the whole, the opinions broached upon the nutrition of the *Embryo* and *Fœtus* in *Utero*, have been various, as well as those that are adopted concerning the *modus* of conception.

B O O K II.

C H A P. I.

Of the Diseases incident to pregnant Women, being either such as immediately proceed from pregnancy, or such as may happen at any other time; and if not carefully prevented or removed, may be of dangerous consequence both to mother and child.

S E C T. I.

Of NAUSEA and VOMITING.

THE first complaint attending pregnancy, is the nausea and vomiting, which, in some women, begins soon after conception, and frequently continues 'till the end of the fourth month. Most women are troubled with this symptom, more or less, particularly vomiting in the morning: some who have no such complaint in one pregnancy, shall be violently attacked with it, in another; and in a few, it prevails during the whole time of uterine gestation.

The vomiting, if not very violent, is seldom of dangerous consequence; but, on the contrary, is supposed to be serviceable to the patient, by unloading the stomach of superfluous nourishment, thereby carrying off or preventing too great a turgency in the vessels of the *Viscera* and *Uterus*; and by creating a kind of straining or *Nisus* in the parts, which will assist the *Fundus* and neck of the womb, in stretching. Nevertheless, if the straining is too great, it may endanger a miscarriage.

Perhaps, this complaint is chiefly occasioned by a fulness of the vessels of the *Uterus*, owing to obstructed *Catamenia*, the whole quantity of which cannot as yet be employed in the nutrition of the *Embryo*: over and above this cause, it has been supposed that the *Uterus* being stretched by the increase of the *Ovum*, a tension of the part ensues, affecting the nerves of that *Viscus*, especially those that arise from the *Sympatheticæ maximi*, and communicate with the *Plexus*, at the mouth of the stomach. Whatever be the cause, the complaint is best relieved by bleeding, more or less, according to the *Plethora* and strength of the patient; and if she is costive, by emollient glysters and opening medicines, that will evacuate the hardened contents of the *Colon* and *Rectum*; so that the *Viscera* will be rendered light and easy, and the stretching fullness of the vessels taken off. A light, nutritive, and spare diet, with moderate exercise, and a free open air, will conduce to the removal of this complaint. See Collect. X. N^o I.

S E C T. II.

Of the difficulty in making water, costiveness, swelling of the Haemorrhoids, Legs, and Labia Pudendi; and the Dyspnoea and vomiting at the latter end of pregnancy.

TOWARDS the end of the fourth month, or beginning of the fifth, the *Uterus* is so much distended as to fill all the upper part of the *Pelvis*, and then begins to rise upwards into the *Abdomen*: about the same time, the *Os internum* is likewise raised and turned backwards towards the *Sacrum*, because the *Fundus* is inclined forwards in its rise. The *Uterus*,
according

according to the different directions in which it extends, produces various complaints by its weight and pressure upon the adjacent parts, whether in the *Pelvis*, or higher in the *Abdomen*. In the fourth or fifth month, it presses against the *Sphincter* of the bladder, in the *Pelvis*, and produces difficulty in making water, and sometimes (though seldom) a total suppression. This complaint will happen, if the womb is sunk too low in the *Vagina*, or if the *Ovum*, instead of adhering to the *Fundus*, descends into the wide part in the middle of the neck, which accordingly first undergoes distension. This disposition of the *Ovum* is frequently the cause of abortion, because, the mouth and neck, being in this case, from the stretching, the weakest parts of the *Uterus*, the *Os internum* begins to be opened too soon: yet sometimes this will continue strong and rigid, and after the neck is enlarged, the *Fundus* will be, last of all, stretched till the end of gestation, and the woman be happily delivered *.

But, as the stretching begins lower down in this than in a common case, the *Uterus* must consequently press against all parts of the *Pelvis*, before it can rise above the brim; and this pressure sometimes produces an obstruction of urine, and difficulty in going to stool; the general compression of all these parts will be attended with a degree of inflammation in the substance of the *Uterus*, the *Vagina*, mouth of the bladder, and *Rectum*; from whence violent pains and a fever will ensue. In order to remove or alleviate these symptoms, recourse must be had to bleeding and gly-

* This is one probable reason to account for the *PLACENTA*'s sometimes adhering over the inside of the mouth of the womb, and helps to support the theory of the neck's turning shorter and shorter, as the full time approaches.

sters, the urine must be drawn off by the catheter, fomentations and warm baths be used, and this method occasionally repeated until the complaints abate; and they commonly vanish in consequence of the womb's rising higher, so as to be supported on the brim of the *Pelvis*. See Collect. X. N^o 2. and Tab. VI. f. 2.

By the pressure of the *Uterus* upon the upper part of the *Rectum*, and lower part of the *Colon*, where it makes semicircular turns to the right and left, the *Fæces* are hindered to pass, and by remaining too long in the guts, are indurated, the fluid parts being absorbed. Hence arises violent straining at stool, and a compression of the womb, which threatens abortion. When the patient, therefore, has laboured under this symptom for several days, let emollient, laxative, and gently stimulating glysters be injected: but, if the *Rectum* be so obstructed, as that the injection cannot pass, suppositories are first to be introduced; for, frequently, when the *Colon* and *Rectum* are compressed by the *Uterus*, the peristaltic motion is weakened and impeded, so that the guts cannot expel their contents; in which case, the suppository, by irritation, quickens this faculty, and in dissolving, lubricates the parts, thereby facilitating the discharge of the hardened *Fæces*. This previous measure being taken, a glyster ought to be injected, in order to dissolve the collected and indurated contents of the *Colon*, as well as to lubricate and stimulate the inside of that intestine, so as to effect a general evacuation; and for this purpose, a syringe should be used instead of a bladder, that the injection may be thrown up with greater efficacy and force.

These glysters ought to be repeated until the hardened *Fæces* are altogether brought away, and the last
discharge

discharge appears to be of a soft consistence: neither ought the prescriber to trust to the reports of the patients or nurse, but to his own senses, in examining the effects of these injections: for, if the complaint hath continued several days, a large quantity of indurated *Fæces* ought to be discharged. To avoid such inconvenience for the future, an emollient glyster must be injected every second night; or, if the patient will not submit to this method, which is certainly the easiest and best, recourse must be had to those lenients mentioned at the latter end of this section; for, when the *Fæces* are long retained, the air rarifies, expands, and stretches the *Colon*, producing severe cholic pains; this being the method followed by nature, with a view to disburthen herself when she is thus encumbered. See Collect. N^o 2. and Tab. VI. f. 2.

• The pressure of the *Uterus* upon the hæmorrhoidal and internal *Iliac* veins, produces a turgency and tumefaction of all the parts below, such as the *Pudenda*, *Vagina*, *Anus*, and even the *Os internum*, and neck of the womb. This tumefaction of the hæmorrhoidal veins, appears in those swellings at the inside and outside of the *Anus*, which are known by the name of the external and internal *Hæmorrhoids*, or piles. This is a complaint to which women are naturally more subject than the other sex; but it is always most violent in time of pregnancy, when the same method of cure may be administered as that practised at other times, though greater caution must be used in applying leeches to the parts; because, in this case, a great quantity of blood may be lost before the discharge can be restrained. See Collect. X. N^o 3.

About the latter end of the fifth, or in the beginning of the sixth month, the *Uterus* being stretched
above

above the brim, and the *Fundus* raised to the middle space betwixt the *Os pubis* and navel, is considerably increased in weight; and even then (though much more so near the full time) lies heavy upon the upper part of the brim, presses upon the *Vertebræ* of the loins and *Ossa ilia*, and rising still higher with an augmented force, gradually stretches the *Parietis* of the *Abdomen*, pushing the intestines upwards and to each side.

The weight and pressure on the external *Iliac* veins, is attended with a surcharge or fulness in the returning vessels that come from the feet, legs, and thighs; and this tumefaction produces oedematous and inflammatory swellings in these parts, together with varicous tumours in the veins, that sometimes come to suppuration.

The same weight and pressure occasion pains in the back, belly, and loins, especially towards the end of the eighth or in the ninth month: if the *Uterus* rises too high, a *Dyspnœa* or difficulty of breathing, and frequent vomitings ensue; the first proceeds from the confinement of the lungs and *Diaphragm* in respiration, the liver and *Viscera* of the *Abdomen* being forced up into the *Thorax*; and the last is occasioned by the extraordinary pressure upon the stomach. See Collect. X. N° 4.

All the complaints above described; namely, swelling of the legs, thighs, and *Labia pudendi*, pains in the back, loins, and belly, with *Dyspnœa* and vomiting, are removed or palliated by the following method: the patient (if she can bear such evacuations) is generally relieved by bleeding at the arm or ankle, to the amount of eight or ten ounces; but the quantity must be proportioned to the emergency of the case; the belly

belly must be kept open and easy with emollient glysters and laxative medicines, such as a spoonful or two of a mixture composed of equal parts of *Ol. Amygd. d.* and *Syr. Violar.* taken every night; or from two drachms to half an ounce of manna, or the same quantity of lenitive electuary; a small dose of rhubarb, or five grains of any opening pill, unless the patient be troubled with the *Hæmorrhoids*, in which case all aloetic medicines ought to be avoided: the patient must not walk much, or undergo hard exercise, but frequently rest upon the bed, and lie longer than usual in the morning. When the swelling of the legs is moderate, and only returns at night, rollers or the laced stocking may be serviceable; but when it extends in a great degree to the thighs, *Labia pudendi*, and lower part of the belly, in a woman of a full habit of body, venæ-section is necessary, because this œdematous swelling proceeds from a compression of the returning veins, and not from laxity, as in the *Anasarca* and leucophlegmatic constitutions: here moderate exercise, and (as I have already observed) frequent resting on a bed or couch, is beneficial; or, if the skin of the leg and *Pudenda* is excessively stretched, so as to be violently pained, the patient will be greatly relieved by puncturing the parts occasionally: but these complaints cannot be totally removed till delivery, after which they commonly vanish of themselves.

The bellies of those that are indolent and use no exercise, ought to be moderately compressed, so that the *Uterus* may not rise too high, and occasion difficulty in breathing, and vomiting, in the last months; but they must not be too straitly swathed, lest the womb should be determined, in stretching, over the *Pubes*, and produce a pendulous belly, which is often the
cause

cause of difficult labours. A medium ought, therefore, to be preserved in this article of compressing, and no woman lace her jumps or stays so as to make herself uneasy: while the diet, air, and exercise, ought to be regulated according to the constitution, custom, and complaints of the patient.

C H A P. II.

Of the DISEASES incident to pregnant Women.

S E C T. I.

Of the STONE in the KIDNEYS and BLADDER.

WOMEN are frequently afflicted with small stones and gravel in the kidneys, being less subject than men to this complaint in the bladder, because their *Urethras* are short and wide, and suffer the calculous concretions to pass with the urine more easily.

In pregnancy, it is often difficult to distinguish gravelly pains from those that are felt in the small of the back and loins, proceeding from the pressure of the *Uterus* upon these parts; in both cases, when the pains are violent, the urine is high-coloured, and the difference is, that in the gravel a quantity of sand generally falls to the bottom: though the sediment commonly deposited by high-coloured urine is often mistaken for gravel: this mistake, however, is the less material, because both complaints are relieved by the same method, namely, venæsection, emollient glysters, emulsions, with gum arabic, infusions of *Althea*, *Sem.*
Lin.

Lini and *Opiates*, and an application of *Emplastr. Roborans* to the back.

Pains in the loins and belly, extending to the false ribs, occasioned by the stretching of the *Uterus*, are eased by rubbing and anointing the parts every night, before the fire, with emollient unguents, such as that of *Althea*, &c.

In pregnant women, the complaints from a stone in the bladder (which is sometimes, though seldom the case) are to be treated in the same manner as at any other time; except that when the patient is near delivery, it is not adviseable to endeavour to extract it, lest the operation should be attended with an inflammation of the *Urethra* and *Vagina*: if therefore the stone should be rough, angular, or surrounded with sharp prickles, the woman suffers greatly from the pressure of the *Uterus* upon the bladder, especially in time of labour, when the membranes are broke, and the head of the child is pushed into the upper part of the *Pelvis*; because the stone is then pressed before it, upon the neck of the bladder, so as to occasion exquisite torture, and infallibly retard the labour-pains. If the stone hath descended into the *Meatus urinarius*, perhaps it may be easily extracted; but if it still remains within the bladder, the only way of relieving the patient is by introducing a *Catheter*, also one or two fingers in the *Vagina*, to push up the stone above and behind the head of the child; or, if this cannot be done, to turn and deliver by the feet, before the head is pressed too far down in the *Pelvis*. See Collect. XI. N^o 1.

S E C T. II.

Of HERNIAS, or RUPTURES.

WOMEN are also afflicted with ruptures in different parts, such as the navel, groin, and *Pelvis*; but, as the *Uterus* in time of gestation stretches higher and higher, the *Omentum* and intestines are pressed more and more upward and to each side; and about the fifth or sixth month, the womb rises so high, that the intestine cannot descend into the groin, and the rupture in that part, ceases for the present. About the eighth month, the *Uterus* is so high advanced, that the intestine or *Epiploon* is kept from pushing out at the navel, consequently the umbilical *Hernia* is likewise suspended till after delivery; but this will not happen in either case, unless the rupture be of that kind that suffers the *Omentum* and intestine to be easily reduced.

Women are chiefly subject to ruptures of the *Umbilicus*, and those of the groin most incident to the other sex; but, there is a third kind peculiar to women, though it rarely happens even in them: this is produced from the intestine falling down betwixt the back-part of the *Uterus* and *Vagina*, and the fore-part of the *Rectum*. The *Peritoneum* descends much lower in this place than at the anterior descent, where it covers the upper part of the bladder, or, at the sides of the *Pelvis*, where it forms the *Ligamenta lata*; for it reaches to within one or two inches of the *Perineum*, and the intestines pressing it farther down, or bursting it in this part, are pushed out in the form of a large tumour, at the side of the *Perineum*, betwixt the lower part of the *Ischium* and *Coccyx*. The gut being so situated

tuated in time of labour, when the child's head is squeezed into the *Pelvis*, may suffer strangulation, if the case should prove lingering and tedious, and the pressure continue for any length of time. In order to prevent or remedy this accident, let the *Os externum* be gradually opened with the hand, which being introduced in the *Vagina*, shall raise the child's head, so as to suffer the intestine to be pushed above it, by the assistance of the other hand, which presses upon the outside: in this manner, both hands may be used alternately, till the purpose be effected; or, should this method fail to reduce and retain the intestine, the child must be delivered with the forceps, or turned and brought by the feet, as we have directed in the case of a stone in the bladder. The ruptures of the *Umbilicus* and groin may be restrained and kept up by proper compression, but it is very difficult to contrive an effectual bandage for the descent in the *Perineum*. See Collect. XI. N^o 2.

S E C T. III.

Of DROPSIES.

DIFFICULTY in breathing, in pregnant women, may be occasioned by collections of matter in the chest or *Thorax*, as well as in the *Abdomen*, from abscesses in the *Viscera*, co-operating with the pressure of the *Uterus* upon the organs of respiration: these complaints (which are generally fatal) must be treated by the same method in pregnancy, which is used at other times. The cavity of the *Abdomen* is also subject to an *Ascites* or dropsy, with or without *Hydatides*, which, in conjunction with the stretching *Uterus*, may

distend the belly to a prodigious size, producing great oppression and anxiety. Here too the common method of curing or palliating dropfies must be used, with this difference, that the purging medicines are to be cautiously prescribed. See Collect. XI. N^o 5.

But this disorder is not so incident to pregnant women, as the *Anasarca*, which is a dropfy of the cellular membrane, that extends over the whole surface of the body, inveloping every individual muscle, vessel, and fibre. This disease is the effect of universal laxity and weakness, and if not timely obviated, may endanger the patient's life, being sometimes attended with a fatal rupture of the *Uterus* in time of labour: in order to prevent which catastrophe, every thing ought to be prescribed in point of diet, medicine, and exercise which may contribute to strengthen the solids and quicken the circulation. Let her, for example, take repeated doses of the *Confect. Cardiac.* drink moderate quantities of strong wine, in which the warm spices have been infused, eat no meat but such as is roasted and high seasoned, and abstain altogether from weak diluting fluids, such as small beer and water.

S E C T. IV.

Of Incontinence of URINE, and Difficulty in making Water, at the latter end of Pregnancy, and in time of Labour.

THE *Vesica urinaria* in pregnant women near their full time, is often so much pressed by the *Uterus*, that it will contain but a very small quantity of water; a circumstance, though not dangerous, extremely troublesome, especially when attended with a vomiting or cough: in which case, the straining forces
out

out the water involuntarily, with great violence. The cough may be alleviated by proper remedies, but the vomiting can seldom be removed. Sometimes a bandage applied round the lower part of the belly, and supported with the *Scapular*, is of singular service, particularly when the *Uterus* lies pendulous over the *Os pubis*, thereby compressing the urinary bladder.

But this complaint is not of such dangerous consequence as a difficulty in making water, or a total suppression, which (as we have already observed) happens, though very seldom, in the fourth or beginning of the fifth month of pregnancy; but most frequently occurs in time of labour, and after delivery. In the beginning of labour, before the membranes are broke, and the head of the child sunk into the passage, the woman commonly labours under an incontinence of urine, from the pressure upon the bladder; but the membranes being broken, and the waters discharged, the *Uterus* contracts, and the child's head is forced down into the *Pelvis*, where, if it continues for any length of time, the *Urethra* and *Sphincter vesicæ* are so compressed that the urine cannot pass; while the pressure on the other parts of the bladder being removed, in consequence of the diminished size of the *Uterus*, and the laxity of the *Parietes* of the *Abdomen*, the *Vesica urinaria* is the more easily stretched by the increasing quantity of urine, which distends it to such a degree, that the fibres are over-strained: and after delivery, when the pressure is removed from the *Sphincter* and *Meatus urinarius*, it cannot contract so as to discharge its contents, especially if any swelling or inflammation remains from the pressure upon the neck and *Urethra*; in which case, the patient is

K 2

afflicted

afflicted with violent stretching pains in the loins, back, groin, and particularly above the *Os pubis*.

This complaint is immediately removed by drawing off the urine with a catheter; and indeed this expedient ought to be tried before delivery, as it must infallibly promote labour, because one pain interferes with the other. If the inflammation continues or increases, and the obstruction of urine recurs after delivery, the external parts ought to be fomented with warm stupes; bladders half filled with warm water, or emollient decoctions may be applied as hot as the patient can bear them, to all the lower part of the belly; and the catheter be used twice a day, or as often as necessity requires, until the bladder shall have recovered its tone, so as to perform its office without assistance.

S E C T. V.

Of the FLUOR ALBUS in pregnant Women.

THIS discharge, to which women are more subject at other times, than during uterine gestation, if in a large quantity, may hinder conception. In those who are usually troubled with it, the complaint generally ceases all the time of pregnancy: in some, however, it continues to the last, provided the seat of it is in the *Vagina*; and the evacuation is sometimes so great, as to weaken both mother and child, and even to produce a miscarriage. Every thing that strengthens and nourishes the body is here of service. This is also supposed to happen when some part of the *Chorion* being separated from the *Uterus*, the fluid that is separated by the *Colatura lactea* for the nutrition

tion of the *Fætus*, forces its way through the *Os internum*; and the greater this separation is, and the nearer the full time, the larger the discharge will be.

S E C T. VI.

Of the GONORRHOEA and LUES VENEREA.

THough women are not so soon infected with this distemper as men, they are commonly cured with greater difficulty, because of the great moisture and laxity of the parts affected; especially in pregnant women, who nevertheless are to be treated in the same method practised at other times, except that in this case, mercurials and cathartics ought to be very cautiously used: for, if the *Gonorrhœa* is neglected, or unskilfully managed, the *Virus* will increase, and actually degenerate into a confirmed pox. It is often difficult to distinguish a *Gonorrhœa* from the *Fluor Albus*, because the colour and quantity of the discharge is nearly the same in both: in the last, however, we seldom meet with inflammation or ulcers within the *Labia* or entrance of the *Vagina*; whereas in the first, these generally appear soon after the infection, about the *Meatus urinarius*, the *Carunculæ myrtiformes*, and inside of the *Labia*, producing a violent pain in making water. The *Gonorrhœa* is likewise distinguished from the *Fluor Albus*, by its continuing all the time of the menstrual discharge, during which the other complaint is commonly suspended; but this mark is at best but uncertain, and can be of no service in pregnancy, because then the *Menses* themselves are obstructed. The cure is best attained by bleeding, repeated doses of gentle cathartics mixed with mercuri-

rials, a low diet, emulsions impregnated with nitre, and lastly balsamic, strengthening, and astringent medicines.

If the distemper hath proceeded to an inveterate degree of the second infection, attended with cancerous ulcerations of the *Pudenda*, buboes in the groin, ulcers in the nose and throat, so that the life of the patient or constitution of the parts are endangered, mercurials must be given, so as to raise a gentle degree of salivation; which ought to be immediately restrained, and even carried off, by mild purgatives, and renewed occasionally, according to the strength of the woman, until the *Virus* be utterly discharged. Here, however, a great deal must depend upon the judgment and discretion of the prescriber, who rather than propose any thing that might occasion abortion, ought to try, by palliating medicines, to alleviate and keep under the symptoms till after delivery. See Collect. XI. N^o 4.

C H A P. III.

S E C T. I.

Of MISCARRIAGES.

MOST of the complaints above described, if violent and neglected, may occasion a miscarriage; and it would be almost an endless task to enumerate every accident from which this misfortune may proceed: I shall therefore content myself with describing in what manner abortion happens; first, in the death of the child; secondly, in the separation of the *Placenta*; and lastly, in whatever may occasion too great extension of the neck, and of the *Os internum*.

S E C T.

S E C T. II.

Of the CHILD's Death.

THIS may proceed from diseases peculiar to itself, not to be accounted for, as well as from divers accidents that befall it in the womb; if, for example, the navel-string be long, and the quantity of surrounding waters great, the *Fœtus*, while young, may, in swimming, for a noose of the *Funis*, through which if the head only passes, a circumvolution will happen round the neck or body: but should the whole *Fœtus* pass or thread this noose, a knot will be formed on the navel-string, which, if tight drawn, will absolutely obstruct the circulation. This may likewise be the case, when the waters are in very small quantity, and the *Funis umbilicalis* falls down before the head, by which it is violently compressed. In short, the death of the *Fœtus* will be effected by all circumvolutions, knots, or pressure upon the navel-string, which destroy the circulation betwixt the *Placenta* and the child.

The *Fœtus* may suffer death from diseases and accidents that happen to the mother; from violent passions of joy, fear, or anger, suddenly raised to such transports as occasion tremors, fainting, or convulsions; and from a *Plethora*, and all acute distempers in which the circulating force of the fluids is too violent.

The child being dead, and the circulation in the *Secundines* consequently destroyed, the *Uterus* is no longer stretched, the *Fœtus*, if large, is no longer felt to move or stir; all the contained parts run gradually into a state of putrefaction; the resistance of the membranes becomes weaker than the contracting force of the

the *Uterus*, joined with the pressure of the contents and parietes of the *Abdomen*; the contained waters, of consequence, burst through their mortified inclosure, and the *Uterus* is contracted close to its contents, which are therefore pressed down lower and lower; the neck and mouth of the womb being gradually stretched, labour comes on, and miscarriage ensues.

At other times, gripings, looseness, and labour pains, even before the membranes break, are occasioned by obstruction or resistance of the vessels of the *Uterus*; in these cases, if no flooding happens, the woman is seldom in danger, and, though the child is known to be dead, the progress of nature is to be waited for with patience: if the woman is weak, exhausted, or timorous, she must be encouraged and fortified with nourishing diet; if plethoric, she must undergo evacuation by bleeding and laxative medicines, and when labour begins, be assisted according to the directions specified in the sequel. See Collect. XII. N^o 1.

S E C T. III.

Of the Separation of the PLACENTA from the UTERUS.

THIS separation may proceed from all the foregoing diseases and accidents that happen to the mother: from violent shocks, strains, over-reachings, falls, and bruises on the *Abdomen*; as also from vehement coughs, vomitings, or strainings at stool, when the body is costive. The separation of the *Placenta* is always accompanied with a discharge of blood from the vessels of the *Uterus*, more or less, according to the term of pregnancy, or as the *Placenta* is more or less detached.

This discharge is distinguished from the *Menses*, by the irregularity of its period, by its flowing in a larger quantity, and, after a small intermission, its return upon the least motion of the patient.

The younger the woman is with child, the danger is the less; because, though a considerable quantity of blood be lost, it does not flow with such violence as to exhaust her immediately; and therefore she may be supported and her spirits kept up with proper cordials and nutritive diet. But when such an hæmorrhage happens in any of the three or four last months of pregnancy, the danger is much more imminent, especially towards the full time; because the vessels of the *Uterus* being then largely distended, a much greater quantity of blood is lost in a shorter time; yet, in both cases, the floodings will be more or less, as there is more or less of the *Placenta* separated from the womb; and when this happens in a very small degree, the discharge may, by right management, be sometimes stopped, and every thing will happily proceed to the full time; but if this purpose cannot be effected in a woman young with child, the principal intention ought to be a mitigation of the hæmorrhage, leaving the rest to time and patience, as a miscarriage in the first five months is seldom attended with hazard: on the contrary, nothing can be more dangerous than such an effusion in any of the four last months, provided it cannot be immediately restrained. In this case, we are often deceived by a short intermission, occasioned by coagulated blood that locks up the mouth of the womb, which being pushed off, the flooding returns: and hence we account for its returning so commonly upon motion, a fit of coughing, straining at stool, or any effort whatever.

It is happy for the woman in this case, when she is so near the full time that she may be sustained till labour is brought on; and this may be promoted, if the head presents, by gently stretching the mouth of the womb, which being sufficiently opened, the membranes must be broke: so that the waters being evacuated, the *Uterus* contracts, the flooding is restrained, and the patient safely delivered. At any rate, if the hæmorrhage returns again with great violence, there is no other remedy than that of delivering with all expedition, according to the method described in book III. chap. 4. sect. 3. and book IV. chap. i. sect. 3.

Although the great danger is from floodings when near the full time, yet if labour can be brought on, the *Os uteri* is easily dilated with the labour, or the hand; but, in the sixth or seventh month, it takes longer time, and is stretched with greater difficulty, which is sometimes the occasion of the danger at that period.

The edge or middle of the *Placenta* sometimes adheres over the inside of the *Os internum*, which frequently begins to open several weeks before the full time; and if this be the case, a flooding begins at the same time, and seldom ceases intirely until the woman is delivered: the discharge may indeed be intermitted by coagulums that stop up the passage; but when these are removed, it returns with its former violence, and demands the same treatment that is recommended above.

In all cases, and at all times of pregnancy, if the woman receives any extraordinary shock either in mind or body; if she is attacked by a violent fever, or any complaints attending a *Plethora*, bleeding ought always to be prescribed by way of prevention or precaution, unless a low, weak, lax habit of body renders such

such evacuation unadvisable; but these are not so subject to fevers from fulness.

On the first appearance of flooding, the patient ought immediately to be bled to the amount of eight or twelve ounces, and venæsection repeated occasionally according to the strength of the constitution, and emergency of the case: she ought to be confined to her bed, and be rather cool than warm; if costive, an emollient glyster must be injected, in order to dissolve the hardened *Fæces*, that they may be expelled easily without straining: internally, emulsion with nitre must be used, and mixtures of the *tinct. rosar. rub.* acidulated with *spirits of vitriol*, as the cooling or restringent method shall seem to be indicated; but above all things, opiates must be administered, to procure rest, and quiet the uneasy apprehensions of the mind: for diet, let her use panada, weak broth, and rice gruel; she may drink water in which a red hot iron has been several times quenched, mixed with a small proportion of red burnt wine; she must abstain from all the high-seasoned foods, and even flesh meat or strong broths, that will enrich the blood too fast, and quicken the circulation. But if, notwithstanding this regimen, the flooding shall continue and increase, so that the patient becomes faint and low, with loss of blood; we must, without further delay, attempt to deliver her, as in book III. chap. 9. sect. 3.; though this is seldom practicable, except in the last months of pregnancy, and then will be the easier performed the nearer she is to her full time, unless labour pains shall have assisted or begun a dilatation of the *Os internum*.

S E C T. IV.

MISCARRIAGES may also be produced from every force that will stretch the neck and mouth of the womb; such as violent coughs, vomitings, costive strainings at stool, cathartics that bring on a superpurgation, and tenesmus, together with frequent convulsions. All these symptoms must be treated in the usual method: the cough and vomiting may be abated or removed chiefly by venæsection and opiates; the constipation, by glysters and gentle laxative medicines; the superpurgation, by opiates; the tenesmus, by these, and oily injections; the convulsions, by bleeding and blisters: and as the more violent convulsions happen generally when the woman is near her full time, if they are not soon removed, but continue and increase to the manifest hazard of the patient's life, she ought to be delivered immediately, in the same manner as in the case of a flooding in the last months. See Collect. XII. N^o 2.

S E C T. V.

ABORTION may be likewise occasioned by uncommon longings for things that cannot be soon or easily got, or such as the woman is ashamed to ask for, especially in her first child, namely, different kinds of food and drink. These appetites, if not gratified, sometimes produce a miscarriage; and indeed are supposed to affect the child in such a manner, that the body of it shall be impressed with marks resembling the figure or colour of what the mother longed for. These cravings, therefore, though they appear unreasonable and improper, must be satisfied, and the mother ought to shun every thing that is disagreeable to the senses, because miscarriage may also proceed from surprize at sight

light of strange and horrible objects. See Collect. XII.
N^o 3.

B O O K III.

C H A P. I. S E C T. I.

Of the CHILD'S Situation in the UTERUS.

THE Embryo or *Fœtus*, as it lies in the *Uterus* is nearly of a circular or rather oval figure, which is calculated to take up as little space as possible: the chin rests upon the breast, the thighs are pressed along the belly, the heels applied to the breech, the face being placed between the knees, while the arms cross each other round the legs. The head, for the most part, is down to the lower part of the *Uterus*; and the child being contracted into an oval form, the greatest length is from head to breech: but the distance from one side to the other is much less than that from the fore to the back part; because the thighs and legs are doubled along the belly and stomach, and the head bended forwards on the breast. The *Uterus* being confined by the *Vertebræ* of the loins, the distance from the back to the fore-part of it must be less than from side to side; so that, in all probability, one side of the *Fœtus* is turned towards the back, and the other to the fore-part of the womb: but, as the back part of the *Uterus* forms a little longish cavity on each side of the *Vertebræ*, the fore-parts of the *Fœtus* may therefore, for the most part, tilt more backwards than forwards.

It has been generally supposed that the head is turned up to the *Fundus*, and the breech to the *Os uteri*, with the fore-parts towards the mother's belly; and that it remains in this situation till labour begins, when the head comes downwards, and the face is turned to the

back of the mother. Some alledge, that the head precipitates about the end of the eighth or beginning of the ninth month, by becoming specifically heavier than the rest of the body. Others affirm, that as the child increases in bulk, especially during the two last months, the proportion of surrounding water must be diminished, so as that it is confined in its motion, and in struggling to alter its position, the head is moved to the *Os tinctæ*, where it remains till delivery. The particulars of this and other theories, may be found in *Mariceau, Le Moët, Simpson, and Old*. But from the following observations it seems more probable, that the head is, for the most part, turned down to the lower part of the *Uterus*, from conception to delivery.

In the first month, according to some writers, the *Embryo* exhibits the figure of a tadpole, with a large head and small body or tail, which gradually increases in magnitude, till the arms and thighs begin to bud or strut out, like small nipples, from the shoulders and breech: two black specks appear on each side of the head, with a little hole or opening between them, which, in the second month, are easily distinguished to be the eyes and mouth. (See Tab. V. Fig. 3.) The legs and arms are gradually formed, while the body turns larger, but the fingers are not separated or distinct, till the later end of the second, or beginning of the third month. (See Tab. VI. Fig. 1.) This is commonly the case; but sometimes, the bulk and appearance differ considerably in different *Embryos* of the same age. The younger the *Embryo*, the larger and heavier is the head in proportion to the rest of the body; and this is the case in all the different gradations of the *Fœtus*; so that when dropt or suspended by the navel-string in water, the head must sink owermost of course. Besides, when women miscarry,

In the fourth, fifth, sixth, and seventh months, the head, for the most part, presents itself, and is first delivered. (See Tab. VI, VIII.) By the touch in the *Vagina*, the head is frequently felt in the seventh, sometimes in the sixth, but more frequently in the eighth month; and if the same women are thus examined, from time to time, till the labour begins, the head will always be felt of a round firm substance at the fore-part of the brim of the *Pelvis*, betwixt the *Os internum* and *Pubes*, through the substance of the *Vagina* and *Uterus*. (See Tab. IX, X.) But all these opinions are liable to objections. If the descent of the head proceeded from its specific gravity, we should always find it at the *Os internum*, because this reason would always prevail: if it were owing to a diminished proportion of water, why should we often find the breech presented, even when there is a quantity of that fluid large enough to give the head free liberty to rise again towards the *Fundus*, or (according to the other opinion) to sink down, by its specific gravity, to the *Os internum*? Some, indeed, suppose, that the head always presents itself, except when it is hindered by the *Funis umbilicalis* twisting round the neck and body, so as to impede the natural progress: but, were this supposition just, when we turn and deliver by the feet, those children that presented in a pre-natural way, we should always find them more or less circumvoluted by the navel-string: whereas I have as often found the *Funis* twisted round the neck and body, when the head presented, as in any other case; and when other parts offered, have frequently delivered the child without finding it in the least entangled by that cord. That the head is downwards all the time of gestation, seems, on the whole, to be the most reasonable opinion, though it be liable to the objection

already mentioned, and seems contradictory to the observation of some authors, who alledge, that in opening women that died in the fifth, sixth, or seventh month, they have found the child's head towards the *Fundus uteri*. But as it lies as easy in one posture as in another, till the birth, this dispute is of less consequence in the practice of Midwifery. It may be useful to suggest, that the wrong posture of the child in the *Uterus* may proceed from circumvolutions of the *Fundus umbilicalis*, (See Tab. XXIX.) or when there is little or no water surrounding the child, it may move into a wrong position, and be confined there by the stricture of the *Cervix*; (See Tab. XXX, XXXI, XXXII, XXXIII.) Or lastly, be the effect of a pendulous belly or narrow *Pelvis*, when the head lies forward over the *Pubes*. See Collect. XIII. and Tab. XII, XXVIII, XXXIV.

S E C T. II.

Of TOUCHING.

TOUCHING is performed by introducing the fore-finger lubricated with pomatum into the *Vagina*, in order to feel the *Os internum* and neck of the *Uterus*; and sometimes, into the *Rectum*, to discover the stretching of the *Fundus*. By some, we are advised to touch with the middle finger, as being the longest; and by others, to employ both that and the first: but the middle is too much encumbered by that on each side, to answer the purpose fully, and when two are introduced together, the patient never fails to complain. The design of touching is to be informed whether the woman is, or is not with child; to know how far she is advanced in her pregnancy; if she is in danger of a miscarriage; if the *Os uteri* be dilated; and in time of labour

labour to form a right judgment of the case from the opening of the *Os internum*, and the pressing down of the membranes with their waters; and lastly, to distinguish what part of the child is presented.

It is generally impracticable to discover by a touch in the *Vagina*, whether or not the *Uterus* is impregnated, till after the fourth month: when the best time for examination is the morning, when the woman is fasting, after the contents of the bladder and *Rectum* have been discharged; and she ought, if necessary, to submit to inquiry in a standing posture; because, in that case, the *Uterus* hangs lower down in the *Vagina*, and the weight is more sensible to the touch than when she lies reclined. One principal reason of our uncertainty is, when we try to feel the neck, the womb rises up on our pressing against the *Vagina*, at the side of the *Os internum*; (See Tab. VI. fig. 1.) and in some, the *Vagina* feels very tense; but, when the *Fundus uteri* is advanced near the navel, the pressure from above keeps down the *Os internum* so much, that you can generally feel both the neck, and, above that, the stretching of the under part of the *Uterus*. See Tab. VI, VIII.

There is no considerable variation to be felt in the figure of the *Os internum*, except in the later end of pregnancy when it sometimes grows larger and softer; (See Tab. IX.) nor do the lips seem to be more closed in a woman with child than in another, especially in the beginning of pregnancy: but, in both cases the *Os uteri* is felt like the mouth of a young puppy or tench, as we have before observed. In some the lips are very small, in others, large; and sometimes, though seldom, smoothed over or pointed. In many women, who have formerly had children and difficult labours, the lips are large, and so much separated, as to admit the tip of an

ordinary finger; but, a little higher up, the neck seems to be quite closed.

In the first four months, the neck of the womb may be felt hanging down in the *Vagina*, by pushing up the finger by the side of the *Os internum*; but the stretching of the *Uterus*, and upper-part of the neck, cannot be perceived till the fifth, and sometimes the sixth month; and even then, the *Uterus* must be kept down, by a strong pressure upon the belly.

The stretching of the *Fundus* is sometimes felt by the finger introduced into the *Rectum*, before it can be perceived in the *Vagina*; because, in this last method, the *Uterus* recedes from the touch, and rises too high to be accurately distinguished, whereas the finger, being introduced into the *Rectum*, passes along the back of the womb almost to the upper part of the *Fundus*, which, in an unimpregnated state is felt flat on the back part, and jetting out at the sides; but, the impregnated *Uterus* is perceived like a large round tumour.

About the fifth or sixth month, the upper part of the *Uterus* is so much stretched, as to rise three or four inches above the *Os pubis*, or to the middle space between that and the navel; so that, by pressing the hand on the belly, especially of lean women, it is frequently perceived; (See Tab. VII.) and if, at the same time, the index of the other hand be introduced in the *Vagina*, the neck will seem shortened, particularly at the fore-part and sides; and, as I have already observed, the weight will be sensibly felt: but, if the parietes of the *Abdomen* are stretched after eating, one may be deceived by the pressure of the stomach, because weight and pressure are the same. But all these signs are more perceptible towards the latter end of pregnancy; and in some women the *Os internum* is felt a little open some weeks

weeks before the full time, though generally it is not opened till a few days before labour begins.

From the fifth to the ninth month, the neck of the *Uterus* becomes shorter and shorter, and the stretching of the womb grows more and more perceptible. In the seventh month, the *Fundus* rises as high as the navel; in the eighth month, to the middle space betwixt the navel and *Scrobiculus cordis*; and in the ninth, even to the *Scrobiculus*, except in pendulous bellies: (See Tab. VIVIII, IX.) But all these marks may vary in different women; for when the belly is pendulous, the parts below the navel are much more stretched than those above, and hang over the *Os pubis*; the *Fundus* will then be only equal to, or a little higher than the navel; at other times, the *Uterus* will rise in the latter end of the seventh or eighth month to the *Scrobiculus cordis*. The neck of the womb will, in some, be felt as long in the eighth, as in others in the sixth or seventh month. This variation, sometimes makes the examination of the *Abdomen* more certain than the touch of the *Vagina*; and so *vice versa*. At other times, we must judge by both. See Collect. XIII. and Tab. XII.

S E C T. III.

Of the Signs of CONCEPTION, and the equivocal signs of pregnant and obstructed women.

THE signs of pregnancy are to be distinguished from those that belong to obstructions, by the touch in the *Vagina* and motion of the child, in the fifth or sixth month: sometimes, by the touch in the *Rectum*, before and after the fifth month, when the tumour of the *Abdomen* is plainly perceived.

Most women, a day or two before the irruption of the *Catamenia*, labour under complaints proceeding from a *Plethora*; such as stretching pains in the back and loins, inside of the thighs, breast, and head; a sickness and oppression at the stomach, and a fullness of all the *Viscera* of the *Abdomen*; and all these symptoms abate, and gradually vanish, when the discharge begins and continues to flow. But, if the woman be obstructed by any accident or error in the non-natural, those complaints continue and increase, and are hardly distinguishable from the symptoms of pregnancy till the end of the fourth month; at which period, women with child grow better, and all the complaints of fullness gradually wear off; whereas, those who are only obstructed, grow worse and worse, from the increase of the *Lentor* in the fluids, which will in time produce various and dangerous diseases. The *Fundus uteri*, in the obstructed patient, is not stretched, the disorder in her stomach is not so violent as in a pregnant woman, and seldom accompanied with reachings; while the woman with child is afflicted with a reaching every morning, and subject to longings besides. The first labours under a fullness of the vessels; the last, over and above this complaint, suffers an additional one from the distension of the *Uterus* by the impregnated *Ovum*. Obstruction and pregnancy are both accompanied by a stretching fullness in the breasts: but in the last only, may be perceived the *Areola*, or brown ring, round the nipples, from which, in the last months, a thin serum distills; but this circle is not always so discernible as in the first pregnancy, and even then is uncertain as well as the others.

About the fifth or sixth month, the circumscribed tumour, or stretching of the *Uterus*, is felt above the

Os pubis ; and by this circumscription and consistence, easily distinguished from the *Ascites* or dropsy of the *Abdomen* : it is also rounder and firmer than those swellings that accompany obstructions, which proceed from a general fullness of the vessels belonging to the ligaments and neighbouring *Viscera*.

On the whole, the difficulty of distinguishing between obstruction and pregnancy in the first month, is so great, that we ought to be cautious in giving our opinion ; and never prescribe such remedies as may endanger the fruit of the womb, but rather endeavour to palliate the complaints until time shall discover the nature of the case ; and always judge on the charitable side, when life or reputation is at stake.

In the fifth or sixth month of uterine gestation, by the touch in the *Vagina*, we perceive the neck of the womb considerably shortened, and the stretching of the lower part of the *Uterus* is then sensibly felt between the mouth of the womb and the *Pubes*, and on each side of the neck. See Tab. VI, VIII.

In the seventh month, the head of the child is frequently felt resting against the lower part of the *Uterus*, between the *Pubes* and *Os internum* ; and being pushed upward towards the *Fundus*, sinks down again by its own gravity. All these diagnostics are more plain and certain, the nearer the patient approaches to the time of delivery.

Sometimes, the head is not felt till the eighth or ninth month ; and, in some few cases, not till after the membranes are broke, when it is forced down by the contraction of the *Uterus*, and strong labour-pains. This circumstance may be owing to the head's resting above the basin, especially in a narrow *Pelvis* ; or to the distension of its belly with air after death, by which the

Fætus being rendered specifically lighter than the surrounding waters, the body floats up to the *Fundus*, if there is a large quantity of fluid in the membranes: nor is the body always felt when the child lies across the *Uterus*. See Collect. XIII.

S E C T. IV.

How to distinguish the false LABOUR from the true, and the Means to be used on that occasion.

IF the *Os uteri* remains close shut, it may be taken for granted, that the woman is not yet in labour, notwithstanding the pains she may suffer; with regard to which, an accurate inquiry is to be made, and if her complaints proceed from an overstretching fullness of the *Uterus*, or vessels belonging to the neighbouring parts, bleeding in the arm or ankle, to the quantity of six or eight ounces ought to be prescribed and repeated occasionally. If the pains are occasioned by a looseness or *Diarrhœa*, it must be immediately restrained with opiates, as in lib. II. chap. 3. sect. 4. Cholic pains are distinguished from those of labour, by being chiefly confined to the belly, without going off and returning by distinct intervals: they are for the most part produced by *Fæces* too long retained in the *Colon*, or by such *Ingesta* as occasion a rarefaction or expansion of air in the intestines; by which they are violently stretched and vellicated. This complaint must be removed by opening glysters, to empty the guts of their noxious contents: and this evacuation being performed, opiates may be administered to assuage the pains; either to be injected by the *Anus*, taken by the mouth, or applied externally, in form of *Epithem* or embrocation.

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Sometimes, the *Os internum* may be a little dilated, and yet it may be difficult to judge whether or not the patient be in labour; the case, however, may be ascertained after some attendance, by these considerations: if the woman is not arrived at her full time; if no soft or glary *Mucus* hath been discharged from the *Vagina*; if the pains are limited to the region of the belly, without extending to the back and inside of the thighs: if they are slight, and continue without intermission or increase; nay, if they have long intervals, and recur without force sufficient to push down the water and membranes, or child's head, to open the *Os internum*; if this part be felt thick and rigid, instead of being soft, thin, and yielding, we may safely pronounce, that labour is not yet begun: and those alarms are to be removed as we have directed in the case of false or cholic pains. Besides, if the pulse be quick and strong, and the patient attacked by stitches in the sides, back, or head, bleeding will be likewise necessary. See Collect. XIII. and Tab. VIII, IX, X.

S E C T. V.

The Division of LABOURS.

HIPPOCRATES, and almost all the writers upon this subject, from his time to the fifteenth century, divided labour into two kinds: namely, natural and preternatural; the first comprehended those cases, in which the head (others say the head and breech) presented, though the presentation of the head was always deemed the most natural; the other included all births in which any other part of the body first offered itself: and although they did not, like us, use
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a third distinction, they seem to have understood it in their practice ; for, among their chirurgical operations. we always find a chapter on the method of delivering dead children, by opening the head, and extracting with the crotchet. At present, labours are divided into natural, according to the antients, when the head or breech presents ; laborious, when, notwithstanding this situation of the child, the delivery goes on so tediously, that the woman is in danger of losing her life, unless she is assisted with the operator's hand, fillet, forceps, blunt hook, or crotchet ; and preternatural, when neither head nor breech presents ; so that, for the most part, there is a necessity for turning the child, and bringing it away by the feet. But the division of labours hath been varied according to the opinion of different people ; some think, that all those cases ought to be deemed preternatural, in which any part of the body (the head itself not excepted) presents in an unusual way. Others affirm, that whatever part presents, or however the posture of the child may be, if it is delivered without any other assistance than that of the labour-pains, the birth ought to be called natural ; laborious, when in these cases, the child is born with difficulty ; and preternatural, when, lying across the *Uterus*, it must be turned and delivered by the feet.

For my own part, having in teaching found all these divisions liable to objections, I have followed a method which is more simple than the others, and will save abundance of repetition.

I call that a natural labour in which the head presents, and the woman is delivered by her pains and the assistance commonly given : but, should the case be so tedious and lingering, that we are obliged to use extraordinary force, in stretching the parts, extracting with

with the forceps, or (to save the mother's life) in opening the head and delivering with the crotchet, I distinguish it by the appellation of *laborious*: and in the preternatural, comprehend all those cases in which the child is brought by the feet, or the body delivered before the head. Neither do I mind how the child presents, so much as the way in which it is delivered: for there are cases in which the head presents, and for several hours we expect the child will be delivered in the natural way; but if the woman has not strength enough to force down the child's head into the *Pelvis*, or *Standings*, we are at length obliged to turn and bring it by the feet, because it is so high that the forceps cannot be applied; and if the child is not large, nor the *Pelvis* narrow, it were pity to destroy the hopes of the parents, by opening the skull and extracting with the crotchet. In this case, therefore, although the child presents in a natural way, we are obliged to turn and deliver it in the same manner as if the shoulder, breast, or back, had presented; and, generally, this operation is more difficult than in either of those cases, because, if the waters are all discharged, and the *Uterus* close contracted round the *Fœtus*, it is more difficult to raise the head to the *Fundus*. When the breech presents, we are frequently obliged to push it up and search for the legs, which being found, we proceed to deliver the body, and lastly the head. If the head is large or the *Pelvis* narrow, and the waters not discharged, we ought, if possible, to turn the child into the natural position.

For a farther illustration, and to inform young practitioners that difficult cases do not frequently occur, suppose, of three thousand women in one town or village, one thousand shall be delivered in the space of

one year, and in nine hundred and ninety of these births, the child shall be born without any other than common assistance: fifty children of this number shall offer with the forehead turned to one side, at the lower part of the *Pelvis*, where it will stop for some time; ten shall come with the forehead towards the groin, or middle of the *Fubes*; five shall present with the breech, two or three with the face, and one or two with the ear; yet, all these shall be safely delivered, and the case be more or less lingering and laborious, according to the size of the *Pelvis* and child, or strength of the woman: of the remaining ten that make up the thousand, six shall present with the head differently turned, and two with the breech; and these cannot be saved without stretching the parts, using the forceps or crotchet, or pushing up the child, in order to bring it by the feet: this necessity proceeding either from the weakness of the woman, the rigidity of the parts, a narrow *Pelvis*, or a large child, &c.; the other two shall lie across, and neither head nor breech, but some other part of the body, present, so that the child must be turned and delivered by the feet. Next year, let us suppose another thousand women delivered in the same place; not above three, six, or eight, shall want extraordinary assistance; nay, sometimes, though seldom, when the child is young, or unusually small, and the mother has strong pains and a large *Pelvis*, it shall be delivered even in the very worst position, without any other help than that of the labour pains.

As the head, therefore presents right in nine hundred and twenty of a thousand labours, all such are to be accounted natural; those of the other seventy, that require assistance, may be deemed laborious; and the
other

other ten, to be denominated laborious or preternatural, as they are delivered by the head or feet.

In order therefore to render this treatise as distinct as possible, for the sake of the reader's memory, as well as of the dependance and connection of the different labours, they are divided in the following manner: that is accounted natural, in which the head presents, and the woman is delivered without extraordinary help; those births are called laborious or nonnatural, when the head comes along with difficulty, and must be assisted either with the hand in opening the parts, or with a fillet or forceps, or even when there is a necessity for opening and extracting it with the crotchet; and those in which the child is brought by the breech or feet, are denominated preternatural, because the delivery is performed in a preternatural way.

C H A P. II.

Of NATURAL LABOURS.

S E C T. I.

Of the different Positions of Women in Labour.

IN almost all countries, the woman is allowed either to sit, walk about, or rest upon a bed, until the *Os uteri* is pretty much dilated by the gravitation of the waters, or (when they are in small quantity) by the head of the *Fœtus*, so that delivery is soon expected; then she is put in such position as is judged more safe, easy, and convenient for that purpose: but the patient may be put upon labour too prematurely, and bad consequences will attend such mistakes. See Collect. XIII, XIV.

Among the *Ægyptians*, *Grecians*, and *Romans*, the woman was placed upon an high stool: in *Germany* and *Holland*, they use the chair which is described by *Daventer* and *Heister*; and for hot climates the stool is perfectly well adapted; but in northern countries, and cold weather, such a position must endanger the patient's health.

In the *West-Indies*, and some parts of *Britain*, the woman is seated on a stool made in form of a semicircle: in other places she is placed on a woman's lap, and some, kneeling on a large cushion, are delivered backwards.

In *France* the position is chiefly that of half sitting and half lying, on the side or end of a bed; or the woman being in naked bed, is raised up with pillows or a bed chair.

The *London* method is very convenient in natural and easy labours: the patient lies in bed upon one side, the knees being contracted to the belly, and a pillow put between them to keep them asunder. But the most commodious method is to prepare a bed and a couch in the same room, a piece of oiled cloth or dressed sheep-skin is laid across the middle of each, over the under sheet, and above this are spread several folds of linen, pinned, or tied with tape to each side of the bed and couch; these are designed to sponge up the moisture in time of labour and after delivery, while the oiled cloths or sheep-skins below, preserve the feather-bed from being wetted or spoiled: for this purpose, some people lay besides upon the bed, several undersheets over one another, so that by sliding out the uppermost every day, they can keep the bed dry and comfortable.

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The couch must be no more than three feet wide, and provided with casters; and the woman, without any other dress than that of a short or half shift, a linen skirt or petticoat open before, and a bed-gown, ought to lie down upon it, and be covered with cloaths according to the season of the year. She is commonly laid on the left side, but in this particular she is to consult her own ease; and a large sheet being doubled four times or more, one end must be slipped in below her breech, while the other hangs over the side of the couch, to be spread upon the knee of the accoucheur or midwife, who sits behind her on a low seat. As soon as she is delivered, this sheet must be removed, a soft, warm cloth applied to the *Os externum*, and the pillow taken from betwixt her knees: she then must be shifted with a clean, warm, half-shift, linen-skirt, and bed-gown, and her belly kept firm with the broad head-band of the skirt, the ends of which are to be pinned across each other. These measures being taken, the couch must be run close to the bed-side, and the patient gently moved from one to another; but, if there is no couch, the bed must be furnished with the same apparatus. Some again, are laid across the foot of the bed, to the head of which the cloaths are previously turned up till after delivery, when the woman's posture is adapted, and then they are rolled down again to cover and keep her warm: by this expedient, the place of a couch is supplied, and the upper part of the bed preserved soft and clean; whereas, those who are laid above the cloaths, must be taken up and shifted while the bed is put to rights; in which case, they are subject to fainting; and to such as are very much enfeebled, this fatigue is often fatal.

Women are most easily touched, least fatigued, and kept warmest, when they lie on one side ; but, if the labour should prove tedious, the *Parisian* method seems most eligible ; because, when the patient half sits, half lies, the brim of the *Pelvis* is horizontal, a perpendicular line falling from the middle space between the *Scrobiculus costalis* and navel, would pass exactly through the middle of the basin, as observed in book I. chap. 1. In this position, therefore, the weight of the waters, and after the membranes are broke, that of the child's head, will gravitate downwards, and assist in opening the parts ; while the contracting force of the abdominal muscles and *Uterus* is more free, strong, and equal in this than in any other attitude. Wherefore, in all natural cases, when the labour is lingering or tedious, this or any other position, such as standing or kneeling, ought to be tried, which, by an additional force, may help to push along the head and alter its direction when it does not advance in the right way. Nevertheless, the patient must by no means be too much fatigued.

When the woman lies on the left side, the right hand must be used in touching, and *vice versa*, unless she is laid across the bed ; in which case, either hand will equally answer the same purpose : but, if she lies athwart, with the breech toward's the bed's foot, it will be most convenient to touch with the left hand when she is upon the left side, and with the right when in the opposite position. And here it will not be amiss to observe, that in the description of all the laborious and preternatural deliveries treated of in this performance, the reader must suppose the woman lying on her back, as directed in chap. 3. sect. 3. and chap.

chap. 4. sect. 4. except when another posture is prescribed; and that in natural and laborious labours, whether she be upon her side or back, the head and shoulders are a little raised into a reclining posture, so that she may breath easily, and assist the pains.

But in preternatural labours, when there is a necessity for using great force in turning the child, the head and shoulders must lie lower than the breech, which being close to the side or foot of the bed, ought to be raised higher than either, because when the *Pelvis* is in this situation, the hand and arm are easier pushed up in a right line, along the back part of the *Uterus*, even to its *Fundus*. Sometimes, however, when the feet of the child are towards the belly of the mother, they are more easily felt and managed when she lies on her side. At other times, placing the woman on her knees and elbows on a low couch, according to *Daventer's* method, will succeed better, by diminishing in part the strong resistance from the pressure and weight of the *Uterus* and child, by which the feet will sometimes be easier found and delivered: but then it is safer for the child, and easier to the operator and mother, to turn her to her back before you deliver the body and head.

S E C T. II.

Of the Management of Women in a NATURAL LABOUR.

IN a woman come to full time, labour commonly begins and proceeds in the following manner.

The *Os uteri* is felt soft and a little opened, the circumference being sometimes thick, but chiefly thin;
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from this aperture is discharged a thick *Mucus*, which lubricates the parts, and prepares them for stretching. This discharge usually begins some days before; and is accounted the forerunner of real labour: at the same time, the woman is seized at intervals with slight pains that gradually stretch the *Os uteri*, fitting it for a larger dilatation; and when labour actually begins, the pains become more frequent, strong, and lasting.

At every pain, the *Uterus* is strongly compressed by the same effort which expels the contents of the *Rectum* at stool, namely, the inflation of the lungs, and the contraction of the abdominal muscles.

If the child be surrounded with a large quantity of waters, (see Tab. IX, X, XI.) the *Uterus* cannot come in contact with the body of it; but at every pain the membranes are pushed down by the fluid they contain, and the mouth of the womb being sufficiently opened by this gradual and repeated distension, they are forced into the middle of the *Vagina*; then the *Uterus* contracts and comes in contact with the body of the child, and, if it be small, the head is propelled with the waters. Here the membranes usually break; but, if that is not the case, they are pushed along towards the *Os externum*, which they also gradually open, and appear on the outside, in the form of a large round bag: mean while, the head advances, and the *Os externum* being by this time fully dilated, is also protruded; when, if the membranes, instead of bursting in the middle of the protuberance, are tore all round at the *Os externum*, the child's head is covered with some part of them, which goes under the name of the caul, or king's hood. If the *Placenta* is, at the same time, separated from the *Uterus*, and the membranes remain

unbroken,

unbroken, the *Secundines*, waters, and child, are delivered together; but, if the *Placenta* adheres, they must of course give way: and should they be tore all around from the *Placenta*, the greatest part of the body, as well as the head of the child, will be enveloped by them, from which it must be immediately disengaged, that the air may have a free passage into the lungs.

When the head is large, so that it does not descend immediately into the *Pelvis*, the membranes are forced down by themselves; and being stretched thinner and thinner, give way; when all the waters which are farther advanced than the head, run out; then the *Uterus* coming in contact with the body of the child, the head is squeezed down into the mouth of the womb, which it plugs up so, as to detain the rest of the waters. See Tab. XII, XIII.

Sometimes, when the quantity of waters is very small, and the *Uterus* embraces the body of the child, the head, covered with the membranes, is forced downwards, and gradually opens the *Os internum*; but, at its arrival in the middle of the *Pelvis* and *Vagina*, part of the waters will be pushed down before it, sometimes in a large, and sometimes in a small proportion, towards the back part of the *Pelvis*. At other times, when the waters are in small quantity, no part of them are to be distinguished farther than the head, which descending lower and lower, the attenuated membranes are split upon it; while, at the same time, it fills up the mouth of the womb and upper part of the *Vagina* in such a manner as hinders the few remaining waters from being discharged at once; tho' in every pain, a small quantity distils on each side of the head,

head, for lubricating the parts, so as that the child may slip along more easily. See Tab. XIII.

The *Uterus* contracts, the pains become quicker and stronger, the crown of the head is pushed down to the lower part of the *Pelvis*, against one of the *Ischia*, at its lower extremity; the forehead, being at the upper part of the opposite *Ischium*, is forced into the hollow of the under part of the *Sacrum*, while the *Vertex* and hindhead is pressed below the *Os pubis*; (See Tab. XIV.) from whence it rises in a quarter turn, gradually opening the *Os externum*: the *Frænum labiorum*, or *Fourchette*, *Perinæum*, fundament, and the parts that intervene betwixt that and the extremity of the *Sacrum*, are all stretched outwards in form of a large tumour. The *Perinæum*, which is commonly but one inch from the *Os externum* to the *Anus*, is now stretched to three, the *Anus* to two, and the parts between that and the *Coccyx* are stretched from two inches to about three or more. The broad *Sacrosciatic* ligaments, reaching from each side of the lower part of the *Sacrum*, to the under part of each *Ischium*, are also outwardly extended, and the *Coccyx* is forced backward; while the crown of the head, where the lambdoidal crosses the end of the sagittal suture, continues to be pushed along, and dilates the *Os externum* more and more. See Tab. XV, XVIII.

When the head is so far advanced, that the back part of the neck is come below the under part of the *Os pubis*, the forehead forces the *Coccyx*, fundament, and *Perinæum*, backwards and downwards; then, the hindhead rises about two or three inches from under the *Pubes*, making an half round turn in its ascent, by which the forehead is equally raised from the parts upon which it pressed, and the *Perinæum* escapes with-

out

out being split or torn ; (See Tab. XIX.) at the same time, the shoulders advance into the sides of the *Pelvis* at its brim, where it is widest, and, with the body, are forced along and delivered ; mean while, by the contraction of the *Uterus*, the *Placenta* and *Chorion* are loosened from the inner surface to which they adhered, and forced through the *Vagina* out at the *Os externum*.

When the head rests at first, above the brim of the *Pelvis*, and is not far advanced, the *Fontanelle* may be plainly felt with the finger, commonly towards the side of the *Pelvis* : this is the place where the coronal crosses the sagittal suture, and the bones are a little separated from each other, yielding a softness to the touch, by which may be distinguished four sutures, or rather one crossing another. These may be plainly perceived, even before the membranes are broke, yet the examination must not be made during a pain, when the membranes are stretched down and filled with waters ; but only when the pain begins to remit, and the membranes to be relaxed, otherwise they may be broke too soon, before the *Os internum* be sufficiently dilated, and the head properly advanced.

When the *Vertex* is come lower down, the sagittal suture only is to be felt ; because, as the hindhead descends in the *Pelvis*, the *Fontanelle* is turned more backwards, to the side, or towards the concavity of the *Sacrum* : but, after it has arrived below the under part of the *Ossa pubis*, the lambdoidal may be felt crossing the end of the sagittal suture, the *Occiput* making a more obtuse angle than that of the parietal bones, at the place where the three are joined together. But, all these circumstances are more easily distinguished after the membranes are broke, or when the head is

so compressed that the bones ride over one another, provided the hairy scalp be not excessively swelled. See Collect. XIV. and Tab. XIII, XIV, XVI, XVII, XVIII.

S E C T. III.

NUMB. I.

How and when to break the MEMBRANES.

I HAVE already observed, that if the child be surrounded with a large quantity of waters, the *Uterus* cannot come in contact with the body, so as to press down the head, until the membranes are pushed a considerable way before it into the *Vagina*; nor even then, until they are broke, and the fluid diminished in such a manner as will allow the womb to contract, and, with the assistance of the pains, force along the child. When the membranes therefore are strong or unadvanced, and continue so long unbroke that the delivery is retarded, provided the *Os internum* be sufficiently dilated, they ought to be broke without further delay; especially if the woman hath been much fatigued or exhausted with labour, or is seized with a violent flooding: in which case, the rupture of the membranes hasten delivery, and the hæmorrhage is diminished by the contraction of the *Uterus*, which lessens the mouths of the vessels that are also compressed by the body of the child.

The common method of breaking the membranes is by thrusting the finger against them when they are protruded with the waters during the pain, or by pinching them with the finger and thumb; but if they are detained too high to be managed in either of these methods,

thods, the hand may be introduced into the *Vagina*, if the *Os externum* is so lax as to admit it easily: and if this cannot be done without giving much pain, the fore and middle fingers being pushed into the *Vagina* with the other hand, let a probe or pair of pointed scissars be directed along and between them, and thrust through the membranes, when they are pushed with the waters below the head. This operation must be cautiously performed, lest the head should be wounded in the attempt; and as for the membranes, let the opening be never so small, the waters are discharged with force sufficient to tear them asunder.

N U M B. II.

When little or no waters are protruded.

If the *Vertex*, instead of resting at the side of the brim of the *Pelvis*, or at the *Os pubis*, is forced farther down to the *Os internum*, and the waters happen to be in small quantity, the head is pushed forwards, and gradually opens the mouth of the womb without any sensible interposition of the waters: then it advances by degrees into the *Vagina*, and the membranes being split or tore, little or nothing is discharged until the body of the child be delivered: and in this case, the hair of the head being plainly felt, will be a sufficient indication that the membranes are broke. If no hair is to be felt, but a smooth body presents itself to the touch, and the woman has undergone many strong pains even after the mouth of the womb hath been largely dilated, and the head forced into the middle of the *Pelvis*, you may conclude, that delivery is retarded by the rigidity of the membranes, that there is but a small quantity of waters, and that if the con-

taining *Sacs* were broke, the head would come along, without further hesitation.

Sometimes, no waters can be felt while the head is no farther advanced than the upper part of the *Pelvis*, because it plugs up the passage and keeps them from descending; but, as it advances downwards, the *Uterus* contracts, and they are forced down in a small quantity towards the back part: from thence, as the head descends, or even though it should stick in that situation, they are pushed farther down, and the membranes may be easily broke; but the task is more difficult when no waters come down, and the membranes are contiguous to the head. In this case, they must be scratched a little during every pain, with the nail of a finger, which, though short and smooth, will, by degrees, wear them thinner and thinner, until they split upon the head by the force of labour. Yet this expedient ought never to be used until you are certain that delivery is retarded by their rigidity; for, if that be not the hindrance, the difficulty must proceed from the weakness of the woman, a large head, or narrow *Pelvis*: in which case, the delivery is a work of time, and will be obstructed by the premature discharge of the waters, which, by gradually passing by the head, ought to keep the parts moist and slippery, in order to facilitate the birth: for, when the membranes are not broke, until the head is forced into the middle of the *Pelvis*, the largest part of it being then past the upper part of the *Sacrum*, is commonly squeezed along, opens the *Os externum*, and is delivered before all the waters are discharged from the *Uterus*; so that what remains, by moistening and lubricating the parts, helps the shoulders and body to pass with more ease. When the membranes are too soon broke, the under part of the

Uterus

Uterus contracts sometimes so strongly before the shoulders, that it makes the resistance still greater. See Collect. XV.

N U M B. III.

*How to manage when the Head comes down into the
PELVIS.*

In most natural labours, the space betwixt the fore and back *Fontanelles*, viz. the *Vertex*, presents to the *Os internum*, and the forehead is turned to the side of the *Pelvis*; because, the basin at the brim is widest from side to side, and frequently, before the head is pushed in and fast wedged among the bones, the child (after a pain) is felt to move and turn it to that side or situation in which it is least pressed and hurt, if it was not presenting in that position before: but this position of the head may alter, viz. in those where it is as wide, or wider, from the back-part to the fore-part of the brim, than from side to side, the forehead may be turned backwards or forewards. But this form of the *Pelvis* seldom happens.

This posture is always observed in a narrow *Pelvis*, when the upper part of the *Sacrum* jets forward to the *Pubes*; but, as the child is forced lower down, the forehead turns into the hollow at the interior part of the *Sacrum*, because the *Vertex* and *Occiput* find less resistance at the lower part of the *Ossa pubis* than at the *Ischium*, to which it was before turned, the *Pelvis* being at the *Pubes*, as formerly described, no more than two inches in depth, whereas at the *Ischium* it amounts to four. If, therefore, the forehead sticks in its former situation, without turning into the hollow, it may be assisted by introducing some fingers, or the whole hand,

into the *Vagina*, during a pain, and moving it in the right position. See Chap. IV. Sect. IV. N^o 5.

When the head of the *Fœtus* presents, and is forced along in any of those positions, the labour is accounted natural, and little else is to be done, but to encourage the woman to bear down with all her strength in every pain, and to rest quietly during each interval: if the parts are rigid, dry, or inflamed, they ought to be lubricated with *Pomatum*, *Hog's-lard*, *Butter*, or *Ung. altheæ*; the two first are most proper for the external parts, and the two last (as being harder and not so easily melted) ought to be put up into the *Vagina*, to lubricate that and the *Os internum*.

NUMB. IV.

How to assist in LINGERING LABOURS when the parts are rigid.

The mouth of the womb and *Os externum*, for the most part, open with greater difficulty in the first than in the succeeding labours, more especially in women turned of thirty. In these cases, the *Os externum* must be gradually dilated in every pain, by introducing the fingers in form of a cone, and turning them round, so as to stretch the parts by gentle degrees; and the whole hand being admitted into the *Vagina*, it will be sometimes found necessary to insinuate the fingers with the flat of the hand between the head and *Os internum*: for when this precaution is not taken in time, the *Os uteri* is frequently pushed before the head (especially that part of it next the *Pubes*) even through the *Os externum*; or if the head passes the mouth of the womb, it will protrude the parts at the *Os externum*, and will endanger a laceration in the *Perinæum*.

This

This dilatation, however, ought to be cautiously performed, and never attempted except when it is absolutely necessary; even then it must be effected slowly, and in time of a pain, when the woman is least sensible of the dilating force.

When the labour happens to be lingering, though every thing be in a right posture, if the assistants are clamorous, and the woman herself too anxious and impatient to wait the requisite time, without complaining, the labour will be actually retarded by her uneasiness, which we must endeavour to surmount by arguments and gentle persuasion; but if she is not to be satisfied, and strongly impressed with an opinion, that certain medicines might be administered to hasten delivery, it will be convenient to prescribe some innocent medicine that she may take between whiles, to beguile the time and please her imagination: but, if she is actually weak and exhausted, it will be necessary to order something that will quicken the circulating fluids, such as preparations of amber, castor, myrrh, volatile spirits, the *pulv. myrrh. compos.* of the London, or *pulv. ad partum* of the *Edinburgh Pharmacopœia*, with every thing in point of diet and drink that nourishes and strengthens the body. If the patient is of a plethoric habit, with a quick, strong pulse, the contrary method is to be used, such as venæsection, antiphlogistic medicines, and plentiful draughts of weak, diluting fluids. See Collect. XVII, XVIII.

N U M B. V

How to behave when the Birth is obstructed by the navel-string or shoulders of the child, or a narrow PELVIS. See book II. chap. 2. sect. 3.

Although the head is pushed down into the *Pelvis* and the *Vertex* employed in opening the *Os internum*,

the forehead being lodged in the concavity formed by the *Coccyx* and lower part of the *Sacrum*; yet frequently after the labour-pain is abated, the head is again withdrawn by the navel-string happening to be twisted round the neck; or when the shoulders, instead of advancing, are retarding at the brim of the *Pelvis*, one resting over the *Ossa pubis*, while the other is fixed at the *Sacrum*; or when (the waters have been long evacuated) the under-part of the *Uterus* contracts round the neck and before the shoulders, keeping up the body of the child.

When the head is therefore drawn back by any of these obstacles, and the delivery hath been retarded during several pains, one or two fingers being introduced into the *Rectum* before the pain goes off, ought to press upon the forehead of the child at the root of the nose, great care being taken to avoid the eyes: this pressure detains the head till the return of another pain, which will squeeze it farther down, while the fingers pushing slowly and gradually, turn the forehead half round outwards and half round upwards. By this assistance, and the help of strong pains, the child will be forced along, although the neck be entangled in the navel-string; for as the child advances the *Uterus* contracts, and consequently the *Placenta* is moved lower: the *Funis umbilicalis* will also stretch a little, without obstructing the circulation.

The head being thus kept down, the shoulders too are pressed in every succeeding pain until they are forced into the *Pelvis*, when the whole comes along, without further difficulty. And this expedient will, moreover, answer the purpose, when the under-part of the *Uterus* or *Os internum* is contracted round the neck of the child, and before the shoulders: also, when the head

is very low, pressing a finger on each side of the *Coccyx* externally, will frequently assist in the same manner; also in lingering cases, when the woman is weak, the head large, or the *Pelvis* narrow, you may assist the delivery by gently stretching both the *Os externum* and *internum* with your fingers, in time of the pains, which will increase the same, as well as dilate; but this is only to be done when absolutely necessary, and with caution, and at intervals, for fear of inflaming or lacerating the parts.

Over and above these obstacles, the head may be actually delivered and the body retained by the contraction of the *Os externum* round the neck, even after the face appears externally. In this case it was generally alledged that the neck was close embraced by the *Os internum*; but this seldom happens when the head is delivered, because then the *Os internum* is kept dilated on the back-part and sides by the breast and arms of the *Fœtus*, unless it be forced low down with or before the head.

When the head is delivered, and the rest of the body retained from the largeness or wrong presenting of the shoulders, or by the navel-string's being twisted round the body or neck of the child, the head must be grasped on each side, the thumbs being applied to the *Occiput*, the fore and middle fingers extended along each side of the neck, while the third and fourth of each hand support each side of the upper jaw: thus embraced the head must be pulled straight forwards, and if it will not move easily along, the force must be increased, and the direction varied from side to side, or rather from shoulder to shoulder, not by sudden jerks, but with a slow, firm, and equal motion. If the body cannot be moved in this manner, though you have exerted as
much

much force as possible without running the risk of overstraining the neck, you must endeavour to slip the turns of the navel-string over the head: but should this be found impracticable, you ought not to trifle in tying the string at two places, and cutting betwixt the ligatures, as some people have advised: such an operation would engross too much time; besides the child is in no danger of suffocation from the stricture of the *Funis*, because it seldom or never breathes before the breast is delivered.

The better method is, immediately to slide along one or two fingers, either above or below, to one of the arm-pits; by which you try to bring along the body, while, with the other hand, you pull the neck at the same time: if it still continues unmoved, shift hands, and let the other arm-pit sustain the force; but if this fail cut the navel-string, and tie it afterwards. If the shoulders lie so high that the fingers cannot reach far enough to cut or take sufficient hold, let the flat of the hand be run along the back of the child: or should the *Os externum* be strongly contracted round the neck, push up your hand along the breast, and pull as before: and should this method fail, you must have recourse to the blunt hook introduced and fixed in the arm-pit: but this expedient must be used with caution lest the child should be injured or the parts lacerated.

The child being born, the *Funis umbilicalis* must be divided, and the *Placenta* delivered, according to the directions that will occur in the sequel. See Collect. XIX, XX, XXI, XXII.

S E C T. IV.

N U M B. I.

How to manage the CHILD after DELIVERY.

THE child being delivered, ought to be kept warm beneath the bed-cloaths, or immediately covered with a warmed flannel or linen cloth : if it cries and breathes, the umbilical cord may be tied and cut, and the child delivered to the nurse without delay ; but, if the air does not immediately rush into the lungs, and the circulation continues between it and the *Placenta*, the operation of tying and cutting must be delayed, and every thing tried to stimulate, and sometimes to give pain. If the circulation is languid, respiration begins with difficulty and proceeds with long intervals ; and if it be entirely stopped in the *Funis*, the child, if alive, is not easily recovered : sometimes, a great many minutes are elapsed before it begins to breathe. Whatever augments the circulating force, promotes respiration ; and as this increases, the circulation grows stronger, so that they mutually assist each other. In order to promote the one and the other, the child is kept warm, moved, shaken, whipt ; the head, temples, and breast rubbed with spirits, garlick, onion, or mustard applied to the mouth and nose ; and the child has been sometimes recovered by blowing into the mouth with a silver *Canula*, so as to expand the lungs.

When the *Placenta* is itself delivered, immediately or soon after the child, by the continuance of the labour-pains, or hath been extracted, by the operator, that the *Uterus* may contract, so as to restrain too great a flooding ; in this case, if the child has not yet breathed, and a pulsation is felt in the vessels, some people (with good reason)

reason) order the *Placenta*, and as much as possible of the navel-string, to be thrown into a basin of warm wine or water, in order to promote the circulation between them and the child; others advise us to lay the *Placenta* on the child's belly, covered with a warm cloth; and a third set order it to be thrown upon hot ashes: but, of these, the warm water seems the most innocent and effectual expedient. Nevertheless, if the *Placenta* is still retained in the *Uterus*, and no dangerous flooding ensues, it cannot be in a place of more equal warmth, while the operator endeavours, by the methods above described, to bring the child to life. See Collect. XXIII.

N U M B. II.

In lingering labours, when the head of the child hath been long lodged in the *Pelvis* so that the bones ride over one another, and the shape is preternaturally lengthened, the brain is frequently so much compressed, that violent convulsions ensue before or soon after the delivery, to the danger and oft-times the destruction of the child. This disorder is frequently relieved and carried off, and the bad consequences of the long compression prevented, by cutting the navel-string before the ligature is made, or tying it so slightly as to allow two, three, or four large spoonfuls to be discharged.

If the child has been dead one or two days before delivery, the lips and genitals (especially the *Scrotum* in boys) are of a livid hue; if it hath lain dead in the *Uterus* two or three days longer, the skin may be easily stript from every part of the body, and the navel-string appears of the same colour with the lips and genitals: in ten or fourteen days, the body is much more lived and mortified, and the hairy scalp may be separated with ease;

ease; and indeed, any part of the child which hath been strongly pressed into the *Pelvis*, and retained in that situation for any length of time, will adopt the same mortified appearance.

N U M B. III.

How to tie the FUNIS UMBILICALIS.

Different practitioners have used different methods of performing this operation: some proposing to tie and separate the *Funis* before the *Placenta* is delivered; to apply one ligature close to the belly of the child, with a view to prevent a rupture of the navel; and making another two inches above the former, to divide the rope between the two tyings: by the second ligature, they mean to prevent a dangerous hæmorrhage from the woman, provided the *Placenta* adheres to the *Uterus*. But all these precautions are founded upon mistaken notions, and the following seems to be that which is easiest and best; if the *Placenta* is not immediately delivered by the pains, and no flooding obliges you to hasten the extraction, the woman may be allowed to rest a little, and the child to recover; if it does not breathe or the respiration is weak, let the methods above prescribed be put in practice, with a view to stimulate the circulation; but if the child is lively and cries with vigour, the *Funis* may be immediately tied in the manner; having provided a ligature or two composed of sundry threads waxed together, so as to equal the diameter of a pack thread, being seven inches in length, and knotted at each end, tie the navel-string about two fingers breadth from the belly of the child, by making at first one turn, if the *Funis* be small, securing it with two knots; but if the cord be thick, make two more turns, and another double knot, then

cut

cut the *Funis* with a pair of sharp scissars one finger's breadth from the ligature towards the *Placenta*: and in cutting, run the scissars as near as possible to the root of the blades, else the *Funis* will be apt to slip from the edge, and you will be obliged to make several snips before you can effect a separation: at the same time, guard the point of the scissars with your other hand. The child being washed, a linen rag is wrapped round the tied *Funis*, which being doubled up along the belly a square compress is laid over it, and kept firm or moderately tight with what the nurses call belly-band, or roller round the body.

This portion of the *Funis* soon shrinks, turns first livid, then black, and about the fifth day, falls off close to the belly: and let the navel-string be tied in any part, or at any distance whatsoever from the belly, it will always drop off at the same place: so that ruptures in the navel seldom or never depend upon the tying of the *Funis*, but may happen when the compress and belly-band are not kept sufficiently firm, and continued some time after the separation of the withered portion, especially in those children that cry much: the bandage ought always to be applied so slight as not to affect respiration.

The ligature upon the *Funis* must always be drawn so tight as to shut up the mouths of the vessels; therefore, if they continue to pour out their contents, another ligature must be applied below the former; for if this precaution be neglected, the child will soon bleed to death: yet if the navel-string is cut or tore asunder at two or three hand-breadths from the belly, and exposed to the cold without any ligature, the arteries will contract themselves, so as that little or no blood shall be lost; nay, sometimes, if the *Funis* hath been tied and cut at
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the distance of three finger-breadths from the child's belly, so as that it hath been kept from bleeding for an hour or two, although the ligature be then united, and the navel-string and belly chaffed, and soaked in warm water, no more blood will be discharged. See Collect. XXV.

S E C T. V.

Of delivering the PLACENTA.

THE *Funis* being separated, and the child committed to the nurse, the next care is to deliver the *Placenta* and membranes, if they are not already forced down by the labour-pains. We have already observed, that if there is no danger from a flooding, the woman may be allowed to rest a little, in order to recover from the fatigue she has undergone; and that the *Uterus* may, in contracting, have time to squeeze and separate the *Placenta* from its inner surface: during which pause also, about one, two, or three tea cups full of blood are discharged through the *Funis*, from the vessels of the *Placenta*, which is thus diminished in bulk, so that the womb may be the more contracted; and this is the reason for applying one ligature only upon the cord. In order to deliver the *Placenta*, take hold of the navel-string with the left hand, turning it round the fore and middle fingers, or wrapping it in a cloth, that it may not slip from your grasp; then pull gently from side to side, and desire the woman to assist your endeavour, by straining as if she were at stool, blowing forcibly into her hand, or provoking herself to reach by thrusting her finger into her throat. If by these methods the *Placenta* cannot be brought away, introduce your hand slowly into *Vagina* and feel for

the edge of the cake, which when you have found pull it gradually along; as it comes out at the *Os externum*, take hold of it with both hands and deliver it, bringing away, at the same time, all the membranes, which, if they adhere must be pulled along with leisure and caution.

When the *Funis* takes its origin towards the edge of the *Placenta*, which is frequently the case, the cake comes easier off by pulling than when the navel-string is inserted in the middle, unless it be uncommonly retained by its adhesion to the womb, or by the strong contraction of the *Os internum*. If the *Funis* is attached to the middle of the *Placenta*, and that part presents to the *Os internum* or *externum*, the whole mass will be too bulky to come along in that position: in this case you must introduce two fingers within the *Os externum*, and bring it down with its edge foremost.

When the *Placenta* is separated by the contraction of the *Uterus*, in consequence of its weight and bulk, it is pushed down before the membranes, and both are brought away inverted.

When part of the *Placenta* hath passed the *Os internum*, and the rest of it cannot be brought along by easy pulling, because the *Os uteri* is close contracted round the middle of it, or part of it still adheres to the womb, slide the flat of your hand below the *Placenta* through the *Os internum*; and having dilated the *Uterus*, slip down your hand to the edge of the cake and bring it along: but if it adheres to the *Uterus* push up your hand again, and having separated it cautiously, deliver it as before.

If instead of finding the edge or middle of the *Placenta* presenting to the *Os externum* or *internum*, you feel the mouth of the womb closely contracted, you must

must take hold of the navel-string as above directed, and slide your other hand along the *Funis*, into the *Vagina*; then slowly push your fingers and thumb, joined in form of a cone, through the *Os uteri*, along the same cord, to the place of its insertion in the *Placenta*: here let your hand rest, and feel with your fingers to what part of the *Uterus* the cake adheres; if it be loose at the lower edge, try to bring it along; but if it adheres, begin and separate it slowly, the back of your hand being turned to the *Uterus*, and the forepart of your fingers towards the *Placenta*: and for this operation the nails ought to be cut short and smooth. In separating press the ends of your fingers more against the *Placenta* than the *Uterus*, and if you cannot distinguish which is which, because both feel soft (though the *Uterus* is firmer than the *Placenta*, and this last more solid than coagulated blood); I say, in this case, slide down your fingers to its edge, and conduct them by the separated part, pressing it gently from the *Uterus*, until the whole is disengaged. Sometimes, when part of it is separated, the rest will loosen and come along, if you pull gently at the detached portion; but, if this is not effected with ease, let the whole of it be separated in the most cautious manner: sometimes, also, by grasping the inside of the *Placenta* with your hand, the whole will be loosened without further trouble. As the *Placenta* comes along, slide down your hand and take hold of the lower edge, by which it must be extracted, because it is too bulky to be brought away altogether in a heap; and let it be delivered as whole as possible, keeping your thumb or fingers fixed upon the navel-string, by which means laceration is often prevented.

When the woman lies on her back, and the *Placenta* adheres

adheres to the left side of the *Uterus*, it will be most commodious to separate the cake with the right hand; whereas the left hand is most conveniently used when the *Placenta* adheres to the right side of the womb; but when it is attached to the fore-part, back, or *Fundus*, either hand will answer the purpose.

That part of the *Uterus* to which the *Placenta* adheres, is kept still distended, while all the rest of it is contracted.

The nearer the adhesion is to the *Os internum*, the easier is the *Placenta* separated, and *vice versa*; because it is difficult to reach up to the *Fundus*, on account of the contraction of the *Os internum*, and lower part of the womb, which are not stretched again without great force, after they have been contracted for any length of time.

When therefore the *Placenta* adheres to the *Fundus*, and all the lower part of the womb is strongly contracted, the hand must be forced up in form of a cone into the *Vagina*, and then gradually dilate the *Os internum* and inferior part of the *Uterus*. If great force is required, exert it slowly, resting between whiles, that the hand may not be cramped, nor the *Vagina* in danger of being tore from the womb; for in this case, the *Vagina* will lengthen considerably upwards.

While you are thus employed, let an assistant press with both hands on the woman's belly; or while you push with one hand, press with the other, in order to keep down the *Uterus*, else it will rise high up, and roll about like a large ball, below the *lax parietes* of the *Abdomen*; so as to hinder you from effecting the necessary dilatation.

When you have overcome this contraction, and introduced your hand into the *Fundus*, separate and bring

the *Pelvis*) can be easily pushed back into the *Uterus*, the best method is, to turn the child and deliver by the feet, according to the directions which shall be given in the sequel: but, if the head is pressed into the middle or lower part of the *Pelvis*, and the *Uterus* strongly contracted round the child, delivery ought to be performed with the forceps; and in all the seven cases, if the woman is in danger, and if you can neither turn nor deliver with the forceps, the head must be opened and delivered with the crotchets. Laborious cases, from some of the above recited causes, happen much oftener than those we call preternatural; but, those which proceed from a narrow *Pelvis*, or a large head, are of the worst consequence. These cases demand greater judgment in the operator than those in which the child's head does not present; because in these last we know, that the best and safest method is to deliver by the feet; whereas in laborious births, we must maturely consider the cause that retards the head from coming along together with the necessary assistance required; we must determine when we ought to wait patiently for the efforts of nature, and when it is absolutely necessary to come to her aid. If we attempt to succour her too soon, and use much force in the operation, so that the child and mother, or one of the two, be lost, we will be apt to reproach ourselves for having acted prematurely, upon the supposition, that if we had waited a little longer, the pains might have, by degrees, delivered the child, or at least, forced the head so low, as that we might have extracted it with more safety, by the assistance of the forceps. On the other hand, when we leave it to nature, perhaps by the strong pressure upon the head and brain, the child is dead when delivered, and woman so exhausted with tedious

tedious labour, that her life is in imminent danger: in this case, we blame ourselves for delaying our help so long, reflecting that had we delivered the patient sooner, without paying such scrupulous regard to the life of the child, the woman might have recovered without having run such a dangerous risk. Doubtless it is our duty to save both mother and child, if possible; but, if that is impracticable, to pay our chief regard to the parent: and in all dubious cases, to act cautiously and circumspectly, to the best of our judgment and skill.

If the head is advanced into the *Pelvis*, and the *Uterus* strongly contracted round the child, great force is required to push it back into the womb, because the effort must be sufficient to stretch the *Uterus*, so as to re-admit the head, together with your hand and arm; and even then the child will be turned with great difficulty.

Should you turn when the head is too large, you may bring down the body of the child, but the head will stick fast above, and cannot be extracted without the help of the forceps or crotchets; (See Tab. XXXV, XXXVI.) yet the case is still worse in a narrow *Pelvis*, even though the head be of an ordinary size. When things are so situated, you should not attempt to turn, because in so doing you may give the woman a great deal of pain, and yourself much unnecessary fatigue: you ought, therefore, to try the forceps, and if they do not succeed, diminish the size of the head, and extract it as shall be afterwards shewn.

S E C T. II.

Of the FILLETS and FORCEPS.

WE have already observed, that the greatest number of difficult and lingering labours proceed from the head's sticking fast in the *Pelvis*, which situation is occasioned by one of the seven causes recited above: when formerly this was the case, the child was generally lost, unless it could be turned and delivered by the feet; or if it could be extracted alive, either died soon after delivery, or recovered with great difficulty from the long and severe compression of the head, while the life of the mother was endangered from the same cause as above described: for, the pressure being reciprocal, the fibres and vessels of the soft parts contained in the *Pelvis* are bruised by the child's head, and the circulation of the fluids obstructed; so that a violent inflammation, and sometimes a sudden mortification, ensues. If the child could not be turned, the method practised in these cases, was, to open the head and extract with the crotchet; and this expedient produced a general clamour among the women, who observed, that when recourse was had to the assistance of a man-midwife, either the mother or child, or both, were lost. This censure, which could not fail of being a great discouragement to male practitioners, stimulated the ingenuity of several gentlemen of the profession, in order to contrive some gentler method of bringing along the head, so as to save the child, without any prejudice to the mother.

Their endeavours have not been without success: a more safe and certain expedient for this purpose hath been

been invented, and, of late, brought to greater perfection in this than in any other kingdom: so that if we are called in before the child is dead, or the parts of the woman in danger of a mortification, both the *Fœtus* and mother may frequently be happily saved. This fortunate contrivance is no other than the forceps, which was, as is alledged, first used here by the *Chamberlains*, by whom it was kept as a nostrum, and after their decease so imperfectly known, as to be seldom applied with success: so that different practitioners had recourse to different kinds of fillets or lacks. Blunt hooks also of various make, were invented in *England*, *France*, and other parts. The forceps, since the time of *Dr. Chamberlain*, have undergone several alterations, particularly in the joining, handles, form, and composition.

The common way of using them formerly, was by introducing each blade at random, taking hold of the head any how, pulling it straight along, and delivering with downright force and violence; by which means, both *Os internum* and *externum* were often tore, and the child's head much bruised. On account of these bad consequences, they had been altogether disused, by many practitioners, some of whom endeavoured, in lieu of them, to introduce divers kinds of fillets over the child's head; but none of them can be so easily used, or have near so many advantages as the forceps when rightly applied and conducted, according to the directions that shall be laid down in the next section.

Mr. Chapman, as mentioned in the introduction, was the first author who described the forceps, with the method of using them; and we find in the observations of *Giffard*, several cases in which he delivered and saved the child by the assistance of this instrument.

A forceps

A forceps was also contrived at *Paris*, a drawing of which may be seen in the Medical Essays of *Edinburgh*, in a paper communicated by Mr. *Butter*, surgeon: but after Mr. *Chapman* had published a delineation of his instrument, which was that originally used by the *Chamberlains*, the *French* adopted the same species, which among them went under the denomination of *Chapman's* forceps. For my own part, finding in practice that, by the directions of *Chapman*, *Giffard*, and *Gregoire* at *Paris*, I frequently could not move the head along without contusing it, and tearing the parts of the woman; for, they direct us to introduce the blades of the forceps where they will easiest pass, and taking hold of the head in any part of it, to extract with more or less force, according to the resistance; I began to consider the whole in a mechanical view, and reduce the extraction of the child to the rules of moving bodies in different directions: in consequence of this plan, I more accurately surveyed the dimensions and form of the *Pelvis*, together with the figure of the child's head, and the manner in which it passed along in natural labours: and from the knowledge of these things, I not only delivered with greater ease and safety than before, but also had the satisfaction to find in teaching, that I could convey a more distinct idea of the art in this mechanical light than in any other; and particularly, give more sure and solid directions for applying the forceps, even to the conviction of many old practitioners, when they reflected on the uncertainty attending the old method of application. From this knowledge, too, joined with experience and hints which have occurred and been communicated to me, in the course of teaching and practice, I have been led to alter the form and dimensions of the forceps, so as

to avoid the inconveniencies that attended the use of the former kinds. See Tab. XXXVII.

The consideration of mechanics applied to Midwifery, is likewise in no case more useful than when the child must be turned and delivered by the feet; because there we are principally to regard the contraction of the *Uterus*, the position of the child, and the method of moving a body confined in a such a manner: but I have advanced nothing in mechanics, but what I find useful in practice, and in conveying a distinct notion of the several difficulties that occur to those who are or have been under my instruction, for whom this treatise is principally designed.

The lacks or fillets are of different kinds, of which the most simple is a noose made on the end of a fillet or limber garter: but this can only be applied, before the head is fast jammed in the *Pelvis*, or when it can be pushed up and raised above the brim. The *Oes externum* and *internum* having been gradually dilated, this noose must be conveyed on the ends of the fingers, and slipped over the fore and hind head. There are also other kinds differently introduced upon various blunt instruments, too tedious either to describe or use: but the most useful of all these contrivances, is a fillet made in form of a sheath, mounted upon a piece of slender whale-bone, about two feet in length, which is easier applied than any other expedient of the same kind. See Tab. XXXVIII.

When the head is high up in the *Pelvis*, if the woman has been long in labour, and the waters discharged for a considerable time, the *Uterus* being strongly contracted, so as that the head and shoulders cannot be raised, or the child turned to be delivered by the feet, while the mother is enfeebled and the pains so weak, that

unless

unless assisted, she is in danger of her life; also, when the *Os internum*, *Vagina*, and *Labia pudendi* are inflamed and tumefied; or, when there is a violent discharge of blood from the *Uterus*, provided the *Pelvis* is not too narrow, or the head too large, this fillet may be successfully used; in which case, if the *Os externum* and *internum* are not already sufficiently open, they must be gradually dilated, as much as possible, by the hand, which at the same time must be introduced and passed along the side of the head, in order to ascertain the position thereof. This being known, let the other hand introduce the double of the whale-bone and fillet over the face and chin, where you can have the best purchase, and where it will be least apt to slip and lose its hold. This application being effected, let the hand be brought down, and the whale-bone drawn from the sheath of the fillet, which (after the ends of it are tied together) must be pulled during every pain, pressing at the same time with the other hand, upon the opposite part of the head, and using more or less force, according to the resistance.

The disadvantage attending all fillets, is the difficulty in introducing and fixing them: and though this last is easier applied than the others; yet when the *Vertex* presents, the child's chin is so pressed to the breast, that it is often impracticable to insinuate the fillet between them, and if it is fixed upon the face or hind head, it frequently slips off, in pulling: but, granting it commodiously fixed, when the head is large, or the *Pelvis* narrow, so that we are obliged to pull with great force, the fillet will gall, and even cut the soft parts to the very bone, and if the child comes out of a sudden, in consequence of violent pulling, the external parts of the woman are in great danger of sudden laceration; but,

if the head is small, and comes along with a moderate force, the child may be delivered by this contrivance, without any bad consequence: though, in this case, we find by experience, that unless the woman has some very dangerous symptom, the head will in time slide gradually down into the *Pelvis*, even when it is too large to be extracted with the fillet or forceps, and the child be safely delivered by the labour-pains, although slow and lingering, and the mother seems weak and exhausted, provided she be supported with nourishing and strengthening cordials.

From what I have said, the reader ought not to imagine, that I am more bigotted to any one contrivance than to another; as my chief study hath been to improve the art of Midwifery, I have considered a great many different methods, with a view of fixing upon that which should best succeed in practice: I have tried several kinds of lacks, which have been from time to time recommended to me, and, in particular, the last mentioned fillet, which was communicated to me by the learned Dr. MEAD in 1745. As this fillet could, in all appearance, be more easily introduced than any other, I, for several years, carried it with me, when I was called in difficult cases, and sometimes used it accordingly; but, I generally found the fixing of this, as well as all other lacks, so uncertain, that I was obliged to have recourse to the forceps, which, being introduced with greater ease, and fixed with more certainty, seldom failed to answer the purpose better than any other method hitherto found out: but let not this assertion prevent people of ingenuity from employing their talents in improving these or any other methods that may be safe and useful; for daily experience proves, that we are still imperfect and very
far

far from the *Ne plus ultra* of discovery in arts and sciences: tho' I hope every gentleman will despise and avoid the character of a selfish secret-monger.

As the head in the 6th and 7th cases is forced along the *Pelvis*, commonly in these laborious cases, the bones of the *Cranium* are so compressed, that they ride over one another, so that the bulk of the whole is diminished, and the head as it is pushed forward, is, from a round, altered into an oblong figure: when therefore it is advanced into the *Pelvis*, where it sticks fast for a considerable time, and cannot be delivered by the labour-pains, the forceps may be introduced with great ease and safety, like a pair of artificial hands, by which the head is very little (if at all) mark'd, and the woman very seldom tore. But if the head is detained above the brim of the *Pelvis*, or a small portion of it only farther advanced, and it appears, that the one being too narrow, or the other too large, the woman cannot be delivered by the strongest labour-pains; in that case, the child cannot be saved, either by turning and bringing it by the feet, or delivered by the application of fillet or forceps; but the operator must unavoidably use the disagreeable method of extracting with the crotchet. Nevertheless, in all these cases, the forceps ought first to be tried, and sometimes they will succeed beyond expectation, provided the birth is retarded by the weakness of the woman, and the second, third, fourth, or fifth obstructions: but they cannot be depended upon even when the *Vertex* presents, with the forehead to the side or back-part of the *Pelvis*, and (tho' the woman has had strong pains for many hours after the membranes are broke) the head is not forced down into the *Pelvis*, or at least, but an inconsiderable part of it, resembling the small end of a sugar-loaf.

For, from these circumstances, you may conclude, that the largest part of it is still above the *brim*, and that either the head is too large, or the *Pelvis* too narrow. Even in these cases, indeed the last fillet or a long pair of forceps may take such firm hold, that with great force and the strong purchase, the head will be delivered: but such violence is commonly fatal to the woman, by causing such an inflammation, and perhaps laceration of the parts, as is attended with mortification. In order to disable young practitioners from running such risks, and to free myself from the temptation of using too great force, I have always used and recommended the forceps so short in the handles, that they cannot be used with such violence as will endanger the woman's life; tho' the purchase of them is sufficient to extract the head, when one half or two thirds of it are equal to, or past the upper or narrow part of the *Pelvis*.

When the head is high, the forceps may be locked in the middle of the *Pelvis*; but in that case, great care must be taken in feeling with the fingers all round that no part of the *Vagina* be included in the locking. Sometimes, when the head rests, or is pressed too much on the fore-part or side of the *Pelvis*, either at the brim or lower down, by introducing one blade, it may be moved farther down, provided the labour-pains are strong, and the operation assisted by the fingers of the other hand applied to the opposite side of the head; but if the fingers cannot reach high enough, the best method is to turn or move the blade towards the ear of the child, and introduce the other along the opposite side.

In a narrow *Pelvis* I have sometimes found the head of the child thrown so much forward over the *Os pubis*,
by

by the jetting in of the *Sacrum* and lower *Vertebra* of the loins, that I could not push the handles of the forceps far enough back, to include within the blades the bulky part of the head which lay over the *Pubes*. To remedy this inconvenience, I contrived a longer pair, curved on one side, and convex on the other: but these ought never to be used except when the head is small; for, as we have already observed, when the head is large, and the greatest part of it remains above the brim, the parts of the woman may be inflamed and contused by the exertion of too much force. Nevertheless, this kind of forceps may be advantageously used when the face presents and is low down, and the chin turned to the *Sacrum*; because, in that case, the *Occiput* is towards the *Pubes*; so that the ends of the blades can take firmer hold of the head; but then the chin cannot be turned below the *Pubes* so easily with these as with the other kind, nor the hindhead be brought below these last bones. See Tab. XXVI.

S E C T. III.

General Rules for using the FORCEPS.

THE farther the head is advanced in the *Pelvis*, the easier it is delivered with the forceps; because then, if in the 6th or 7th case, it is changed from a round to an oblong figure, by being forced along by the labour-pains; on the contrary, when the head remains high up, resting upon the brim of the *Pelvis*, the forceps is used with greater difficulty and uncertainty.

The *Os externum* must be gradually opened by introducing the fingers one after another, in form of a cone, after they have been lubricated with pomatum, moving

moving and turning them in a semicircular motion, as they are pushed up. If the head is so low down that the hand cannot be introduced high up in this form, let the parts be dilated by the fingers turned in the direction of the *Coccyx*, the back of the hand being upwards, next to the child's head: the external parts being sufficiently opened to admit all the fingers, let the back of the hand be turned to the *Perinæum*, while the fingers and thumb being flattened, will slide along betwixt the head and the *Os Sacrum*. If the right hand be used, let it be turned a little to the left side of the *Pelvis*, because the broad ligament and membrane that fill up the space between the *Sacrum* and *Ischia*, will yield and allow more room for the fingers to advance; for the same reason, when the left-hand is introduced, it must be turned a little to the right side. Having gained your point so far, continue to push up, until your fingers pass the *Os internum*; at the same time, with the palm of your hand, raise or scoop up the head, by which means, you will be more at liberty to reach higher, dilate the internal parts, and distinguish the situation and size of the head, together with the dimensions of the *Pelvis*: from which investigation, you will be able to judge, whether the child ought to be turned and brought by the feet, or delivered with the forceps; or, if the labour-pains are strong, and the head presents tolerably fair, without being jammed in the *Pelvis*, you will resolve to wait some time, in hope of seeing the child delivered by the labour-pains, especially when the woman is in no immediate danger, and the chief obstacle is the rigidity of the parts.

The position of the head is distinguished by feeling for one of the ears, the fore or smooth part of which is towards the face of the child; if it cannot be ascertained

tained by this mark, the hand and fingers must be pushed farther up, to feel for the face or back part of the neck; but, if the head cannot be traced, the observation must be taken from the *Fontanelle*, or that part of the *Cranium* where the lambdoidal crosses the end of the *Sagittal future*. When the ears of the child are towards the sides of the *Pelvis*, or diagonal, the forehead being either to the *Sacrum* or *Pubes*, the patient must lie on her back, with her breech a little over the bed, her legs and thighs being supported as directed in chap. II. sect. 1. and chap. IV. sect. 4. If one ear is to the *Sacrum*, and the other to the *Pubes*, she must be laid on one side, with her breech over the bed, as before, her knees being pulled up to her belly, and a pillow placed between them; except when the upper part of the *Sacrum* jets too much forward; in which case, she must lie upon her back, as above described.

The blades of the forceps ought always, if possible, to be introduced along the ears; by which means, they approach nearer to each other, gain a firmer hold, and hurt the head less than in any other direction: frequently, indeed, not the least mark of their application is to be perceived; whereas, if the blades are applied along the forehead and *Occiput*, they are at a greater distance from each other, require more room, frequently at their points press in the bones of the skull, and endanger a laceration in the *Os externum* of the woman. See Tab. XVI.

The woman being laid in a right position for the application of the forceps, the blades ought to be privately conveyed between the feather bed and the cloaths, at a small distance from one another, or on each side of the patient: that this conveyance may be the more easily

easily effected, the legs of the instrument ought to be kept in the operator's side pockets. Thus provided, when he sits down to deliver, let him spread the sheet that hangs over the bed, upon his lap, and under that cover, take out and dispose the blades on each side of the patient; by which means, he will often be able to deliver with the forceps, without their being perceived by the woman herself, or any other of the assistants. Some people pin a sheet to each shoulder, and throw the other end over the bed, that they may be the more effectually concealed from the view of those who are present: but this method is apt to confine and embarrass the operator. At any rate, as women are commonly frightened at the very name of an instrument, it is adviseable to conceal them as much as possible, until the character of the operator is fully established.

S E C T. IV.

The different Ways of using the FORCEPS.

N U M B. I.

When the Head is down to the OS EXTERNUM.

WHEN the head presents fair, with the forehead to the *Sacrum*, the *Occiput* to the *Pubes*, and the ears to the sides of the *Pelvis*, or a little diagonal; in this case, the head is commonly pretty well advanced in the basin, and the operator seldom miscarries in the use of the forceps. Things being thus situated, let the patient be laid on her back, her head and shoulders being somewhat raised, and the breech advanced a little over the side or foot of the bed; while the assistants sitting on each side, support her legs,
at

at the same time keeping her knees duly separated and raised up to the belly, and her lower parts always covered with the bed-cloaths, that she may not be apt to catch cold. In order to avoid this inconvenience, if the bed is at a great distance from the fire, the weather cold, and the woman of a delicate constitution, a chafing-dish with charcoal, or a vessel with warm water, must be placed near, or under the bed. These precautions being taken, let the operator place himself upon a low chair, and having lubricated with pomatum the blades of the forceps, and also his right hand and fingers, slide first the hand gently into the *Vagina* pushing it along in a flattened form, between that and the child's head, until the fingers have passed the *Os internum*; then, with his other hand, let him take one of the blades of the forceps from the place where it was deposited, and introduce it betwixt his right hand and the head; if the point or extremity of it should stick at the ear, let it be slip backward a little, and then guided forwards with a slow and delicate motion: when it shall have passed the *Os uteri*, let it be advanced still farther up, until the rest at which the blades lock into each other, be close to the lower part of the head, or at least within an inch thereof.

Having in this manner introduced one blade, let him withdraw his right hand, and insinuate his left in the same direction, along the other side of the head, until his fingers shall have passed the *Os internum*; then taking out the other blade from the place of concealment, with the hand that is disengaged, let it be applied to the other side of the child's head, by the same means employed in introducing the first; then the left hand must be withdrawn, and the head being embraced between the blades, let them be locked in each other.

Having

Having thus secured them, he must take a firm hold with both hands, and when the pain comes on, begin to pull the head along from side to side, continuing this operation during every pain until the *Vertex* appears through the *Os externum*, and the neck of the child can be felt with the finger, below the *Os pubis*; at which time, the forehead pushes out the *Perinæum* like a large tumour: then let him stand up, and raising the handles of the forceps, pull the head upwards also, that the forehead being turned half round upwards, the *Perinæum* and lower parts of the *Os externum* may not be tore.

In stretching the *Os externum* or *internum* we ought to imitate nature; for, in practice, we find, that when they are opened slowly, and at intervals, by the membranes with the waters, or the child's head, the parts are seldom inflamed or lacerated: but in all natural labours, when these parts are suddenly opened, and the child delivered by strong and violent pains, without much intermission, this misfortune sometimes happens, and the woman is afterwards in great pain and danger.

We ought therefore, when obliged to dilate those parts, to proceed in that slow, deliberate manner; and though, upon the first trial, they feel so rigid, that one would imagine they could never yield or extend; yet by stretching with the hand, and resting by intervals, we can frequently overcome the greatest resistance. We must also, in such cases, be very cautious, pulling slowly, with intermissions, in order to prevent the same laceration: for which purpose too, we ought to lubricate the *Perinæum* with pomatum, during those short intervals, and keep the palm of one hand close pressed to it, and the neighbouring parts, while with the

the other, we pull at the extremity of the handles of the forceps; by which means, we preserve the parts, and know how much we may venture to pull at a time. When the head is almost delivered, the parts thus stretched, must be slipped over the forehead and face of the child, while the operator pulls upwards with the other hand, turning the handles of the forceps to the *Abdomen* of the woman. This method of pulling upwards, raises the child's head from the *Perinæum*; and the half-round turn to the *Abdomen* of the mother, brings out the forehead and face from below; for, when that part of the hind head which is joined to the neck, rests at the under-part of the *Os pubis*, the head turns upon it, as upon an axis. In preternatural cases also, the body being delivered, must in the same manner be raised up over the belly of the mother; and, at the same time, the *Perinæum* slip over the face and forehead of the child.

In the introduction of the forceps, let each blade be pushed up in an imaginary line from the *Os externum*, to the middle space betwixt the navel and *Scrobiculus cordis* of the woman; or, in other words, the handles of the forceps are to be held as far back as the *Perinæum* will allow. The introduction of the other hand to the opposite side, will, by pressing the child's head against the first blade, detain it in its proper place till the other can be applied; or, if this pressure should not seem sufficient, it may be supported by the operator's knee.

When the head is come low down, and cannot be brought farther, because one of the shoulders rest above the *Os pubis*, and the other upon the upper-part of the *Sacrum*, let the head be strongly grasped with the forceps, and pushed up as far as possible, moving from

blade to blade as you push up, that the shoulders may be the more easily moved to the sides of the *Pelvis*, by turning the face or forehead a little towards one of them; then, the forehead must be brought back again into the hollow of the *Sacrum*, and another effort made to deliver: but, should the difficulty remain, let the head be pushed up again, and turned to the other side; because it is uncertain which of the shoulders rests on the *Os pubis*, or *Sacrum*. Suppose, for example, the right shoulder of the child sticks above the *Os pubis*, the forehead being in the hollow of the *Sacrum*; in this case, if the forehead be turned to the right-hand side of the woman, the shoulder will not move; whereas, if it be turned to the left, and the head at the same time pushed a little upwards, so as to raise and disengage the parts that were fixed, the right shoulder being towards the right-hand side and the other to the left side of the brim of the *Pelvis*, when the forehead is turned back again to the hollow of the *Sacrum*, the obstacle will be removed, and the head be more easily delivered. This being performed, let the ~~forceps~~ be unlocked, and the blades disposed cautiously under the cloaths so as not to be discovered; then proceed to the delivery of the child, which, when the navel-string is cut and tied, may be committed to the nurse. The next care is to wipe the blades of the forceps singly, under the cloaths, slide them warily into your pockets, and deliver the *Placenta*.

Though the forceps are covered with leather, and appear so simple and innocent, I have given directions for concealing them, that young practitioners, before their characters are fully established, may avoid the calumnies and misrepresentations of those people who are apt to prejudice the ignorant and weak-minded against the use of any instrument, though never so necessary,

cessary, in this profession ; and who, taking the advantage of unforeseen accidents, which may afterwards happen to the patient, charge the whole misfortune to the innocent operator. See Collect. XXVII. and Tab. XIV, XVII, XVIII, XIX.

NUMB. II.

When the Forehead is to the OS PUBIS.

When the forehead, instead of being towards the *Sacrum* is turned forwards to the *Os pubis*, the woman must be laid in the same position as in the former case ; because here also, the ears of the child are towards the sides of the *Pelvis*, or a little diagonally situated, provided the forehead is towards one of the groins. The blades of the forceps being introduced along the ears, or as near them as possible, according to the foregoing directions, the head must be pushed up a little, and the forehead turned to one side of the *Pelvis* ; thus let it be brought along until the hindhead arrives at the lower part of the *Ischium* ; then the forehead must be turned backward, into the hollow of the *Sacrum*, and even a quarter or more to the contrary side, in order to prevent the shoulders from hitching on the upper part of the *Os pubis* or *Sacrum*, so that they may be still towards the sides of the *Pelvis* ; then let the quarter turn be reversed, and the forehead being re-placed in the hollow of the *Sacrum*, the head may be extracted as above. In performing these different turns, let the head be pushed up or pulled down occasionally, as it meets with least resistance. In this case, when the head is small, it will come along as it presents, but if large, the chin will be so much pressed against the breast, that it cannot be brought up with the half round turn, and the woman will be tore if it comes along. See Collect. XXVIII. and Tab. XX, XXI.

N U M B. III.

When it presents fair at the brim of the PELVIS.

When the forehead and face of the child are turned to the side of the *Pelvis*, (in which case it is higher than in the first situation) it will be difficult, if the woman lies on her back, to introduce the forceps so as to grasp the head with a blade over each ear; because the head is often pressed so hard against the bones, in this position, that there is no room to insinuate the fingers between the ear and the *Os pubis*, so as to introduce the blades safely on the inside of the *Os internum*, or push one of them up between the fingers and the child's head. When things are so situated, the best posture for the woman is that of lying on one side, as formerly directed, because the bones will yield a little, and the forceps (of consequence) may be the more easily introduced.

Suppose her lying on her left side, and the forehead of the child turned to the same side of the *Pelvis*, let the fingers of the operator's right hand be introduced along the ear, between the head and the *Os pubis*, until they pass the *Os internum*; if the head is so immoveably fixed in the *Pelvis*, that there is no passage between them, let his left hand be pushed up between the *Sacrum* and the child's head, which being raised as high as possible, above the brim of the *Pelvis*, he will have room sufficient for his fingers and forceps; then let him slide up one of the blades, with the right hand, remembering to press the handle backwards to the *Perinæum*, that the point may humour the turn of the *Sacrum* and child's head: this being effected, let him withdraw his left hand, with which he may hold the handle of the blade, already introduced, while he insinuates the fingers of his right hand at the *Os pubis*, as before directed, and
pushes

pushes up the other blade, slowly and gently, that he may run no risk of hurting the *Os internum* or bladder; and here also keep the handle of it as far backwards as the *Perinæum* will allow: when the point has passed the *Os internum*, let him slide it up farther, and join the legs by locking them together, keeping them still in a line with the middle space betwixt the navel and *Scrobiculus cordis*. Then let him pull along the head, moving it from side to side, or from one ear of the child to the other; when it is sufficiently advanced, let him move the forehead into the hollow of the *Sacrum*, and a quarter turn farther, then bring it back into the same cavity; but, if the head will not easily come along, let the woman be turned on her back, after the forceps hath been fixed, and the handles firmly tyed with a garter or fillet; let the hind head be pulled half round outwards from below the *Os pubis* and the instrument and child managed as before.

In all those cases that require the forceps, if the head cannot be raised above the brim of the *Pelvis*, or the fingers introduced within the *Os internum*, to guide the points of the forceps along the ears, especially at the *Ossa pubis*, *Ischia*, or *Sacrum*; let the fingers and hand be pushed up as far as they will go, along the open space betwixt the *Sacrum* and *Ischium*; then one of the blades may be introduced, moved to, and fixed over the ear, the situation of which is already known: the other hand may be introduced, and the other blade conducted in the same manner, on the opposite side of the *Pelvis*; but, before they are locked together, care must be taken that they are exactly opposite to each other, and both sufficiently introduced. In this case, if the operator finds the upper part of the

Sacrum jetting in so much, that the point of the forceps cannot pass it, let him try with his hand to turn the forehead a little backwards, so that one ear will be towards the groin, and the other towards the side of that prominence; consequently, there will be more room for the blades to pass along the ears: but if the forehead should remain immoveable, or, though moved, return to its former place, let one blade be introduced behind one ear, and its fellow before the other; in which case, the introduction is sometimes more easily performed when the woman lies on her back, than when she is laid on one side. See Collect. XXIX, and Tab. XIII, XVI.

N U M B. IV.

When the FACE presents.

When the face presents, resting on the upper part of the *Pelvis*, the head ought to be pushed up to the *Fundus uteri*, the child turned and brought by the feet according to the directions that will be given, when we come to treat of preternatural deliveries; because the hind head is turned back on the shoulders, and, unless very small, cannot be pulled along with the forceps; but should it advance pretty fast in the *Pelvis*, it will be sometimes delivered alive without any assistance. But, if it descends slowly, or, after it is low down, sticks for a considerable time, the long pressure on the brain frequently destroys the child, if not relieved in time, by turning or extracting with the forceps.

When the head is detained very high up, and no signs of its descending appear, and the operator having stretched the parts with a view to turn, discovers that the *Pelvis* is narrow, and the head large, he must
not

not proceed with turning, because after this hath been performed perhaps with great difficulty, the head cannot be delivered without the assistance of the crotchet. No doubt it would be a great advantage in all cases where the face or forehead presents, if we could raise the head so as to alter the bad position, and move it so, with our hand, as to bring the crown of the head to present; and indeed this should always be tried, and more especially, when the *Pelvis* is too narrow, or the head too large; and when we are dubious of saving the child by turning: but, frequently, this is impossible to be done, when the waters are evacuated, the *Uterus* strongly contracted on the child, and the upper part of the head so slippery, as to elude our hold; insomuch that even when the pressure is not great, we seldom succeed, unless the head is small, and then we can save the child by turning. If you succeed, and the woman is strong, go on as in a natural labour; but, if this fails, then it will be more adviseable to wait with patience, for the descent of the head, so as that it may be delivered with the forceps; and consequently the child may be saved: but, if it still remains in its high situation, and the woman is weak and exhausted, the forceps may be tried; and should they fail, recourse must be had to the crotchet; because the mother's life is always to be more regarded than the safety of the child.

When the face of the child is come down, and sticks at the *Os externum*, the greatest part of the head is then squeezed down into the *Pelvis*, and if not speedily delivered, the child is frequently lost by the violent compression of the brain: besides, when it is so low down, it seldom can be returned, on account of the great contraction of the *Uterus*. In this case, when the chin is turned towards the *Os pubis*, at the lower part of that bone,

bone, the woman must be laid on her back, the forceps introduced as formerly directed in the first case, and when the chin is brought out from under the *Os pubis*, the head must be pulled half round upwards; by which means, the fore and hind head will be raised from the *Perinæum*, and the under part of the *Os externum* prevented from being tore.

If the chin points to either side of the *Pelvis*, the woman must be laid on her side, and the blades of the forceps introduced along the ears, one at the *Os Pubis*, and the other at the *Sacrum*; and the chin, when brought lower down, turned to the *Pubes*, and delivered: for the *Pelvis* being only two inches in depth, at this place, the chin is easily brought from under it, and then the head is at liberty to be turned half round upwards; because the chin being disengaged from this bone, can be pulled up over it externally; by which means, two inches of room, at least, will be gained, for the more easy delivery of the fore and hind head, which are now pressed against the *Perinæum*. When the chin is towards the *Sacrum*, the hind head pressed back betwixt the shoulders, so that the face is kept from rising up below the *Os pubis*, the head must be pushed up with the hand, to the upper part of the *Pelvis*, and the forceps introduced and fixed on the ears; the hind-head must be turned to one side of the *Pelvis*, while the chin is moved to the other side, and, if possible, to the lower part of the *Ischium*; then the hind head must be brought into the hollow of the *Sacrum*, with the chin below the *Os pubis*, and delivered as above directed. If this cannot be done, let the operator try, with the forceps, to pull down the hind head below the *Os pubis*, and at the same time, with the fingers of the other

other hand, push the face and forehead, backwards and upwards into the hollow of the *Sacrum*.

For when the chin points to the back part of the *Pelvis*, the forehead is squeezed against the *Os pubis*, while the hindhead is pressed upon the back, betwixt the shoulders; so that the head cannot be delivered unless the *Occiput* can be brought out from below the *Os pubis*, as formerly described. See Tab. XXIII, XXV, XXVI.

N U M B. V.

The sum of all that has been said on this head, may be comprehended in the following general maxims.

Young practitioners are often at a loss to know and judge by the touch in the *Vagina*, when the head is far enough down in the basin, for using the forceps. If we were to take our observations from what we feel of the head, at the *Os pubis*, we should be frequently deceived, because in that place the *Pelvis* is only two inches in depth, and the head will seem lower down than it really is: but if, in examining backwards, we find little or no part of it towards the *Sacrum*, we may be certain that all the head is above the brim: if we find it down as far as the middle of the *Sacrum*, one third of it is advanced; if as far down as the lower part, one half; and in this case, the largest part is equal with the brim. When it is in this situation, we may be almost certain of succeeding with the forceps; and when the head is so low as to protrude the external parts, they never fail. But these things will differ according to different circumstances, that may occasion a tedious delivery.

Let the operator acquire an accurate knowledge of the figure, shape, and dimensions of the *Pelvis*, together with the shape, size, and position of the child's head.

Let

Let the breech of the woman be always brought forwards, a little over the bed, and her thighs pulled up to her belly, whether she lies on her side or back, to give room to apply, and to move the forceps up or down, or from side to side.

Let the parts be opened and the fingers pass the *Os internum*; in order to which, if it cannot be otherwise accomplished, let the head be raised two or three inches, that the fingers may have more room; if the head can be raised above the brim, your hand is not confined by the bones: for, as we have already observed, the *Pelvis* is wider from side to side, at the brim, than at the lower part; if the fingers are not past the *Os uteri*, it is in danger of being included betwixt the forceps and the child's head.

The forceps, if possible, should pass along the ears, because in that case, they seldom or never hurt or mark the head.

They ought to be pushed up in an imaginary line, towards the middle space between the navel and *Scrobiculus cordis*, otherwise, the ends will run against the *Sacrum*.

The forehead ought always to be turned into the hollow of the *Sacrum*, when it is not already in that situation.

When the face presents, the chin must be turned to below the *Os pubis*, and the hindhead into the hollow of the *Sacrum*.

When the shoulders rest at the *Pubes*, where they are detained, the head must be turned a large quarter to the opposite side, so as that they may lie towards the sides of the *Pelvis*.

The head must be always brought out with an half round.

and turn, over the outside of the *Os pubis*, for the preservation of the *Perinæum*, which must, at the same time, be supported with the flat of the other hand, and slid gently backwards over the head.

When the head is so low as to protrude the parts, in form of a large tumour, and the *Vertex* hath begun to dilate the *Os externum*, but instead of advancing, is long detained in that situation, from any of the forementioned causes of laborious cases, and the operator cannot exactly distinguish the position of the head, let him introduce a finger between the *Os pubis* and the head, and he will frequently find the back-part of the neck, or one ear at the fore-part, or towards the side of the *Pelvis*: when the situation is known, he needs not stretch the *Os externum*, and raise the head as formerly directed; but he may introduce the forceps, and they being properly joined, and their handles tied, pull gently during every pain; or if the pains are gone at the interval of four or five minutes, that the parts may be slowly dilated, as they are in the natural labour: but, when the situation cannot be known, the head ought to be raised. The same method may also be taken when the face presents, and is low in the *Pelvis*, except when the chin is toward the back part: in this case the head ought to be raised likewise.

Almost all these directions are to be followed, except when the head is small, in which case it may be brought along by the force of pulling: but this only happens when the woman is reduced, and the labour-pains are not sufficient to deliver the child; for the lower part of the *Uterus* may be so strongly contracted before the shoulders, and so close to the neck of the child, as to prevent its advancing, even when the head is so loose in the *Pelvis*, that we can sometimes push our fingers
all

all round it: and this is ofteneft the occasion of preventing the head's being delivered when low in the *Pelvis*. The difficulty, when high up, is from the restraint at the brim; and when it paffes that, the head is feldom retained in the lower part, unlefs the patient is weak. In this cafe, we need not wait, becaufe we are commonly certain of relieving the woman immediately with the forceps, by which you prevent the danger that may happen both to the mother and child, by the head continuing to lodge there too long. This cafe fhould be a caution againft breaking the membranes too foon, becaufe the *Uterus* may contract too forcibly and too long before the fhoulders; when the head in this cafe is advanced one third or half way on the outside of the *Os externum*, if the pains are ftrong, this laft inconvenience is frequently remedied by introducing your two fingers into the *Rectum*, as formerly directed: by thefe rules delivery (may for the moft part) be performed with eafe and fafety: nevertheless, the head is fometimes fo squeezed and locked in the *Pelvis*, and the hairy scalp fo much fwelled, that it is impracticable to raife up the head, fo as to come at the ears or *Os internum*; or to diftinguifh the futures of the f skull, fo as to know how the head presents. In this cafe the forceps muft be introduced at random, and the uncertainty of the pofition, generally removed by remembering, that in thofe cafes, where the head is squeezed down with great difficulty, the ears are for the moft part, towards the *Os pubis* and *Sacrum*; and that the forehead feldom turns into the hollow of the *Sacrum*, before the *Occiput* is come down to the lower part of the *Ifchium*; and then rifes gradually towards the under part of the *Os pubis*, and the *Perinæum* and *Anus* are forced down before it, in form of a large tumour.

On fuch occasions, the woman being laid on her fide,

if one ear is to the *Sacrum* and the other to the *Os pubis*, the blades of the forceps are to be introduced ; and if they meet with any resistance at the points, they must not be forcibly thrust up, lest they pass on the outside of the *Os uteri* and tear the *Vagina*, which, together with the womb, would be included in the instrument, and pulled along with the head : for this reason, if the blade does not easily pass, let it be withdrawn a little downwards, as before directed, and pushed up again, moving the point close to the head ; if the ear obstructs its passage, let the point be brought a little outwards : and by these cautious essays, it will at length pass without further resistance, and ought to be advanced a considerable way, in order to certify the operator that he is not on the outside of the *Os internum*.

When the forceps are fixed, and the operator uncertain which way the forehead lies, let him pull slowly, and move the head with a quarter turn, first to one side and then to the other, until he shall have found the direction in which it comes most easily along.

If at any time we find the forceps begin to slip, we must rest, and push them up again gently : but, if they are like to slide off at a side, untie the handles, and move them so as to take a firmer hold, fix as before, and deliver. If we are obliged to hold with both hands, the parts may be supported by the firm application of an assistant's hand ; for, without such cautious management, they will run a great risk of being lacerated : a misfortune which rarely happens, when the *Perinæum* is properly pressed back, and the head leisurely delivered. Sometimes, when the head is brought low down, you may take off the forceps, and help along with your fingers on each side of the *Coccyx*, or in the *Rectum*, as directed in the natural labour.

If the head is low down, the ears are commonly diagonal, or to the sides; and when the head is brought down one third, or one half through the *Os externum*, the operator can then certify himself, whether the forehead is turned to the *Coccyx* or *Os pubis*, by feeling with his finger for the back-part of the neck or ear, betwixt the *Os pubis* and the head; and then move the head as above directed.

Let him try to alter, with his hand, every bad position of the head; and if it be detained high up in the *Pelvis*, in consequence of the woman's weakness, the rigidity of the parts, the circumvolutions or shortness of the *Funis*, or the contraction of the *Uterus* over the shoulders of the child, the forceps will frequently succeed when the *Fœtus* cannot be turned: but, if the head is large, or the *Pelvis* narrow, the child is seldom saved either by turning or using the forceps, until the head shall be farther advanced. And here it will not be amiss to observe, that the blades of the forceps ought to be new covered with stripes of washed leather after they shall have been used, especially in delivering a woman suspected of having an infectious distemper. See Collect. XXX.

S E C T. V.

When and how to use the CROTCHET.

N U M B. I.

The Signs of a dead Child.

W H E N the head presents, and cannot be delivered by the labour-pains; when all the common methods have been used without success, the woman being exhausted, and all her efforts vain; and when

when the child cannot be delivered without such force as will endanger the life of the mother, because the head is too large or the *Pelvis* too narrow: it then becomes absolutely necessary to open the head, and extract with the hand, forceps, or crotchet. Indeed this last method formerly was the common practice when the child could not be easily turned, and is still in use with those who do not know how to save the child by delivering with the forceps: for this reason, their chief care and study was to distinguish whether the *Fœtus* was dead or alive; and as the signs were uncertain, the operation was often delayed until the woman was in the most imminent danger; or when it was performed sooner, the operator was frequently accused of rashness, on the supposition that the child might in time have been delivered alive by the labour-pains: perhaps he was sometimes conscious to himself of the justice of this imputation, although what he had done was with an upright intention.

The signs of a dead *Fœtus* were, first, the child's ceasing to move and stir in the *Uterus*. Secondly, The evacuation of meconium, though the breech is not pressed into the *Pelvis*. Thirdly, No perceivable pulsation at the *Fontanelle* and temporal arteries. Fourthly, A large swelling or tumour of the hairy scalp. Fifthly, An uncommon laxity of the bones of the *Cranium*. Sixthly, The discharge of a foetid *Ichor* from the *Vagina*, the effluvia of which surround the woman, and gave rise to the opinion, that her breath conveyed a mortified smell. Seventhly, Want of motion in the tongue, when the face presents. Eighthly, No perceivable pulsation in the arteries of the *Funis umbilicalis*, when it falls down below the head; nor at the wrist, when the arm presents; and no motion of the fingers.

fingers. Ninthly, The pale and livid countenance of the woman. Tenthly, A collapsing and flaccidity of the breasts. Eleventhly, A coldness felt in the *Abdomen*, and weight, from the child's falling like a heavy ball to the side on which she lies. Twelfthly, A separation of the hairy scalp on the slightest touch, and a distinct perception of the bare bones.

All or most of these signs are dubious and uncertain, except the last, which can only be observed after the *Fœtus* hath been dead several days. One may also certainly pronounce the child's death, if no pulsation hath been felt in the navel-string for the space of twenty or thirty minutes; but the same certainty is not to be acquired from the arm, unless the skin can be stripped off with ease.

NUMB. II.

When the CROTCHET is to be used.

Midwifery is now so much improved, that the necessity of destroying the child does not occur so often as formerly; indeed it never should be done, except when it is impossible to turn, or to deliver with the forceps; and this is seldom the case but when the *Pelvis* is too narrow, or the head too large to pass, and therefore rests above the brim: for this reason, it is not so necessary for the operator to puzzle himself about dubious signs; because in these two cases, there is no room for hesitation: for if the woman cannot possibly be delivered in any other way, and is in imminent danger of her life, the best practice is undoubtedly to have recourse to that method which alone can be used for her preservation, namely, to diminish the bulk of the head.

In this case, instead of destroying, you are really saving a life; for, if the operation be delayed, both mother and child are lost.

S E C T. VI.

The old Method of extracting the HEAD.

VARIOUS have been the contrivances intended for this purpose: some practitioners, when the head did not advance in the *Pelvis*, introduced the *Speculum matricis*, in order to stretch the bones asunder, and thereby increase the capacity of the basin: if, after this operation, the woman could not be delivered with her pains, they fixed a large screw in the head, by which they pulled with great force. Others opened the head with a large bistory, or a short broad-bladed knife, in form of a myrtle leaf; or with a crooked bistory, with a long handle; then a small pair of forceps with teeth were introduced, and one blade being insinuated into the opening, they laid hold on the skull, and pulled the head along: they, likewise, made use of different kinds of crotchets both sharp and blunt; and when the head was lower down, they practised the same expedient.

Albucasis has also given the draught of an instrument, which is both for opening and extracting the head; the point and wings are forced through the *Cranium*, and when turned the contrary way, the two wings or hooks take hold of the inside.

There are other later contrivances used and recommended by different gentlemen of the profession, such as *Mauriceau's* tire-tête, *Simpson's* scalp-ring, and *Old's* *Terebra occulta*, with the improvement made in it, by *Dr. Burton of York*: and all these instruments may

be used with success, if cautiously managed, so as not to injure the woman, except the *Speculum matricis*, which, far from answering the supposed intention of it, namely, to extend the bones of the *Pelvis*, can serve no other purpose than that of bruising or inflaming the parts of the woman.

The following method, if exactly followed according to the circumstances of the case, seems, of all others hitherto invented, the easiest, safest, and most certain; especially when it requires great force to extract the head.

S E C T. VII.

The Method of using the Scissars, blunt Hook and CROTCHET.

WHEN the head presents, and such is the case, that the child can neither be delivered by turning, nor extracted with the forceps, and it is absolutely necessary to deliver the woman to save her life, this operation must then be performed in the following manner.

The operator must be provided with a pair of curved crotchets, made according to the improvements upon those proposed by *Mesnard*, together with a pair of scissars about nine inches long, with rests near the middle of the blades, and the blunt hook.

N U M B. I.

Of the Woman's Posture.

The patient ought to be laid on her back or side in the same position directed in the use of the forceps; the

the operator must be seated on a low chair, and the instruments concealed and disposed in the same manner, and for the same reason mentioned in treating of the forceps. The parts of the woman have already, in all likelihood, been sufficiently dilated by his endeavours to turn or deliver with the forceps; or if no efforts of that kind have been used, because by the touch he had learned that no such endeavours would succeed, as in the case of a large hydrocephalus, when the bones of the *Cranium* are often separated at a great distance from each other; or upon perceiving that the *Pelvis* was extremely narrow: If, upon these considerations, he hath made no trials in which the parts were opened, let him gradually dilate the *Os externum* and *internum*, as formerly directed.

NUMB. II.

The head is commonly kept down pretty firm, by the strong contraction of the *Uterus* round the child; but should it yield to one side, let it be kept steady by the hand of an assistant, pressing upon the belly of the woman; let him introduce his hand, and press two fingers against one of the sutures of the *Cranium*; then take out his scissars from the place in which they were deposited, and guiding them by the hand and fingers till they reach the hairy scalp, push them gradually into it, until their progress is stopped by the rests.

If the head slips aside, in such a manner, as that they cannot be pushed into the skull at the suture, they will make their way through the solid bones, if they are moved in a semicircular turn, like the motion of boring, and this method continued till you find the point

point firmly fixed ; for, if this is not observed, the points slide along the bones.

The scissars ought to be so sharp at the points, as to penetrate the integuments and bones when pushed with a moderate force ; but not so keen as to cut the operator's fingers, or the *Vagina* in introducing them.

The scissars being thus forced into the brain, as far as the rests at the middle of the blades, let them be kept firm in that situation ; and the hand that was in the *Vagina* being withdrawn, the operator must take hold of the handles with each hand, and pull them asunder, that the blades may dilate and make a large opening in the skull ; then they must be shut, turned, and again pulled asunder, so as to make the incision crucial ; by which means the opening will be enlarged and sufficient room made for the introduction of the fingers ; let them be afterwards closed, and introduced even beyond the rests, when they must again be opened, and turned half round from side to side, until the structure of the brain is so effectually destroyed, that it can be evacuated with ease. This operation being performed, let the scissars be shut and withdrawn ; but, if this instrument will not answer the last purpose, the business may be done by introducing the crotchet within the opening of the skull. The brain being thus destroyed, and the instrument withdrawn, let him introduce his right hand into the *Vagina*, and two fingers into the opening which hath been made, that if any sharp splinters of the bones remain, they may be broken off and taken out ; lest they should injure the woman's *Vagina*, or the operator's own fingers.

N U M B. III.

If the case be an hydrocephalus, let him fix his fingers on the inside and his thumb on the outside of the opening, and endeavour to pull along the skull in time of a pain; but, if labour is weak, he must desire the woman to assist his endeavours by forcing down; and thus the child is frequently delivered; because, the water being evacuated, the head collapses of course.

N U M B. IV.

But when the *Pelvis* is narrow, the head requires much greater force to be brought along; unless the labour pains are strong enough to press it down and diminish it by squeezing out the *Cerebrum*: in this case, let the operator withdraw his fingers from the opening, and sliding them along the head, pass the *Os uteri*; then, with his left hand, taking one of the crotchets from the place of its concealment, introduce it along his right hand, with the point towards the child's head, and fix it above the chin in the mouth, back part of the neck, or above the ears, or in any place where it will take firm hold; having fixed the instrument, let him withdraw his right hand, and with it take hold of the end or handle of the crotchet, then introduce his left to seize the bones at the opening of the skull (as above directed) that the head may be kept steady, and pull along with both hands.

If the head is still detained by the uncommon narrowness of the *Pelvis*, let him introduce his left hand along the opposite side, in order to guide the other crotchet, which being also applied and locked or joined with its fellow, in the manner of the forceps, he must pull

pull with sufficient force, moving from side to side, and as it advances, turn the forehead into the hollow of the *Sacrum*, and extract as with the forceps, hamouring the shape of the head and *Pelvis*, during the operation, which ought to be performed slowly, with great judgment and caution; and from hence it appears absolutely necessary to know how the head presents, in order to judge how the crotchet must be fixed, and the head brought along to the best advantage.

Sometimes in these cases, when I find that I cannot succeed by pulling at the opening with my fingers; and if the woman has not had strong pains, I introduce the small end of the blunt hook into the opening, and placing my fingers against the point on the outside of the skull, pull with greater and greater force: but, as we can seldom take a firm hold in this manner, if it does not soon answer the purpose, I introduce my fingers as above, farther, and slide the point up along the outside, above the under jaw; and have succeeded several times, with this instrument, except when the *Pelvis* was so narrow as to require a greater force; when we must use the others. No doubt, it is better first to try the blunt hook, because the managing the point gives less trouble, and it can be easier introduced with the point to one side. When the instrument is far enough advanced, this point may be turned to the head; and as a very narrow *Pelvis* seldom occurs, the blunt hook will commonly succeed.

Soon after the second edition of this treatise was published, I contrived a sheath to cover the sharp point of the curved crotchets, which may be introduced and used in the same manner as the blunt hook; the sheath may be taken off or kept on, as there is occasion.

If, when the head is delivered in this manner, the
body

body cannot be extracted, on account of its being much swelled, of a monstrous size, or (which is most commonly the case) the narrowness of the *Pelvis*; let him desist from pulling, lest the head should be separated from the body, and introducing one hand so as to reach with his fingers to the shoulder-blades or breast, conduct alone it one of the crotchets, with the point towards the *Fœtus*, and fix it with a firm application; then withdrawing his hand, employ it in pulling the crotchet, while the other is exerted in the same manner upon the head and neck of the child: if the instrument begins to lose its hold, he must push it farther up, and fixing it again, repeat his efforts, applying it still higher and higher, until the body is extracted.

Some writers direct us to introduce the crotchet within the skull, and pressing one hand against the point on the outside, pull along: but this is a trifling expedient, and if a good deal of force is used, the instrument tears through the thin bones, and hurts the operator's hand or the woman's *Vagina*, if not both. Whereas, in the other method, there is much more certainty, and a better purchase to force along the head, which collapses, and is diminished as the brain is discharged, and never comes down in a broad flattened form, according to the allegations of some people, whose ideas of these things are imperfect and confused: for, if this were the case, the same would happen when the head is forced down from behind with labour-pains, into a narrow *Pelvis*, because the pressure in both cases, acts in the same direction; whereas, we always find, both in the one and the other, that the *Vertex* is protruded in a narrow point, and the whole head squeezed into a long form.

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Although many people have exclaimed against the crotchets as dangerous instruments, from ignorance, want of experience, or a worse principle, as formerly observed; yet I can assure the reader, that I never either tore or hurt the parts of a woman with that instrument. I have indeed, several times hurt the inside of my hand, by their giving way; till I had recourse to the curve kind, which in many respects have the advantage of the straight; and I am persuaded, if managed as above directed, will never injure the patient.

Indeed, young practitioners, till they are better informed by custom and practice, may, after the head is opened, try to extract it with the small or large forceps, and if it is not very large, or the *Pelvis* very narrow, they may deliver by squeezing and lessening the head: but, in my course of practice, I have been concerned in many cases, where the *Pelvis* was so distorted and narrow, that even after opening the head largely, I have pulled at the bones, in time of strong pains, but all to no purpose, although some of them actually came away. Nay, after fixing a crotchet firmly above, and near the chin or basis of the skull, and using a good deal of force, I have not been able to move the head lower, till at last I have been obliged to introduce the other, and by intervals increase the force of pulling to the utmost of my strength; and before we had the curve crotchet, I have been so fatigued from the straight kind slipping their small hold so often, that I have scarcely been able to move my fingers or arms, for many hours after; and if this force had not been used, the mother must have been lost as well as the child. See Collect. XXXI. and Tab. XXVIII, XXXIX.

C H A P. IV.

OF PRETERNATURAL LABOURS.

S E C T. I.

Preternatural labour, according to the division mentioned, chap. I. sect. 5. happens, when, instead of the head, some other part of the body presents to the *Os uteri*. It has been thought by some, that all labours in which the forceps and crotchet are used, ought to be ranked in this class; because the head is certainly delivered by preternatural means; and that when the feet or breech present, and the woman is delivered without any other assistance than that of labour-pains, the case ought to be accounted natural. However, this division would embarrass and confuse the young beginners, more than the other which I have chosen to follow, namely, that of reckoning by the manner in which the child is delivered, and calling all those births preternatural, in which the body is delivered before the head. Preternatural labours are more or less difficult according to the presentation of the child, and the contraction of the *Uterus* round its body. The nearer the head and shoulders are to the *Os internum*, or lower part of the *Uterus*, the more difficult is the case; whereas, when the head is towards the *Fundus*, and the feet or breech near the *Os internum*, it is more easy to turn and deliver.

To begin with the easiest of these first, it may be proper to divide them into three classes. First, how to manage when the feet, breech, or lower parts present. Secondly, how to behave in violent floodings; and when the child presents wrong before the membranes are broke, how to save the waters in the *Uterus*,

that the *Fœtus* may be the more easily turned; and what method to follow even after the membranes are broke, when all the waters are not evacuated. Thirdly, how to deliver when the *Uterus* is strongly contracted, the child presenting either with the fore or back parts; and lying in a circular form, or with the shoulders, breast, neck, face, ear, or *Vertex*, and lying in a longish form, with the feet and breech towards the *Fundus* of the womb, which is contracted like a long sheath, close to the body of the *Fœtus*; and when the foreparts of the child lie towards the side, *Fundus*, fore or back part of the *Uterus*. *Daventer*, who practised at *Dort* in *Holland*, alledges, that preternatural, as well as laborious cases, proceed from the wrong position of the *Os* and *Fundus uteri*; that if the *Fundus* hangs forwards over the *Os pubis*, the *Os uteri* is turned backwards towards the *Sacrum*, and that in whatsoever direction the *Fundus* inclines, the *Os uteri* will be always turned to the opposite side. This opinion he grounded upon the supposition, that the *Placenta* always adheres to the *Fundus*: but experience shews, that it adheres to different parts of the womb, sometimes even to the inside of the *Os uteri*. For the most part, indeed, the *Os internum* is turned backwards towards the *Coccyx*, being in a straight line with the *Fundus* up to the middle space betwixt the navel and *Scrobiculus cordis*.

Daventer was also of opinion, that if, upon touching, the mouth of the womb was not felt in the middle, the woman ought to be assisted by opening the parts; and if this did not succeed, by turning and delivering by the feet without delay. We sometimes, indeed, meet with pendulous bellies, in which the *Os uteri* is farther back than usual; but, even in these cases,

cases, when the head is not very large, nor the *Pelvis* narrow, and the patient is vigorous and the labour-pains strong, the woman, with a little patience, is, for the most part, safely delivered without any other than common assistance: or, should the case prove tedious, she may be assisted in time of a pain, by introducing one or two fingers into the *Os uteri*, and gradually bringing it more forwards. When the belly is very pendulous, change of position from time to time, is of service, especially lying upon her back, with the shoulders low and the breech raised.

In women that are distorted, when one *Ilium* is much lower than the other, the *Fundus uteri* will be turned to the low side; but there the chief difficulty will proceed from the narrowness of the *Pelvis*.

S E C T. II.

The first Class of PRETERNATURAL LABOURS. When the Feet, Breech, or lower parts of the Fœtus present, and the Head, Shoulders, and upper parts are towards the Fundus.

THESE, for the most part, are accounted the easiest, even although the *Uterus* should be strongly contracted round the body of the child, and all the waters discharged.

If the knees or feet of the child present to the *Os internum*, which is not yet sufficiently dilated to allow them and the body to come farther down; or, if the woman is weak, wore out with long labour, or endangered by a flooding, let the operator introduce his hand into the *Vagina*, push up and stretch the *Os uteri*, and bring along the feet; which being extracted, let

him wrap a linen cloth round them, and pull until the breech appears on the outside of the *Os externum*: if the face or fore part of the *Fœtus* is already towards the back of the *Uterus*, let him persist in pulling in the same direction; but, if they are towards the *Os pubis*, or one side, they must be turned to the back part of the *Uterus*, and as the head does not move round equal with the body, he must make allowance for the difference in turning, by bringing the last one quarter farther than the place at which the head is to be placed; so that the face or forehead which was towards one of the groins will be forced to the side of the *Sacrum*, where it joins with the *Ischium*.—This quarter turn of the body must be again undone, without affecting the position of the head; a cloth may be wrapped round the breech, for the convenience of holding it more firmly; then placing a thumb along each side of the spine, and with his fingers grasping the belly, let him pull along the body from side to side, with more or less force, according to the resistance: when the child is delivered as far as the shoulders, let him slide his hand flattened (suppose the right, if she lies on her back) between its breast and the *Perinæum*, *Coccyx*, and *Sacrum* of the woman, and introduce the fore or middle finger (or both, if necessary) into the mouth of the *Fœtus*; by which means, the chin will be pulled to the breast, and the forehead into the hollow of the *Sacrum*. And this expedient will also raise upwards the hind head, which rests at the *Os pubis*.

When the forehead is come so low as to protrude the *Perinæum*, if the woman lies on her back, let the operator stand up, and pull the body and head of the child

child upwards, bringing the forehead with an half round turn from the under-part of the *Os externum*, which will thus be defended from laceration. The application of the fingers in the child's mouth will contribute to bring the head out in this manner, prevent the *Os externum* from hitching on the chin, help along the head, and guard the neck from being overstrained; a misfortune which would infallibly happen, if the forehead should be detained at the upper part of the *Sacrum*: nor is there any great force required to obviate this inconvenience, or the least danger of hurting the mouth, if the head is not large: for, if the head cannot be brought along with moderate force, and the operator is afraid of injuring or over-straining the lower jaw, let him push his fingers farther up, and press on each side of the nose, or on the inferior edges of the sockets of the eyes. If the legs are come out, and the breech pulled into the *Vagina*, there is no occasion for pushing up to open, but only to pull along and manage as above directed: still remembring to raise the forehead slowly from the *Perinæum*, which may be pressed back with the fingers of his other hand.

In the case of a narrow *Pelvis*, or large head, which cannot be brought along without the risk of overstraining the neck, let him slide up his fingers and hand into the *Vagina*, and bring down one of the child's arms, at the sametime pulling the body to the contrary side, by which means the shoulder will be brought lower down: let him run his fingers along the arm, until they reach the elbow, which must be pulled downwards with an half-round turn to the other side, below the breast. This must not be done with a jirk, but slowly, and cautiously, in order to prevent the dislocation, bending, or breaking of the child's arm.

Let him again guide his fingers into the child's mouth, and try if the head will come alone: if this will not succeed, let the body be pulled to the other side, so as to bring down the other shoulder; then slide up his left hand, and extracting the other arm, endeavour to deliver the head. If one finger of his right hand be fixed in the child's mouth, let the body rest on that arm; let him place the left hand above the shoulders, and put a finger on each side of the neck: if the forehead is towards one side at the upper part of the *Pelvis*, let him pull it lower down, and gradually turn it into the hollow of the *Sacrum*; then stand up, and in pulling, raise the body, so as to bring out the head in an half-round turn, as above directed.

Daventer, and others, from a mistaken notion, that the chief resistance is at the *Coccyx* or lower part of the *Pelvis*, have directed us to press the shoulders of the child downwards, so as to bring the hindhead first from below the *Os pubis*; not considering that the resistance is occasioned by the thickest part of the head being detained at the upper part of the *Pelvis*, where the lowest *Vertebra* of the loins, and the upper part of the *Sacrum* jet inwards; and that until the forehead hath passed into the hollow of the *Sacrum*, this method cannot succeed: the business therefore, is to pull upwards at the back part of the neck, which rests against the under part of the *Os pubis*, and by this exertion the forehead, which is high up, will be brought down with a circular turn; after which the head seldom stops, and the same circular motion is still the most proper, though now we can bring out the head the other way, but not before. Sometimes, indeed, I have found *Daventer's* method succeed better than the other, when the head is low down, and the chief resistance

is in the lower parts; but this is very seldom the case: however, when the forehead is hindered from coming down into the lower part of the *Sacrum* by an uncommon shape of the head or *Pelvis*, and we cannot extract it by bringing it out with an half-round turn at the *Os pubis*, we must try to make this turn in the contrary direction; and instead of introducing our fingers into the child's mouth, let the breast of it rest on the palm of your left hand, (the woman being on her back) and placing the right on its shoulders, with the fingers on each side of the neck, press it downwards to the *Perinæum*. In consequence of this pressure the face and chin being within the *Perinæum*, will move more upwards, and the head come out with an half-round turn from below the *Os pubis*: for, the center of motion is now where the fore-part of the neck presses at the *Perinæum*; whereas, in the other method, the back part of the neck is against the lower part of the *Os pubis*, on which the head turns.

If the forehead is not turned to one side, but sticks at the upper part of the *Sacrum*, especially when the *Pelvis* is narrow; let him endeavour with his finger in the mouth, to turn it to one side of the jetting-in of the *Sacrum*, because the *Pelvis* is wider at the sides of the brim, and bring it along as before.

If one of the child's arms, instead of being placed along the sides of the head, is turned in between the face and *Sacrum*, or between the hind head and *Os pubis*, the same difficulty of extracting occurs, as in a large head or narrow *Pelvis*; and this position frequently ensues, when the foreparts of the child's body are turned from the *Os pubis* down to the *Sacrum*: If they are turned to the left side of the woman, the left hand

hand and arm are commonly brought in before the face, and *vice versa*; but, in these cases, the elbow is, for the most part, easily come at, because it is low down in the *Vagina*, and then there is a necessity for bringing down one or both arms before the head can be delivered: from whence we may conclude, that those authors are sometimes in the wrong, who expressly forbid us to pull down the arms. Indeed, if the *Pelvis* is not narrow, nor the head very large, and the arms lie along the sides of the head, there is seldom occasion to pull them down; because, the *Pelvis* is widest at the sides, and the membranes and ligaments that fill up the space betwixt the *Sacrum* and *Ischia*, yield to the pressure, and make room for the passage of the head: but, when they are squeezed between the head and the *Sacrum*, *Ischia*, or *Ossa pubis*, and the head flicks in the *Pelvis*, they certainly ought to be brought down; or, even when the head comes along with difficulty. Neither is the alledged contraction of the *Os internum* round the neck of the child, so frequent as hath been imagined; because, for the most part, the contraction embraces the head and not the neck: but, should the neck alone suffer, that inconvenience may be removed by introducing the hand into the *Vagina*, and a finger or two into the child's mouth, or on each side of the nose: by which means also a sufficient dilatation will be preserved in the *Os externum*, which frequently contracts on the neck, as soon as the arms are brought out.

The diameter, from the face or forehead to the *Vertex*, being greater than that from the forehead to the back part of the hind head or neck, when the hind head rests at the *Os pubis*, and the forehead at the up-
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per part of the *Sacrum*, the head can seldom be brought down, until the operator, by introducing a finger into the mouth, moves the same to the side, brings the chin to the breast, and the forehead into the hollow of the *Sacrum*; by which means, the hind head is raised and allowed to come along with greater ease: and in pulling, half the force only is applied to the neck, the other half being exerted upon the head, by the finger which is fixed in the mouth; so that the forehead is more easily brought out, by pulling upwards, with the half-round turn from the *Perinæum*. When the operator, with his fingers in the child's mouth, cannot pull down the forehead into the hollow of the *Sacrum*, let him push the fore finger of his left hand betwixt the neck and *Os pubis*, in order to raise the hind head upwards; which being done, the forehead will come down with less difficulty, especially if he pushes up and pulls down at the same time, or alternately.

If it be discovered by the touch, that the breech presents, that the membranes are not yet broke, the woman in no danger, the *Os internum* not yet sufficiently dilated, and the labour-pains strong; the midwife ought to wait until the membranes, with the waters, are pushed farther down, as in the natural labour: for, as they come down through the *Os uteri* into the *Vagina*, they stretch open the parts contained in the *Pelvis*; and the bulk within the *Uterus* being diminished, it contracts and comes in contact with the body of the child; so that the breech is pushed along by the mechanical force of the abdominal muscles operating upon the womb.

The same consequence will follow even although the membranes are broke; for the waters lubricate
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the parts as they flow off, and the breech, if not too large, or the *Pelvis* narrow, is pushed down: In this case, when the *Nates* present equal and fair to the *Os uteri*, (as was formerly observed when treating of the position of the child, book III. chap. 1. sect 1. it was most probable, that one side of the *Fœtus* was towards the fore part, and the other to the back part of the *Uterus*;) so it is also reasonable to conclude, that when the breech presents, it lies in the same manner, but that the fore parts of the child are rather turned backwards, to one side of the *Vertebræ* of the loins: in this position, one hip will present, and the other rest on the *Os pubis*; but, when forced along with pains, the last will be gradually moved more and more to the groin of that side, and from thence slip down at the side of the basin: the lower at the same time will be forced to the other, and the hollow betwixt the thighs will rest upon the jetting-in of the *Os sacrum*, and come down in that manner; the thighs on each side, and the back and round part of the breech passing in below the arch of the *Os pubis*, which is the best position: but if the back of the child is tilted backwards, then it will be forced down in the contrary direction, and come along with more difficulty, viz. the thighs to the *Os pubis*, and back to the *Sacrum*: when it is come down to the middle or lower part of the *Pelvis*, let the operator introduce the fore finger of each hand, along the outside, to the groins, and taking hold, pull gently along during a strong pain.

If the *Os externum* is so contracted, that he cannot take sufficient hold, let it be opened slowly, so as to allow his hands to be pushed up with ease; when he has insinuated a finger or two in each groin, let him place his thumbs on the thighs, if they are towards
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the *Ossa pubis*, so as to obtain a firm hold; then pull along from side to side, and if the back of the child is to the *Os pubis*, continue to assist in this manner, until the body and head are delivered: the legs being commonly stretched up along the belly and breast, when the child is extracted as far as the shoulders, they come out of themselves, or are easily brought down; but, if the belly of the child is turned to one side, or to the *Os pubis*, in that case, when the breech is delivered, he ought to turn the belly down to the *Sacrum*, and the back to the *Os pubis*; and that the face may be also turned to the back of the mother, let him remember the quarter extraordinary, which must be again reversed, and then he may pull along and deliver.

If the body cannot be turned until the thighs and legs are brought down, either on account of the bulk, or because the hold on the breech is not sufficient, let him continue to pull along, until the hams appear on the outside of the *Os externum*; then seize one of the knees with his finger and thumb, and extract that leg; and let the other be brought down in the same manner. If he attempts to pull out the legs, before the hams arrive at this place, the thighs are always in danger of being bent or broke. When the legs are delivered, let him wrap a cloth round the breech of the child, and as the body was pulled down almost as far as the breast, before the legs could be brought out, it must be pushed up again to the navel, or above it; because, without this precaution, the shoulders would be so much engaged in the *Pelvis*, that it would be impracticable to make the motions formerly directed, so as to turn the face to the back of the mother: whereas, when the body is pushed up, those turns can be effected with greater ease, because the belly being in the *Pelvis*,
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it yields easier to the form of the basin. When the face is turned properly down, let him proceed to deliver, as above directed.

If the breech is detained above the *Pelvis*, either by its uncommon magnitude, or the narrowness of the basin; or if one of the *Nates* is pushed in, while the other rests above the *Os pubis*, *Sacrum*, or to either side; if the woman is low and weak, the pains lingering and insufficient to force the child along; or if she is in danger from a violent flooding: in any of these cases, let him (during every pain) gradually open first the *Os externum*, and then the *Os internum*, with his fingers and hand. Having thus gained admission, let him push up the breech to the fore or back part, or to one side of the *Uterus*, that his hand and arm may have room to slide along the fore parts, or belly of the child, so as to feel the thighs, that will direct him to the legs, which must be brought down with his fingers, while, at the same time, he pushes up the hams with his thumb, that in case the legs lie straight up, they may be extracted with more ease by the flexion of the knee, and run the less risk of being bent, broke, or overstrained; for, if they are folded downward, they are the more easily brought out.

If the breech be strongly pressed into the upper part of the *Pelvis*, let him also push it upwards and to one side, that his hand and arm may have free passage; for the higher the breech is raised out of his way, he will be at more freedom to extract the legs.

If both legs cannot be easily brought down, he may safely deliver with one, of which taking hold with a linen cloth wrapped round it, let him slide up his other hand into the *Vagina*, and a finger or two into the outside of the groin which is bent: by these means, the hip will

will come down the easier, and the leg, which is already extracted, will not be over-strained by sustaining the whole force of pulling the body along.

If the legs lie towards the left side of the woman, who is laid on her back, the right hand must be introduced into the *Uterus*; if they lie to her right side, the left hand will better answer the purpose: and if they are towards her back or belly, either hand may be indifferently used.

In all cases where the breech presents, the safest practice is always to push up and bring down the legs, provided the *Os uteri* is sufficiently dilated, and the waters not wholly discharged. If the waters are evacuated, the *Uterus* strongly contracted around the child, the breech low, so as that it cannot be returned, or so small as to come easily along, we ought then to deliver it accordingly; but, if so large as neither to be pushed up, or brought along with the assistance of the fingers, let the operator introduce the curved handle of the blunt crotchet into one of the groins, his fingers into the other, and pull very cautiously, in order to prevent a fracture or dislocation of the thigh bone, which might otherwise happen from the use of this instrument, the blunt point of which must be sufficiently past the groin. A fillet may also be used for the same purpose.

I have, in the foregoing cases of this section, supposed the woman laid on her back, her legs supported, and breech to the bedside; this being generally the best position for delivering the body and head: indeed, when the child is small, she may lie on her side, and the same methods be used in delivering, provided the operator still remembers that in this position, the *Ilium* and *Ischium* of one side, are down, and the others up. Besides, when the breech is pushed up, in order to bring

down the legs, if they lie forwards towards the fore part of the *Uterus*, and the belly is pendulous, he can reach them with the greatest ease when she lies on one side; or, if the resistance is very great, turn her to her knees and elbows, according to *Daventer's* method: but, when the legs are delivered, if the child is large or the *Pelvis* narrow, she ought to be turned upon her back, because the body and head can be better and safer delivered, by pulling up and down; and in that posture she is also kept more firm, and her thighs less in the operator's way, than when she lies upon her side. See Collect. XXXII. and Tab. XXIX, XXX, XXXV.

S E C T. III.

The second Class of PRETERNATURAL LABOURS.

WHEN the membranes are broke, but the face, shoulder, or some other part of the child, being pushed into the *Pelvis*, locks up the *Os internum*, so as that a small quantity of the waters hath been discharged, the *Uterus* is kept from contracting strongly round the child, which is therefore more easily turned than it possibly can be when they are all gone:

When before the membranes are broke the child is felt through them, presenting wrong, and at the same time the pains push them down so as to dilate the *Os internum*, more or less:

When the woman at any time, in the four last months, is seized with a violent flooding that cannot be restrained, and unless speedily delivered must lose her life: if labour-pains cannot be brought on by stretching the parts, delivery must be forced; but if she is in labour, and the membranes have been pushed down with the waters, they may be broke; by which means, the
flooding

flooding is frequently diminished, and the child delivered by the labour-pains.

In these three different cases, if we can prevent the strong contraction of the *Uterus*, by keeping up the waters, we can also, for the most part, turn the child with great ease, even in the very worst positions.

N U M B. I.

In the first case, let the operator slowly introduce his hand into the *Vagina*, and his fingers between that part of the child which is pushed down, and the *Os internum*: if, in so doing, he perceives some of the waters coming along, he must run up his hand as quick as possible into the *Uterus*, betwixt the inside of the membranes and the child's body; the lower part of his arm will then fill up the *Os externum* like a plug, so that no more of the waters can pass; let him turn the child with its head and shoulders up to the *Fundus*, the breech down to the lower part of the *Uterus*, and fore-parts towards the mother's back; let the hand be pushed no farther up than the middle of the child's body, because, if it is advanced as high as the *Fundus*, it must be withdrawn lower, before the child can be turned; and by these means the waters will be discharged, and the *Uterus* of consequence contract so as to render the turning more difficult.

N U M B. II.

In the second case, when the membranes are not broke, and we are certain that the child does not present fair, if the *Os internum* is not sufficiently dilated, and the woman is in no danger, we may let the labour go on until the parts are more stretched; lubricating and extending the *Os externum*, by degrees, during every pain. Then

introducing one hand into the *Vagina*, we insinuate it in a flattened form, within the *Os internum*, and push up between the membranes and the *Uterus*, as far as the middle of the womb; having thus obtained admission, we break the membranes by grasping and squeezing them with our fingers, slide our hand within them, without moving the arm lower down, then turn and deliver as formerly directed; but, if in any of these cases, you find the head is large, or the *Pelvis* narrow, bring down the head into the natural position, and assist as directed in lingering or laborious cases.

N U M B. III.

If the woman (in the third case) is attacked with a violent flooding, occasioned by a separation of all or any part of the *Placenta* from the *Uterus*, during the last four months of pregnancy, and every method has in vain been tried to lessen and restrain the discharge, according to the directions in book II. chap. III. sect. 3. the operator ought to pronounce the case dangerous, and prudently declare to the relations of the patient, that unless she is speedily delivered both she and the child must perish, observing, at the same time, that by immediate delivery they may both be saved: let him also desire the assistance and advice of some person eminent in the profession, for the satisfaction of her friends, and the support of his own reputation. When there are no labour-pains, and the mouth of the womb is not dilated, it is sometimes very difficult to deliver, more especially if the *Os internum* is not a little lax, but feels rigid.

If the *Os uteri* is so much contracted, that the finger cannot be introduced, some authors have recommended a dilator, by which it may be gradually opened so as to admit a finger or two. Doubtless, some cases may happen,

happen, in which this may be necessary : though in all those to which I have been called, when there was a necessity for forcing delivery, the mouth of the womb was open enough to receive the tip of my finger, so that by gradual efforts I could effect a sufficient dilatation : and it is certainly a safer method to dilate with the fingers and hand, than with an instrument. If in stretching the *Os internum*, labour-pains are brought on, let the operator slowly proceed and encourage them : when the mouth of the womb is opened, if the head presents and the pains are strong, by breaking the membranes the flooding will be diminished : but, if the floods to such a degree as to be in danger of her life, and the dilatation does not bring on labour, at least not enough for the occasion, she must be immediately delivered in the following manner : but in the first place let her friends be apprized of the danger, and the operator beware of promising to save either mother or child ; for I have known the woman die in a few minutes after delivery, although to all appearance she seemed able to undergo the operation, and the child lost from the head's sticking in the *Pelvis* : Others again, who were apparently much more weak and exhausted, have recovered, and the child hath been saved.

The operator having performed his duty in making the friends acquainted with the situation of the case, must gently open the *Os externum*, by introducing his fingers gradually, turning them half round and pushing upward ; then forming them, with the thumb, into the figure of a wedge or cone, continue to dilate slowly and by intervals, until his hand is admitted into the *Vagina* : having thus far gained his point, let him insinuate, in the same slow cautious manner, first one, then two fingers, into the *Os internum*, which may be dilated so as to admit the other two and the thumb, in the same

conical form, which will gradually make way for sliding the hand along between the outside of the membranes and inside of the *Uterus*; then he must manage as directed in the second case: If, upon sliding up his hand upon the outside of the membranes, he feels the *Placenta* adhering to that side of the womb, he must either withdraw that hand, and introduce the other on the opposite side, or break through the membranes at the lower edge of the *Placenta*.

The greatest danger in this case frequently proceeds from the sudden emptying of the *Uterus* and belly; for when labour comes on of itself, or is brought on in a regular manner, and the membranes are broke, the flooding is gradually diminished; and first the child, then the *Placenta*, is delivered by the pains: so that the pressure or resistance is not all at once removed from the belly and *Uterus* of the woman, which have time to contract by degrees; consequently, those fainting fits and convulsions are prevented which often proceed from a sudden removal of that compression under which the circulation was performed.

In order to anticipate these fatal symptoms, I have (sometimes successfully) ordered an assistant to press upon the woman's belly while the *Uterus* was emptying; or, after having broke the membranes, turned up the head to the *Fundus*, and brought down the legs and breech, I withdraw my arm a little, to let the waters come off, though I keep my hand in the *Uterus* for a few minutes, and do not extract the legs until I feel the womb close contracted to the child; nay, if the flooding is stopped, or even diminished, I let the child remain in the *Uterus* perhaps ten or fifteen minutes longer, then deliver; and, if the hæmorrhage is stayed, leave the *Placenta*, to be expelled by nature. In all these stages,

stages, however, when the flooding is violent we must deliver without loss of time, remembering still the pressure upon the abdomen; for the woman is frequently so very weak, that altho' labour could be brought on, she would not have strength sufficient to undergo it.

The younger the woman is with child, the greater is the difficulty in opening the *Os internum*; and more so in the first child, especially if she is past the age of thirty-five.

We should never refuse to deliver in these dangerous cases, even although the patient seems expiring: for, immediately after delivery, the *Uterus* contracts, the mouths of the vessels are shut up, so that the flooding ceases, and she may recover, if she lives five or six hours after the operation, and can be supported by frequent draughts of broth, jelly, caudle, weak cordial, and anodyne medicines, which maintain the circulation, and gradually fill the empty vessels.

If in time of flooding, she is seized with labour-pains, or, if by every now and then stretching with your fingers the *Os internum*, you bring on labour, by which either the membranes or head of the child is pushed down, and opens the *Os internum*, the membranes ought to be broke; so that some of the waters being discharged, the *Uterus* may contract and squeeze down the *Fœtus*. This may be done sooner in those women who have had children formerly, than in such as have been in labour before. If, notwithstanding this expedient, the flooding still continues, and the child is not like to be soon delivered, it must be turned immediately; or, if the head is in the *Pelvis*, delivered with the forceps: but, if neither of these two methods will succeed, on account of the narrowness of the *Pelvis*, or the bigness of the head, this last must be opened and delivered with the crotchet.

crotchet. In all these cases, let the parts be dilated slowly and by intervals, in order to prevent laceration. See Collect. XXXIII. and Tab. IX, X, XI, XII, XXXIV.

S E C T. IV.

The third Class of PRETERNATURAL LABOURS.

WE have already observed, that the principal difficulties in turning children and bringing them by the feet, proceeded from the contraction of the *Uterus*, and bad position of the *Fœtus*. If the child lies in a round form, whether the fore parts are towards the *Os internum*, or up to the *Fundus uteri*, we can, for the most part, move it with the hand, so as to turn the head and shoulders to the upper part, and the breech and legs downwards; but if the child lies lengthways, the womb being contracted around it, like a long sheath, the task is more difficult; especially if the head and shoulders of the child are down at the lowest part of the *Uterus*, with the breech and feet turned up to the *Fundus*.

Before I proceed to the method of delivery in the following cases, it will not be improper to premise, that the woman ought to be laid on her back, her breech upon the side or foot of the bed, a bolster or pillows being laid between the feather bed or mattrafs, in order to raise it so as that the breech may be higher than the shoulders; while an assistant sits on each side, to support her legs and thighs, as directed in chap. II. sect. 1. chap. III. sect. 3.; and one or two more assistants ought to sit behind, or on each side of her shoulders to keep her firm in that position. The operator ought to

to avoid all formality in point of dress, and never walk about the room with sleeves and apron; for, although such apparatus may be necessary in hospitals, in private practice it conveys a frightful idea to the patient and female spectators: the more genteel and commodious dress is a loose washing night-gown, which he may always have in readiness to put on when he is going to deliver; his waistcoat ought to be without sleeves, that his arms may have more freedom to slide up and down under cover of the wrapper; and the sleeves of his shirt may be rolled up and pinned to the breast of his waistcoat. In natural labours, the sheet that hangs over the bed-side is sufficient to keep him clean and dry, by being laid in his lap; but in those cases where he is obliged to alter his position, a sheet ought to be tucked round him, or an apron put on, but not before he is about to begin his work. If the patient is laid on a low bed, and he intends to introduce his right hand, his best and firmest position is to kneel with his left knee on a cushion, keeping up the right to support his arm; if the left hand is introduced the reverse of this disposition must take place: if the bed or couch is high, he ought to stand, but still remember to support the elbow on the knee. These directions, howsoever trivial they may seem to old practitioners, may be serviceable to young beginners.

The hand of the accoucheur or operator being introduced into the *Uterus*, if he finds the breech below the head and shoulders, let him search for the legs and bring them down: but if the breech be higher than the upper parts of the child, or equal with them, he must try to turn the head and shoulders to the *Fundus*, and the breech downwards, by pushing up the first, and pulling down the last; then proceed with delivery as before

before directed. This is commonly executed with ease, provided some part of the waters still remain in the *Uterus*; but, if the woman has been long in labour, and the waters discharged, the contraction of the womb is so strong, that the child cannot be turned without the exertion of great force frequently repeated. In this case, the easiest method both for the patient and operator, is to push up the hand gradually on that side to which the legs and thighs are turned, and even after he has reached them, if they are not very high up, let him advance his hand as far as the *Fundus uteri*; he will thus remove the greatest obstacle, by enlarging the cavity of the womb, so as more easily to feel and bring down the legs; then he may push up and pull down, as we have prescribed above: but, if the head and shoulders still continue to hinder the breech and body from coming along, and the feet cannot be brought so low, as the outside of the *Os externum*, while they are yet in the *Vagina* he may apply a noose upon one or both; for, unless the child is so small that he can turn it round by grasping the body when the head and shoulders are pushed up, and he endeavours to bring down the other parts, they will again return to the same place, and retard delivery: whereas, if he gains a firm hold of the feet, either without the *Os externum*, or in the *Vagina*, by means of the noose fixed upon the ancles, he can with the other hand push up the head and shoulder, and be able, in that manner, to bring down the breech. He must continue this method of pushing up and pulling down, until the head and shoulder are raised to the *Fundus uteri*: for, should he leave off too soon, and withdraw his hand, although the child is extracted as far as the breech, the head is sometimes so pressed
down

down and engaged with the body in the passage, that it cannot be brought farther down without being tore along with the crotchets; for the breech and part of the body may block up the passage in such a manner, as that the hand cannot be introduced to raise the head.

In all cases, where the accoucheur foresees that great force will be requisite, he ought to save his strength as much as possible, beginning slowly, and resting his hand between whiles, during the operation of pushing up and turning the child in the *Uterus*: for if he begins to work in a hurry, and exerts his utmost strength at first, his hands will be so cramped and enervated, that he will be obliged to desist, and give them some respite; so that it may be a long time before he recovers the use of them, and even then they will be so much weakened as to be scarce able to effect delivery, which is thus impeded and delayed.

Those cases are commonly the easiest in which the fore parts present, and the child lies in a round or oval form, across the *Uterus*, or diagonally, when the head or breech is above and over the *Os pubis*, with the legs, arms, and navel-string, or one or all of them, at the upper or lower part of the *Vagina*, or on the outside of the *Os externum*. Those are more difficult in which, though the child lies in the same round or contracted form, the back, shoulders, belly, or breast, are over the *Os internum*: because, if we cannot move the child round, so as to place the head to the *Fundus*, the legs are brought down with much more difficulty than in the other case: but if the shoulder, breast, neck, ear, face, or crown of the head presents, and the legs and breech are up to the *Fundus uteri*, the case is still more difficult; because, in the other two, the

Uterus

Uterus is contracted in a round form, so that the wrong position of the child is more easily altered than in this, when the womb is contracted in a long shape, and sometimes requires vast force to stretch it, so as that the head may be raised to the *Fundus*, and the legs and breech brought down.

The crown of the head is the worst part that can present, because in that case the feet and breech are higher, and the *Uterus* of a longer form than in any other. The presentation of the face is, next to this, attended with the greatest difficulty: but when the neck, shoulder, back, or breast present, the head is turned upwards, and keeps the lower part of the womb distended: so that, upon stretching the upper part, the child's head is more easily raised to the *Fundus*.

N U M B. I.

When the fore-parts of the child present, if the feet, hands, and navel-string are not detained above the *Os uteri*, some or all of them descend into the *Vagina*, or appear on the outside of the *Os externum*. If one or more of them come down, and the child at the same time lies in a round form across the *Uterus*, let the accoucheur introduce his hand between them and the *Sacrum*, as directed in sect. 3. When it is past the *Os internum*, let it rest a little, while he feels with his fingers the position of the *Fœtus*: if the head and shoulders lie higher than the breech, he must take hold of the legs and bring them down withoutside the *Os internum*: if the breech is detained above the brim of the *Pelvis*, let him slide up the flat of his hand along the buttocks, and pull down the legs with the other hand; by which method the breech is disengaged and

and forced into the middle of the *Pelvis*. See Tab. XXXI.

In most of those cases where the child is prest in an oval form, if neither the head or breech present, the head is to one side of the *Uterus*, and the breech to the other; because, as we formerly observed, it is wider from side to side, than from the back to the fore part; and if either the head or breech is over the *Os pubis*, the other is turned off to the side: in moving the head or shoulders to the *Fundus*, they are raised with greater ease along the sides, than at the back or fore-parts, for the same reasons.

If the head and shoulders lie lower down, so as to hinder the breech from coming along, and the legs from being extracted, let him push up the head and shoulders to the *Fundus*, and pull out the legs; then try, as above directed, to bring in the breech, and if it still sticks above, because the head and shoulders are again forced down by the contraction of the *Uterus*, he must, with one hand, take hold of the legs that are now without the *Os externum*, and sliding the other into the *Uterus*, push the head and shoulders again up to the *Fundus*, while, at the same time, he pulls the legs and breech along with the feet. If the legs cannot be brought farther down than the *Vagina*, because the breech is high up, let him slip a noose over the feet round the ancles, as before observed; by which he may pull down the lower parts with one hand, while the other is employed in pushing it up, as before. By this double purchase, the child may be turned even in the most difficult cases: but the operator, in pulling, must beware of over-straining the ligaments of the joints.

If the legs can be extracted through the *Os externum*, let a single cloth, warmed, be wrapped round them, in order to yield a firmer hold to the accoucheur; but when they can be brought no lower than the neck of the *Uterus* and *Vagina*, he may use one of these following nooses.

Let him take a strong limber fillet or soft garter, half worn, about one yard and an half in length, and moderately broad and thick; if thick, an eye may be made at one end of it, by doubling about two inches, and sewing it strongly; and the other end passed through this doubling, in order to make the noose, which being mounted upon the thumb and fingers of his hand, must be introduced, and gently slipped over the toes and feet of the child so as to embrace the ancles; and thus applied, it must be drawn tight with his other hand.

If the foot or feet should be so slippery, that his fingers cannot hold them, and work over the noose at the same time, it must be withdrawn and mounted round his hand or wrist; with which hand, when introduced, he may take firm hold on both feet, if they are as far down as the *Vagina*; then with the fingers of his other hand, he can slide the noose along the hand and fingers that hold the feet, and fix it round the ancle; but if one foot remains within the *Uterus*, the fingers of his other hand cannot push up the noose far enough to slide it over the ancle; so that he must have recourse to a director, like that for *Polypuses*, mounted with the noose, which will push it along the hand and fingers that hold the foot. The noose being thus slipped over the fingers upon the ancle, he must pull the extremity of the fillet which hath passed the
eye

eye at the upper end of the director, and after it is close drawn, bring down the instrument.

Some use a small slender pair of forceps to grasp the ancles and slide the noose along them; others make use of a fillet with a noose upon one end of it, fixed on a hollow tube that carries it up to be slipt over the ancles: and this being done, it is drawn close by pulling the other end of the fillet down to the cavity of the tube: but there is seldom occasion for any of these instruments, because we can, for the most part, bring the feet down into the *Vagina*.

If the fillet or garter is too narrow or thin, let it be doubled in the middle, and the noose made by passing the two ends through the doubling.

N U M B. II.

When the belly presents, and the head, shoulders, breech, thighs, and legs, are turned up over the back to the *Fundus uteri*; when the back presents, and all these parts are upwards; when the side presents, with the head, shoulders, breech thighs, and legs turned to the side, back, or fore part of the *Uterus*; in all these cases, when the child is pressed into a round, or (more properly) an oval figure, it may be, for the most part, moved round, with one hand introduced into the *Uterus*, the head and shoulders pushed to the *Fundus*, and the legs and breech to the *Os internum*; which being effected, the legs are easily brought down. (See Tab. XXXII, XXXIII.) But these cases are more or less difficult as the feet are farther up, or lower down, because the business is to bring them downwards.

When the breast, shoulders, neck, ear, or face present to the *Os internum*, the breech, thighs, and legs

being towards the *Fundus*, with the fore-parts of the *Fœtus* turned either to the side, back, or fore-part of the woman's belly; and the whole lying in a longish form, the *Uterus* being closely contracted around its body like a sheath (See Tab. XXXIV.) let the accoucheur introduce his hand into the *Vagina*, and open the *Os internum*, by pushing up the fingers and hand flattened between the parts that present and the inside of the membranes; and rest his hand in that situation, until he can distinguish how the child lies, and form a right judgment how to turn and deliver: for, if these circumstances are not maturely considered, he will begin to work in a confused manner, fatigue himself and the patient, and find great difficulty in turning and extracting the child.

If the feet and legs of the *Fœtus* lie towards the back, sides, or *Fundus uteri*, the woman ought to be laid on her back, with her breech raised and brought a little over the bed, as formerly observed; because, in that position, he can more easily reach the feet than in any other.

If they lie towards the fore-part of the *Uterus*, especially when the belly is pendulous, she ought to lie upon her side; because in the other posture, it is often difficult to turn the hand up to the fore-part of the womb: whereas, if she is laid on the left side, the right hand may be introduced at the upper-part and left side of the brim of the *Pelvis*, where it is widest, and then along the fore-part of the *Uterus*; by which means the feet are more easily come at. If it is more convenient for the accoucheur to use his left hand, the patient may be turned on her right side. The only inconvenience attending these positions, is, that the woman cannot be kept so firm and steady, but will be
apt

apt to toss about and shrink from the operator; and besides, there may be a necessity for turning her upon her back, after the body is delivered, before he can extract the head, especially if it be large, or the *Pelvis* narrow.

The situation of the child being known, and the position of the mother adjusted, let the proper hand be introduced, and the first effort always made in pushing the presenting part up towards the *Fundus*, either along the sides, back, or fore-part of the *Uterus*, as is most convenient. If this endeavour succeeds, and the breech, thighs, or legs come down, the body may be delivered with ease: but if the head, shoulder, breast, or neck present, the other parts of the body being stretched up lengthways, and the *Uterus* so strongly contracted around the child, that the presenting part cannot be raised up, or, though pushed upwards, immediately returns before the legs can be properly seized or brought down; the operator ought, in that case, to force up his hand slowly and gradually between the *Uterus* and the child: if the resistance is great, let him rest a little, between whiles, in order to save the strength of his hand and arm, as formerly directed, and then proceed with his efforts until he shall advance his hand as far as the feet; for the higher his hand is pushed, the more will the *Uterus* be stretched, and the more room granted for bringing the legs along: and if, in pushing up his hand, the fingers should be entangled in the navel-string, or one of the arms, let him bring it a little lower, and pass it up again on the outside of such incumbrance.

The hand being advanced as high as the *Fundus*, let him, after some pause, feel for the breech, slide his fingers along the thighs in search of the legs and feet;

of which taking hold with his whole hand, if possible, let him bring them down either in a straight line or with an half turn: or, should the contraction of the *Uterus* be so strong, that he cannot take hold of them in that manner, let him seize one or both ancles between his fingers, and pull them along; but if he cannot bring them down to the lower part of the *Uterus*, so as to apply the noose, he must try again to push up the body, in order still more to stretch the *Uterus*, and obtain freer scope to bring them down lower: then he may apply the noose, and turn the child as above directed, until the head and shoulders are raised up to the *Fundus*, and the feet and breech delivered.

If one leg only can be brought down, the child being turned, and that member extracted through the *Os externum*, let the accoucheur slide his hand up to fetch the other; but if this cannot be done, he must fix a finger on the outside of the groin of that thigh which is folded up along the belly, and bring along that buttock, as in the breech case, while he pulls with his other hand at the other leg; and the body being thus advanced, deliver as before directed.

When the shoulder presents, and the arm lies double in the *Vagina*, let him push them both up; but, if this cannot be done, and the hand is prevented from passing along, he must bring down the arm, and hold it with one hand, while the other is introduced; then let go and push up the shoulder, and as the child is turned, and the feet brought down, the arm will for the most part, return into the *Uterus*: but, if the arm that is come down be so much swelled, that it is impracticable to introduce the hand, so as to turn and deliver the child, he must separate it at the joint of the shoulder, if it be so low down; or, at the elbow,
if

if he cannot reach the shoulder. If the limb be much mortified, it may be twisted off; otherwise, it may be snipt and separated with the scissars.

If the shoulder, by the imprudence and ignorance of the unskilful, who pull, in expectation of delivering in that way, is forced into the *Vagina*, and part of it appears on the outside of the *Os externum*, a vast force is required to return it into the *Uterus*; because in this case, the shoulder, part of the ribs, breast, and side, are already pulled out of the *Uterus*, which must be extended so, as not only to receive them again, but also admit the hand and arm of the accoucheur. If this distension cannot possibly be effected, he must fix a crotchet above the *Sternum*, and turn the child by pushing up the shoulder and pulling down with the crotchet; or slide his fingers to the neck of the child, and with the scissars divide the head from the body; then deliver first the separated head, or bring along the body by pulling at the arm; or, if need be, with the assistance of the crotchet: after the body is delivered, the head must be extracted according to the rules that will be laid down in sect. 5.

When the forehead, face, or ear presents, and cannot be altered with the hand into the natural position; or is not advanced to the *Os externum*, so as that we can assist with the forceps; the head must be returned, and the child delivered by the feet: but if this cannot be done, and the woman is in imminent danger, recourse must be had to the crotchet.

N U M B. IV.

If the navel-string comes down by the child's head, and the pulsation is felt in the arteries, there is a
necessity

necessity for turning without loss of time; for, unless the head advances fast, and the delivery is quick, the circulation in the vessels will be entirely obstructed, and the child consequently perish. If the head is low in the *Pelvis*, the forceps may be successfully used.

No doubt, if the *Pelvis* is very narrow, or the head too large, it would be wrong to turn: in that case, we ought to try if we can possibly raise the head, so as to reduce the *Funis* above it, and after that, let the labour go on: but, if the waters are all gone, and a large portion of the *Funis* falls down, it is impossible to raise it, so as to keep it up, even although we could easily raise the head; because, as one part of the *Funis* is pushed up with the fingers, another part falls down, and evades the reduction; and to raise it up to the side, and not above the head, will be to no purpose; when a little only jets down at the side of the head, our endeavours will, for the most part, be successful.

N U M B. V.

The antients, as well as some of the moderns, advise, in all cases when the upper parts, such as the shoulders, breast, neck, face, or ear of the child, present, to push them upwards, and bring in the head as in the natural way; observing, that the *Fœtus* ought never to be delivered by the feet, except in the presentation of the lower parts, such as the small of the back, belly, side, breech, or legs. Were it practicable at all times to bring the head into the right position, a great deal of fatigue would be saved to the operator, much pain to the woman, and imminent danger to the child: he therefore ought to attempt this method,
and

and may succeed when he is called before the membranes are broke, and feels, by the touch, that the face, ear, or any of the upper parts, presents; in that case, let him open the *Os externum* slowly during every pain, and when the *Os internum* is sufficiently dilated, by the descent of the waters and membranes, let him introduce his hand into the *Uterus*, as directed in sect. 3. betwixt the womb and the membranes, which must be broke; and if he finds the head so large, or the *Pelvis* so narrow, that it will be difficult to save the child; provided the woman is vigorous and has strong pains, he may with little difficulty bring in the crown of the head, then withdraw his hand; and if the pains return and continue, the child has a good chance to be delivered alive. (See chap. II. sect. 3. N^o 3.) Even after the membranes are broke, if the presenting part hath so locked up the *Os internum*, as to detain some portion of the waters (a circumstance easily known in pushing up the part that presents) he may run up his hand speedily to keep them from being discharged, and act in the same manner: but if the child is not large, nor the *Pelvis* narrow, it were pity, while his hand is in the *Uterus*, to desist from turning the child and bringing it by the feet; because, in that case, we may be pretty certain of saving it. Besides, after the head is brought into the right position, should the pains go off entirely (and this frequently happens) or a flooding come on, in consequence of the force which hath been exerted, he will find great difficulty in turning after the waters have been discharged; for, it is harder to turn when the *Vertex* presents, than in any other position; whereas, in the case of a large head or narrow *Pelvis*, when the head is forced down by the labour-pains, and will not farther advance, the
child

child may be saved by the forceps; nay, though the pains do not act so as to force it down, to be delivered either by the forceps or in the natural way, the head may be opened and extracted with the crotchet, which is the last resource.

But this necessity seldom occurs, because the cases in which we are most commonly called, are after the membranes have been long broke, the waters discharged; and the *Uterus* strongly contracted around the body of the child, which it confines, as it were, in a mould: so that I have frequently tried in vain to bring the head into the natural position; for this cannot be effected without first pushing up the part that presents, for which purpose, great force is required: and as one hand only can be introduced, when the operator endeavours to bring in the head, the pushing force is abated, to allow the pulling force to act; and the parts that hindered the head from presenting, are again forced down: besides, the head is so large and slippery, that he can obtain no firm hold. He might, indeed, by introducing a finger into the mouth, lay hold of the under jaw, and bring in the face, provided the shoulder presents; but, instead of amending, this would make the case worse, unless the child be very small: yet, granting the head could be brought into the natural position, the force necessarily exerted for this purpose would produce a flooding, which commonly weakens the patient and carries off the pains; and after all, he must turn with less advantage: and if that cannot be performed, when the head is brought in, he must have recourse to the last and most disagreeable method; whereas, when any other part presents, we can always turn the child, and deliver it by the feet.

feet. This we cannot promise after the head is brought in; and once the operator's hand is in the *Uterus*, he ought not to run such risks.

When I first began to practise, I frequently endeavoured to adjust the position of the head in this manner; but meeting with those insupportable difficulties I have mentioned, I adhered to that method which I have always found certain and safe. I have likewise used the impellens of *Albucaſis*, in order to keep up the shoulders or body until I could bring in the head: but the contraction was always so great that the instrument slipped, and was in danger of hurting the *Uterus*. Indeed, when the ear, forehead, or the *Fontanelle* presented, I have, by pushing up, found the head come into the right position: I have likewise, when the forehead was towards the groin or side of the *Pelvis*, moved it more backwards, by which means the forceps were fixed with more ease; but I have much oftener failed, by the head's returning to its former situation.

The child is often in danger, and sometimes lost, when the breech presents, and is low down in the *Pelvis*, provided the thighs are so strongly pressed against the *Funis* and belly, as to stop the circulation in the rope; as also when the child is detained by the head, after the body is delivered: in both cases, the danger must be obviated by an expeditious delivery; and if the body is entangled in the navel-string, it must be disengaged as well as possible, especially when the *Funis* happens to be between the thighs. As I have before observed, many of these minute directions, in laborious and preternatural cases, may be thought idle and trifling by those practitioners, who, without minding any stated rules, introduce the forceps, and taking hold

hold on the head at random, deliver with force and violence; and who, in preternatural deliveries, thrust up their hands into the *Uterus*, and, without considering the position, search for the feet, pull them down, and deliver in a hurry. Such practice may sometimes succeed, but will often destroy the child, and bruise and injure the parts of the mother, even to the hazard of her life. See Collect. XXXIV.

S E C T. V.

N U M B. I.

THE legs and breech of the child being brought down, and the body properly turned with the fore-parts to the mother's back, let the accoucheur endeavour to bring it along; but, if it is detained by the size of the belly, distended with air or water, (a case that frequently happens when the child has been dead for several days) let the belly be opened, by forcing into it the points of his scissars; or, he may tear it open with the sharp crotcher.

The body of the child being delivered, the arms brought down, and every method hitherto directed, unsuccessfully used for the extraction of the head, which is detained by being naturally too large, over ossified, or dropfical, or from the narrowness and distortion of the *Pelvis*; if the belly was not opened, and the child is found to be alive by the motion of the heart, or pulsation of the arteries in the *Funis*, the forceps ought to be tried; (See Tab. XXXV.) but, if he finds it impracticable to deliver the head, so as to save the life of the child, he must, according to some, force the points of the scissars through the lower part of the occipital bone, or through the *Foramen magnum*; then dilate

dilate the blades, so as to enlarge the opening, and introduce a blunt or sharp hook. This operation rarely succeeds when the head is over-ossified; but may answer the purpose when the bones are soft and yielding; or in the case of an hydrocephalus: because, in the first, the aperture may sometimes be enlarged, and in the other the water will be evacuated so as to diminish the bulk of the head, which will, of consequence, come along with more ease.

Some recommend an instrument to perforate the skull, with double points curved and joined together; which, when pushed into the *Foramen*, are separated, and take hold on the inside; but, as the opening with the scissars, and introducing the blunt hook, as above, will answer the same end, it is needless to multiply instruments, especially if this method is not so certain as the following.

If, notwithstanding these endeavours, the head cannot be extracted, let the operator introduce his hand along the head, and his fingers through the *Os uteri*; then slide up one of the curved crotchets along the ear, betwixt his hand and the child's head, upon the upper part of which it must be fixed: this being done, let him withdraw his hand, take hold of the instrument with one hand, turning the curve of it over the forehead, and with the other grasp the neck and shoulders, then pull along. The crotchet being thus fixed on the upper part, where the bones are thin and yielding, makes a large opening, through which the contents of the scull are emptied, the head collapsing is with more certainty extracted, and the instrument hath a firm hold to the last, at the forehead, *Os petrosum*, and basis of the scull.

In introducing the crotchet, let the operator remem-

ber the caution given in chap. III. sect. 5. He must not begin to pull, until he is certain that the point of the instrument is properly fixed near the *Vertex*; and he must keep the handle back to the *Perinæum*.

The excellency of *Mesnard's* contrivance is more conspicuous here than when the head presents: because the curvature of the crotchet allows the point to be fixed on the upper part of the scull, which is to be tore open; and in pulling, the contents are evacuated and the head is lessened: by these means, the principal obstruction is removed; whereas, the straight crotchets take so slight a hold, and slip so often, that several times I have been very much fatigued before I could effect the delivery; but have always succeeded to my satisfaction since I adopted the other kind. See Collect. XXXV. and Tab. XXXIX.

If one crotchet be found insufficient, let him introduce the other in the same manner, along the opposite side, lock and join them together, and pull along, moving and turning the head, so as to humour the shape of the *Pelvis*. This method seldom fails to accomplish his aim, though sometimes very great force is required: in which case, he must pull with leisure and caution.

N U M B. II.

But if all these expedients should fail, by reason of the extraordinary ossification or size of the head, or the narrowness and distortion of the *Pelvis*, after having used the crotchets without success, he must separate the body from the head with a bistory or pair of scissars; then pushing up the head into the *Uterus*, turn the face to the *Fundus*, and the *Vertex* down to the

Os internum and brim of the *Pelvis* : let him direct an assistant to press upon the woman's belly with both hands, in order to keep the *Uterus* and head firm in that position ; then open the scull with the scissars, destroy the structure of the brain, and extract with the crotchets, as directed in chap. III. sect. 5.

The head is sometimes left in the *Uterus* by those practitioners, who not knowing how to turn the fore-parts and face of the child towards the back-part of the *Uterus*, or how to bring it along although it presented in that position, pull at random with all their strength ; so that the neck is stretched and separated, and the head left behind. This may also happen to an expert accoucheur, when the child hath been dead for many days, and the body is much mortified, even though he hath used all the necessary precautions.

In such a case, provided the head is not very large, nor the *Pelvis* narrow, and the forehead is towards the *Sacrum*, let him slide up his hand along the back-part of the *Pelvis*, and introducing two fingers into the mouth with the thumb below the chin, try to pull the forehead into the hollow of the *Sacrum* : if it sticks at the jetting-in of that bone, he must endeavour to move it, first to one side, and then to the other. If the head is small, it will come along ; if any fragment of the neck remains, or any part of the loose skin, he may lay hold on it, and assist delivery, by pulling at it with his other hand ; if the head is low down, it may be extracted with the forceps.

Should all these methods fail, let him push up his hand along the side of the head, until it shall have passed the *Os internum* ; with the other hand, let him introduce one of the curved crotchets, and fix it upon the upper part of the head ; then withdrawing the

hand which was introduced, take hold on the instrument, and sliding the fingers of the other hand into the mouth, he must pull down with both, as above directed. If the head is not over ossified, the crotchet will tear open the scull; and the bulk being of consequence diminished, the whole may be brought along, even in a narrow *Pelvis*; but if it cannot be moved, even by this expedient, he must introduce the other crotchet along the other side of the head, and fixing it upon the scull, lock them together; then in pulling, turn the forehead down into the hollow of the *Sacrum*, and extract with an half-round turn upwards, as when delivering with the forceps.

If the forehead is towards the *Os pubis*, and cannot be brought into the right position, let him, with his hand, push up the head into the *Uterus*, turn the forehead from the anterior to the side or back-part of it, and try to extract as before. If the child hath been dead some time, and is much mortified, he must pull cautiously at the under jaw, because, should that give way, he will have no other hold for pulling, or keeping the head steady when he attempts to extract with one crotchet.

When the head is so large, or the *Pelvis* so narrow, that none of these methods will succeed, let him push up, and turning the upper parts downwards, direct an assistant to press the patient's belly with both hands, moving them from side to side, and squeezing in such a direction, as will force the head towards the *Os internum*, and retain it firmly in that position; then it must be opened and extracted, according to the directions given in chap. III. sect. 7. numb. 2.

Although by these means I have succeeded in a few cases of this kind, which have happened in my practice;

practice; yet, as great difficulties may occur from inflammations of the *Pudenda*, contraction of the *Uterus*, slipperiness or largeness of the head, and the narrowness of the *Pelvis*, it will not be improper to inform the reader of other methods that appear to me useful, particularly when the parts are much contracted and swelled. Let the hand be introduced into the *Vagina*, and if it cannot be admitted within the *Uterus*, the fingers being insinuated, may move the head so as to raise the face and chin to the *Fundus*, the *Vertex* being turned to the *Os internum*, and the forehead towards the side of the *Sacrum*. This being effected, let the operator slide up along one ear a blade of the long forceps, which are curved to the side; (See Tab. XVII. XXXV.) then change hands, and send up the other blade along the opposite ear: when they are locked, and the handles secured by a fillet, he must pull the head as low as it will come; then putting them into the hands of an assistant, who will keep them in that position, let him make a large opening with the scissars, squeeze the head with great force, and extract slowly and by degrees.

There is an old instrument with two sides which turn on a pivot, formerly recommended in this case, and since improved with the addition of another side, by Mr. *Leveret*, who gives it the denomination of *tire-tête*: but, as I thought the contrivance was too complex, and the blades too much confined to a circular motion, I have altered the form of it, in a manner that renders it more simple, convenient, and less expensive. Having turned down the *Vertex*, as above directed, let this instrument, with the three sides joined together, be introduced along the accoucheur's hand to the upper part of the head; then let the sides

or blades be opened with the other hand, so as to inclose the head, moving them circularly and lengthway, in a light and easy manner, that they may pass over the inequalities of the scalp, and avoid the resistance of the head and *Uterus*: when they are exactly placed at equal distances from one another, let him join the handles, withdraw his hand, and tying them together with a fillet, pull down, open, and extract, as above directed; and let it be remembered, that the farther the hand can be introduced into the *Uterus*, the more easily will both instruments be managed.

When the *Pelvis* is large, or the head small (in which cases this misfortune seldom happens) without doubt we might succeed with *Mauriceau's* broad fillet or sling, provided it could be properly applied: but, upon trial, I found my hand so much cramped by the contraction of the *Uterus*, and was so much incommoded by the slipperiness of the head, upon which I could not fix it so as to have sufficient hold, that after many fruitless efforts I was obliged to have recourse to the scissars and crotchets, as above.

Amand's net is attended with the same difficulties, and rather more troublesome, as it is more compounded: for, when it is mounted on the operator's hand, it will be found scarce practicable to bring over the head the narrow fillet by which it is pulled along; because it commonly slides off from one side or the other.

If the *Placenta* adheres to the *Uterus*, let him first extract the head; if the cake is separated, and in his way, let him discover it before he begins to deliver the head.

When the head is small, or the *Pelvis* large, dilating the *Foramen magnum* with the scissars, and introducing

holding the blunt hook, may be of use either to pull the head along, or keep it down until we can fix the forceps, curve crotchet, or *Leveret's* tire-tête. See Collect. XXXVI.

C H A P. V.

Of TWINS.

S E C T. I.

TWINS are supposed to be the effect of a double conception in one position, when two or more *Ova* are impregnated with as many animalcula; which descending from the *Ovarium*, through the Fallopian tube, into the *Fundus uteri*, as they increase, come in contact with that part, and with one another, and are so pressed as to form one globular figure, and stretch the womb into the same form which it assumes when distended by one *Ovum* only; and that during the whole term of uterine gestation, it is impossible to distinguish twins, either by the figure and magnitude of the *Uterus*, or by the motion of the different *Fœtuses*; for one child, when it is large, and surrounded with a great quantity of waters, will sometimes produce as large a prominence (or even larger) in the woman's belly, than is commonly observed when she is big with twins. One child will also, by moving its legs, arms, and other parts of its body, against different parts of the *Uterus*, at the same instant, or by intervals, yield the same sensation to the mother, as may be observed in two or more children: for part of the motion in twins is employed on each other, as well as upon the *Uterus*.

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There is therefore no certain method of distinguishing in these cases, until the first child is delivered, and the accoucheur has examined if the *Placenta* is coming along. If this comes of itself and after its extraction the mouth of the womb be felt contracted, and the doctor is unwilling to give unnecessary pain by introducing his hand into the *Uterus*; let him lay his hand upon the woman's *Abdomen*, and if nothing is left in the womb, he will generally feel it, just above the *Cervix*, contracted into a firm round ball of the size of a child's head, or less: whereas, if there is another child left, the size will be found much larger. If the *Placenta* does not come down before the second child, which is frequently the case; upon examining, he will commonly feel the membranes with the waters pushed down through the *Os uteri*; or, if they are broke, the head or some part of the body will be felt. If, therefore, the woman has strong pains, and is in no danger from floodings or weakness, provided the head presents fair, and seems to come along, she will be delivered of this also in the natural way.

If the membranes are not broke, if the head does not immediately follow, or if the child presents wrong, he ought to turn and bring it immediately by the feet in order to save the patient the fatigue of a second labour, that may prove tedious and even dangerous, by enfeebling her too much. Besides, as the parts are fully opened by the first delivery, he can introduce his hand with ease; and as the membranes are, for the most part, whole, the waters may be kept up, and the *Fœtus* easily turned, as in chap. IV. sect. 2.; but, if the *Pelvis*, is narrow, the woman strong, and the head presents, he ought to leave it to the efforts of nature.

If the first child presents wrong, and in turning that,

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feels another, he must beware of breaking the membranes of one, while he is at work upon the other: but, should they chance to be broke, and the legs of both entangled together, (though this is seldom the case, as they are commonly divided by two sets of membranes) let the Operator, when he has got hold on two legs, run up his fingers to the breech, and feel if they belong to the same body; and one child being delivered, let the other be turned and brought out in the same manner. If there are more than two, the same method must take place, in extracting one another.

In case of twins, the *Placenta* of the first seldom comes along, until the second child is delivered: but, as this does not always happen, he ought, as formerly directed, to certify himself that there is nothing left in the *Uterus*, when the cake comes of itself. Both children being delivered, let him extract both *Placentas*, if they come not of themselves; and if they form distinct cakes separate first one, then the other; but if they are joined together, forming but one mass, they may be delivered at once, as in chap. II. sect. 7.

When there are three or four children, (a case that rarely happens) the *Placentas* are sometimes distinct, and sometimes altogether form but one round cake; but, when this is macerated in water for some days, they, with their several membranes, may be easily separated from one another; for they only adhere in consequence of their long pressure in the *Uterus*, and seldom have any communication of vessels: although such a communication hath lately fallen under my observation. See book I. chap. 3. sect. 5.

Twins, for the most part, lie diagonally in the *Uterus* one below the other; so that they seldom obstruct one another

another at the *Os internum*. See Collect. XXXV and Tab. X.

S E C T. II.

Of MONSTERS.

TWO children joined together by their bellies, (which is the most common case of monster births) or by the sides, or when the belly of the one adheres to the back of the other, having commonly but one *Funis*, are comprehended in this class, and supposed to be the effect of two *Animalcula* impregnating the same *Ovum*, in which they grow together, and are nourished by one navel-string, originally belonging to the *Secundines*; because, the vessels pertaining to the coats of the veins and arteries, do not anastomose with the vessels belonging to the *Fœtus*.

In such a case, where the children were small, the adhesion hath been known to stretch in pulling at the feet of one, so as to be delivered; and the other hath been afterwards brought along in the same manner, without the necessity of a separation.

When the accoucheur is called to a case of this kind, if the children are large, and the woman come to her full time, let him first attempt to deliver them by that method: but if, after the legs and part of the body of the first are brought down, the rest will not follow, let him slide up his hand, and with his fingers examine the adhesion; then introducing the scissars between his hand and the body of the *Fœtus*, endeavour to separate them by snipping through the juncture. Should this attempt fail, he must diminish the bulk in the best manner he can think of, and bring the body of the first,
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in different pieces by pulling or cutting them asunder, and he extracts with the help of the crotchet.

No certain rules can be laid down in these cases, which seldom happen, and therefore a great deal must be left to the judgment and sagacity of the operator, who must regulate his conduct according to the circumstances of the case, and according to the directions given for delivering, when the *Pelvis* is narrow and the children extraordinary large.

Formerly, practitioners used straight and crooked knives, with long handles, which were introduced into the *Uterus* along the hand, in order to cut and divide the bodies of children, that they might be extracted piecemeal: and this cruel practice obtained even in some cases, which now we can manage with ease and safety, by turning and delivering the *Fœtus* by the feet. But, no doubt, some will happen in which it is impossible to preserve or deliver the children without the help of instruments; and in such an emergency, the scissars are much safer than knives, with which the operator runs the risk of cutting the *Uterus* or himself; whereas he is exposed to no such hazard from the other, which cut only betwixt the points. See Collect. XXXVIII.

S E C T. III.

Of the CÆSARIAN OPERATION.

WHEN a woman cannot be delivered by any of the methods hitherto described and recommended in laborious and preternatural labours, on account of the narrowness or distortion of the *Pelvis*, into which it is sometimes impossible to introduce the hand; or from large excrescences and glandular swellings, that fill up the *Vagina*, and cannot be removed; or from large

large cicatrices and adhesions in that part, and at the *uteri*, which cannot be separated: in such emergencies if the woman is strong, and of a good habit of body, the *Cæsarian* operation is certainly adviseable, and ought to be performed; because the mother and child have no other chance to be saved, and it is better to have recourse to an operation which hath sometimes succeeded, than leave them both to inevitable death. Nevertheless, if the woman is weak, exhausted by fruitless labour, violent floodings, or any other evacuation, which renders her recovery doubtful, even if she were delivered in the natural way: in these circumstances it would be rashness and presumption to attempt an operation of this kind, which ought to be delayed until the woman expires, and then immediately performed with a view to save the child.

The operation hath been performed both in this and the last century, and sometimes with such success, that the mother has recovered, and the child survived. The previous steps to be taken, are to strengthen the patient, if weak, with nourishing broths and cordials; to evacuate the indurated *Fæces* with repeated glysters: and if the bladder is distended with urine, to draw it off with a catheter. These precautions being taken, she must be led on her back, on a couch or bed, her side on which the incision is to be made, being raised up by pillows placed below the opposite side: the operation may be performed on either side, though the left is commonly preferred to the right; because, in this last, the liver extends lower. The apparatus consists of a bistory, probe-scissars, large needles threaded, sponges, warm water, pledgets, a large tent or dossil, compresses, and a bandage for the belly.

If the weather is cold, the patient must be kept warm,

arm, and no part of the belly uncovered, except that on which the incision is to be made: if the operator be a young practitioner, the place may be marked by drawing a line along the middle space between the navel and the *Oss ilium*, about six or seven inches in length, slanting forwards towards the left groin, and beginning as high as the navel.

According to this direction, let him hold the skin of the *Abdomen* tense between the finger and thumb of one hand, and with the bistory in the other, make a longitudinal incision through the *Cutis*, to the *Membrana adiposa*, which, with the muscles, must be slowly dissected and separated, until he reaches the *Peritonæum*, which must be divided very cautiously, for fear of wounding the intestines that frequently start at the sides, especially if the membranes are broke, the waters discharged, and the *Uterus* contracted.

The *Peritonæum* being laid bare, it may either be pinched up by the fingers, or slowly dissected with the bistory, until an opening is made sufficient to admit the fore-finger, which must be introduced as a director for the bistory or scissars, in making an effectual dilatation. If the intestines push out, let them be pressed downwards, so as that the *Uterus* may come in contact with the opening. If the womb is still distended with the waters, and at some distance from the child, the operator may make upon it a longitudinal incision at once; but if it is contracted close round the body of the *Fœtus*, he must pinch it up, and dilate in the same cautious manner practised upon the *Peritonæum*, taking care to avoid wounding the Fallopian tubes, ligaments, and bladder: then introducing his hand he may take out the child and *Secundines*. If the woman is strong, the *Uterus* immediately contracts, so that the opening,

which at first extended to about six or seven inches, reduced to two, or less; and in consequence of the contraction, the vessels being shrunk up, a great effusion of blood is prevented.

The coagulated blood being removed, and what is still fluid spunged up, the incision in the *Abdomen* must be stitched with the interrupted *Suture*, and sufficient room left between the last stitch and the lower end of the opening, for the discharge of the moisture and extravasated fluid. The wound may be dressed with dry pledgits, or dossils, dipped in some liquid balsam warmed, covered with compresses moistened with wine, and a bandage to keep on the dressings and sustain the belly. Some authors observe, that the *Cutis* and muscles only should be taken up in the *Suture*, lest bad symptoms should arise from stitching the *Peritonæum*.

The woman must be kept in bed, as quiet as possible, and every thing administered to promote the *Lochia*, perspiration, and sleep; which will prevent a fever and other dangerous symptoms. If she hath lost a great quantity of blood from the wound in the *Uterus* and *Abdomen*, so as to be in danger from inanition, broths, caudles, and wine, ought to be given in small quantities, and frequently repeated; and the *Cort. Peruvian.* administered in powder, decoction, or extract, may be of great service in this case. For farther information on this subject, the reader may consult *Russetus*, the *Memoirs* of the academy of surgeons at *Paris*, and *Heister's Surgery*. See Collect. XXXIX.

side, than indulge the woman with meat and strong fermented liquors, even if these last should be most agreeable to her palate: for, we find, by experience, that they are apt to increase or bring on fevers, and that the most nourishing and salutary diet, is that which we have above prescribed. Every thing that is difficult of digestion, or quickens the circulating fluids, must of necessity promote a fever; by which, the necessary discharges are obstructed, and the patient's life endangered.

As to the article of sleeping and watching, the patient must be kept as free from noise as possible, by covering the floors and stairs with carpets and cloths, oiling the hinges of the doors, silencing the bells, tying up the knockers, and in noisy streets strowing the pavement with straw: if notwithstanding these precautions, she is disturbed, her ears must be stuffed with cotton, and opiates administered to procure sleep; because, watching makes her restless, prevents perspiration, and promotes a fever.—Motion and rest are another part of the non-naturals to which we ought to pay particular regard. By tossing about, getting out of bed, or sitting up too long, the perspiration is discouraged and interrupted; and, in this last attitude, the *Uterus*, not yet fully contracted, hangs down, stretching the ligaments, occasioning pain, cold shiverings, and a fever: for the prevention of these bad symptoms, the patient must be kept quiet in bed till after the fourth or fifth day, and then be gently lifted up in the bed cloths in a lying posture, until the bed can be adjusted, into which she must be immediately re-conveyed, there to continue, for the most part, till the ninth day, after which period, women are not subject to fevers, as immediately after delivery. Some there are, who, from the nature of their constitutions

tions, or other accidents, recover more slowly; and then are to be treated with the same caution after, as before the ninth day, as the case seems to indicate: others get up, walk about, and recover, in a much shorter time; but these may, some time or other, pay dearly for their fool hardiness, by encouraging dangerous fevers: so that we ought rather to err on the safe side than run any risque whatsoever.

What next comes under consideration, is the circumstance of retention and excretion. We have formerly observed, that in time of labour before the head of the child is locked into the *Pelvis*, if the woman has not had easy passage in her belly that same day, the *Rectum* and *Colon* ought to be emptied by a glyster, which will assist the labour, prevent the disagreeable excretion of the *Fæces* before the child's head, and enable the patient to remain two or three days after, without the necessity of going to stool. However, should this precaution be neglected, and the patient very costive after delivery, we must beware of throwing up stimulating glysters, or administering strong cathartics, lest they should bring on too many loose stools, which, if they cannot be stopt sometimes produce fatal consequences by obstructing the perspiration and *Lochia*, and exhausting the woman, so as that she will die all of a sudden; a catastrophe which hath frequently happened from this practice. Wherefore, if it be necessary to empty the intestines, we ought to prescribe nothing but emollient glysters, or some very gentle opener, such as manna, or *Elect. Lenitivum*: for the retention of urine that sometimes happens after labour, we have already proposed a remedy in book II. chap. 2. and sect. 3. But no excretion is of more consequence to the patient's recovery, than a free perspiration; which is so absolutely necessary, that un-

less she has a moisture continually on the surface of her body, for some days after the birth, she seldom recovers to advantage: her health, therefore, in a great measure depends upon her enjoying undisturbed repose, and a constant breathing sweat, which prevents a fever, by carrying off the tension, and assists the equal discharge of the *Lochia*; and when these are obstructed, and a fever ensues with pain and restlessness, nothing relieves the patient so effectually as rest and profuse sweating, procured by opiates and sudorifics at the beginning of the complaints; yet these last must be more cautiously prescribed in excessive hot than in cool weather.

The last of the non-naturals to be considered are the passions of the mind, which also require particular attention. The patient's imagination must not be disturbed by the news of any extraordinary accident which may have happened to her family or friends; for such information hath been known to carry off the labour-pains intirely, after they were begun, and the woman has sunk under her dejection of spirits: and even after delivery, these unseasonable communications have produced such an anxiety as obstructed all the necessary excretions, and brought on a violent fever and convulsions, that ended in death.

S E C T. III.

Of violent FLOODINGS.

ALL women, when the *Placenta* separates, and after it is delivered, lose more or less red blood, from the quantity of half a pound, to that of one pound, or even two; but should it exceed this proportion, and continue to flow without diminution, the pa-

tient is in great danger of her life: this hazardous hæmorrhage is known by the violence of the discharge, wetting fresh cloths, as fast as they can be applied; from the pulse becoming low and weak, and the countenance turning pale; then the extremities grow cold, she sinks into faintings, and if the discharge is not speedily stopt; or diminished, is seized with convulsions, which often terminate in death.

This dangerous efflux is occasioned by every thing that hinders the emptied *Uterus* from contracting, such as, great weakness and lassitude, in consequence of repeated floodings before delivery; the sudden evacuation of the *Uterus*; sometimes, though seldom, it proceeds from part of the *Placenta*'s being left in the womb: it may happen when there is another child, or more, still undelivered; when the womb is kept distended with a large quantity of coagulated blood; or when it is inverted by pulling too forcibly at the *Placenta*. See book II. chap. 3. sect. 3.

In this case, as there is no time to be lost, and internal medicines cannot act so suddenly as to answer the purpose, we must have immediate recourse to external application. If the disorder be owing to weakness, by which the *Uterus* is disabled from contracting itself, so that the mouths of the vessels are left open; or though contracted a little, yet not enough to restrain the hæmorrhage of the thin blood; or, if in separating the *Placenta*, the accoucheur has scratched or tore the inner surface or membrane of the womb; in these cases, such things must be used as will assist the contractile power of the *Uterus*, and hinder the blood from flowing so fast into it and the neighbouring vessels: for this purpose, cloths dipped in any cold astringent fluid, such as oxycrate, or red tart wine, may be applied to the back and belly.

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Some prescribe venæsection in the arm, to the amount of five or six ounces, with a view of making revulsion; if the pulse is strong, this may be proper; otherwise, it will do more harm than good: others order ligatures, for compressing the returning veins at the hams, arms, and neck, to retain as much blood, as possible in the extremities and head. Besides these applications, the *Vagina* may be filled with tow or linen rags, dipped in the above mentioned liquids, in which a little alum, or *Saccharum Saturni* hath been dissolved: nay, some practitioners inject proof spirits warmed, or soaking them up in a rag or sponge, introduce and squeeze them into the *Uterus*, in order to constrict the vessels.

If the flooding proceeds from another child, the retention of the *Placenta*, or coagulated blood, these ought immediately to be extracted; and if there is an inversion of the *Uterus*, it must be speedily reduced. Should the hæmorrhage, by these methods, abate a little, but still continue to flow, though not in such a quantity as to bring on sudden death, some red wine and jelly ought to be prescribed for the patient, who should take it frequently, and a little at a time; but above all things, chicken or mutton broths, administered in the same manner, for fear of overloading the weakened stomach, and occasioning reaching: these, repeated in small quantities, will gradually fill the exhausted vessels and keep up the circulation. If the pulse continues strong, it will be proper to order repeated draughts of barley-water, accudulated with *Elixir vitriol*: but if the circulation be weak and languid, extract of the bark, dissolved in *Aq. cinnamoni tenuis*, and given in small draughts, or exhibited in any other form, will be serviceable; at the same time, lulling the patient to rest with opiates. These, indeed, when the first violence of the flood is abated,

abated, if properly and cautiously used, are generally more effectual than any other medicine.

S E C T. IV.

Of the AFTER-PAINS.

After-pains commonly happen when the fibrous part of the blood is retained in the *Uterus* or *Vagina*, and formed into large clots, which are detained by the sudden contraction of the *Os internum* and *externum*, after the *Placenta* is delivered: or, if these should be extracted, others will sometimes be formed, though not so large as the first, because the cavity of the womb is continually diminishing after the birth. The *Uterus*, in contracting, presses down these coagulum to the *Os internum*: which being again gradually stretched, produces a degree of labour-pains, owing to the irritation of its nerves: in consequence of this uneasiness, the woman squeezes the womb as in real labour; the force being increased, the clots are pushed along, and when they are delivered, she grows easy. The larger the quantity is of the coagulated blood, the severer are the pains, and the longer they continue.

Women in the first child, seldom have after-pains; because, after delivery, the womb is supposed to contract, and push off the clots with greater force in the first, than in the following labours: after-pains may also proceed from obstructions in the vessels, and irritations at the *Os internum*. In order to prevent or remove these pains, as soon as the *Placenta* is separated and delivered, the hand being introduced into the *Uterus* may clear it of all the *Coagula*. When the womb is felt, through the *Parietes* of the *Abdomen*, larger than usual, it may be taken for granted, that there is either another child,

child, or a large quantity of this clotted blood; and which soever it may be, there is a necessity for its being extracted. If the *Placenta* comes away of itself, and the after-pains are violent, they may be alleviated and carried off by an opiate: for, by sleeping and sweating plentifully, the irritation is removed, the evacuations are increased, the *Os uteri* is insensibly relaxed, and the *Coagula* slide easily along. When the discharge of the *Lochia* is small, the after-pains, if moderate, ought not to be restrained; because, the squeezing which they occasion, promotes the other evacuation, which is necessary for the recovery of the patient. After-pains may also proceed from an obstruction in some of the vessels, occasioning a small inflammation of the *Os internum* and ligaments; and the squeezing thereby occasioned, may not only help to propel the obstructing fluid, but also (if not too violent) contribute to the natural discharges.

S E C T. V.

Of the LOCHIA.

WE have already observed, that the delivery of the child and *Placenta* is followed by an efflux of more or less blood, discharged from the *Uterus*, which, by the immediate evacuation of the large vessels, is allowed to contract itself the more freely, without the danger of an inflammation, which would probably happen in the contraction, if the great vessels were not emptied at the same time: but, as the fluids in the smaller vessels cannot be so soon evacuated, or returned into the *Vena cava*, it is necessary, that after the great discharge is abated, a slow and gradual evacuation should continue, until the womb shall be con-

tracted to near the same size which it had before pregnancy; and to this it attains about the eighteenth or twentieth day after delivery, though the period is different in different women.

When the large vessels are emptied immediately after delivery, the discharge frequently ceases for several hours, until the fluids in the smaller vessels are propelled into the larger, and then begins to flow again, of a paler colour.

The red colour of the *Lochia* commonly continues till the fifth day, though it is always turning more and more serous from the beginning; but, about the fifth day, it flows off a clear, or sometimes (though seldom) of a greenish tint; for, the mouths of the vessels growing gradually narrower, by the contraction of the *Uterus*, at last, allow the serous part only to pass: as for the greenish hue, it is supposed to proceed from a dissolution of the cellular or cribriform membrane or *Mucus*, that surrounded the surface of the *Placenta* and *Chorion*; part of which, being left in the *Uterus*, becomes livid, decays, and dissolving, mixes with and tinctures the discharge as it passes along.

Though the *Lochia*, as we have already observed, commonly continue to the eighteenth or twentieth day, they are every day diminishing in quantity, and soonest cease in those women who suckle their children, or have had an extraordinary discharge at first; but the colour, quantity, and duration, differ in different women: in some patients, the red colour disappears on the first or second day; and in others, though rarely, it continues more or less to the end of the month: the evacuation in some is very small, in others excessive; in one woman it ceases very soon, in another, flows during

during the whole month: yet, all of these patients shall do well.

Some alledge, that this discharge from the *Uterus*, is the same with that from a wound of a large surface; but it is more reasonable to suppose, that the change of colour and diminution of quantity proceed from the slow contraction of the vessels: because, previous to *Pus*, there must have been lacerations or imposthumes; and in women who have suddenly died after delivery, no wound or excoriation hath appeared upon the inner surface of the womb, which is sometimes found altogether smooth, and at other times rough and unequal on that part to which the *Placenta* adhered. The space that is occupied before delivery, from being six inches in diameter, or eighteen inches in circumference, will soon after the birth, be contracted to one third or fourth of these dimensions.

S E C T. VI.

Of the MILK FEVER.

ABOUT the fourth day, the breasts generally begin to grow turgid and painful. We have formerly observed, that during the time of uterine gestation, the breasts in most women gradually increase till the delivery, growing softer as they are enlarged by the vessels being more and more filled with fluids; and by this gradual distention they are prepared for secreting the milk from the blood, after delivery. During the two or three first days after parturition, especially when the woman has undergone a large discharge, the breasts have been sometimes observed to subside and grow flaccid; and about the third or fourth day, when the *Lochia* begin to decrease, the breasts swell again

again to their former size, and stretch more and more, until the milk, being secreted, is either sucked by the child, or frequently of itself runs out at the nipples.

Most of the complaints incident to women after delivery, proceed either from the obstruction of the *Lochia* in the *Uterus*, or of the milk in the breasts, occasioned by any thing that will produce a fever; such as catching cold, long and severe labour, eating food that is hard of digestion, and drinking fluids that quicken the circulation of the blood in the large vessels; by which means the smaller, with all the secretory and excretory ducts, are obstructed.

The discharge of the *Lochia* being so different in women of different constitutions, and besides in some measure depending upon the method of management, and the way of life peculiar to the patient, we are not to judge of her situation from the colour, quantity, and duration of them, but from the other symptoms that attend the discharge: and if the woman seems hearty, and in a fair way of recovery, nothing ought to be done with a view to augment or diminish the evacuation. If the discharge be greater than she can bear, it will be attended with all the symptoms of inanition; but as the *Lochia* seldom flow so violently, as to destroy the patient of a sudden, she may be supported by a proper, nourishing diet, assisted with cordial and restorative medicines. Let her, for example, use broths, gellies, and asses milk; if the pulse is languid and sunk, she may take repeated doses of the *Consec. Cardiac*, with mixtures composed of the cordial waters and volatile spirits: Substringents and opiates frequently administered, with the *Cort. Peruvian*, in different forms, and austere wines are of great service. On the other hand, when the discharge is

too small, or hath ceased altogether, the symptoms are more dangerous, and require the contrary method of cure: for, now the business is to remove a too great plenitude of the vessels in and about the *Uterus*, occasioning tension, pain, and labour, in the circulating fluids; from whence proceed great heat in the part, restlessness, fever; a full, hard, quick pulse, pains in the head and back, nausea, and difficulty in breathing. These complaints, if not at first prevented, or removed by rest and plentiful sweating, must be treated with venæsection and the antiphlogistic method.

When the obstruction is recent, let the patient lie quiet, and encourage a plentiful diaphoresis, by drinking frequently of warm, weak, diluting fluids, such as water-gruel, barley water, tea, or weak chicken broth: she may likewise take opiates and sudorifics in different forms, as may be agreeable to her stomach. *Theriac Androm.* from ʒβ to ʒi. *Laud. liquid.* from gr. x. to gut. xx. *Pilul. Saponac.* from gr. v. to gr. x. or *Syr. de Meconio* from ʒβ. to ʒi. These may be repeated occasionally, with other forms of opiates; and if they fail to procure rest and sweating, the following diaphoretics, without opium, ought to be administered.

℞ *Pulv. Contrayerv. Com.* ʒβ *Pulv. Castor. Russ.* *Sal. Succin.* āā gr. v. *Syr. Croci* q. s. f. *Bolus statim semendus cum haust. sequent. et repetat. quarta vel sexta quaque hora ad tres vices vel ut opus fuerit.*

℞ *Aq. Cinnamon. ten.* ʒiij cum spiritu. *croci* āā ʒij. adde *Sal. vol. C. C.* gr. iv. m.

Should these methods be used without success, and the patient, far from being relieved by rest, plentiful sweating, or a sufficient discharge of the obstructed *Lochia*, labour under an hot, dry skin, anxiety, and a quick, hard, and full pulse, the warm diaphoretics must

must be laid aside; because, if they fail of having the desired effect, they must necessarily increase the fever and obstruction, and recourse be had to bleeding at the arm or ankle, to more or less quantity, according to the degree of fever and obstruction; and this evacuation must be repeated as there is occasion: When the obstruction is not total, it is supposed more proper to bleed at the ankle than at the arm; and at this last, when the discharge is altogether stopped. Her ordinary drink ought to be impregnated with nitre, and the following draughts, or others of the same kind, prescribed.

R. Sal. Absynth. ℥i. Succ. Limon. ʒss. Aq. Cinnamon. simp. ʒiʒ. Pul. Contrayerv. comp. ℥i. Sacch. Alb. q. s. f. Haustus statim sumendus, et quarta vel sexta quaque hora repetendus.

If she is costive, emollient and gently-opening glysters may be occasionally injected; and her breasts must be fomented and sucked, either by the mouth or pig-glasses. If, by these means, the fever is abated, and the necessary discharges return, the patient commonly recovers; but, if the complaints continue, the antiphlogistic method must still be pursued. If notwithstanding these efforts, the fever is not diminished or removed by a plentiful discharge of the *Lochia* from the *Uterus*, the milk from the breasts, or by a critical evacuation by sweat, urine, or stool, and the woman is every now and then attacked with cold shiverings; an abscess or abscesses will probably be formed in the *Uterus*, or neighbouring parts, or in the breasts; and sometimes, the matter will be translated to other situations, and the seat of it foretold from the parts being affected with violent pains: these abscesses are more or less dangerous, according to the place in which they

they happen, the largeness of the suppuration, and the good or bad constitution of the patient.

If when the pains in the epigastric region are violent, and the fever encreased to a very high degree, the patient should all of a sudden, enjoy a cessation from pain, without any previous discharge or critical eruption, the physician may pronounce that a mortification is begun; especially if, at the same time, the pulse becomes low, quick, wavering, and intermitting: if the woman's countenance, from being florid, turns dusky and pale, while she herself, and all the attendants, conceive her much mended; in that case, she will grow delirious, and die in a very short time.

What we have said on this subject, regards that fever which proceeds from the obstructed *Lochia*, and in which the breasts may likewise be affected: but the milk fever is that in which the breasts are originally concerned, and which may happen, though the *Lochia* continue to flow in sufficient quantity; nevertheless, they mutually promote each other, and both are to be treated in the manner already explained; namely, by opiates, diluents, and diaphoretics, in the beginning, and, these prescriptions failing, the obstructions must be resolved by the antiphlogistic method described above. The milk fever alone, when the *Uterus* is not concerned, is not so dangerous, and much more easily relieved. Women of an healthy constitution, who suckle their own children, have good nipples, and whose milk comes freely, are seldom or never subject to this disorder, which is more incident to those who do not give suck, and neglect to prevent the secretion in time; or, when the milk is secreted, take no measures for emptying their breasts. This fever likewise happens to women who try too soon to suckle, and
continue

continue their efforts too long at one time; by which means, the nipples, and consequently the breasts, are often inflamed, swelled, and obstructed.

In order to prevent too great a turgency in the vessels of the breasts, and the secretion of milk, in those women who do not chuse to suckle, it will be proper to make external application of those things which, by their pressure and repercussive force, will hinder the blood from flowing in too great quantity to this part, which is now more yielding than at any other time: for this purpose, let the breasts be covered with *Emp. de minio*, *Diapalma*, or *Emp. simp.* spread upon linen, or cloths dipped in camphorated spirits, be frequently applied to these parts and the arm-pits; while the patient's diet and drink is of the lightest kind, and given in small quantities. Notwithstanding these precautions, a turgency commonly begins about the third day; but by rest, moderate sweating, and the use of these applications, the tension and pain will subside about the fifth or sixth day, especially if the milk runs out at the nipples: but if the woman catches cold, or is of a full habit of body, and not very abstemious, the tension and pain increasing, will bring on a cold shivering, succeeded by a fever; which may obstruct the other excretions, as well as those of the breast.

In this case, the sudorifics above-recommended, must be prescribed, and if a plentiful sweat ensues, the patient will be relieved; at the same time the milk must be extracted from her breasts by sucking with the mouth or glasses: should these methods fail, and the fever increase, she ought to be blooded in the arm; and instead of the external applications hitherto used, emollient liniments and cataplasms must be substituted,
in

in order to soften and relax. If, in spite of these endeavours, the fever proceeds for some days, the patient is frequently relieved by critical sweats, a large discharge from the *Uterus*, miliary eruptions, or loose stools mixed with milk, which is curdled in the intestines: but should none of these evacuations happen, and the inflammation continue with increasing violence, there is danger of an imposthume, which is to be brought to maturity, and managed like other inflammatory tumours; and no astringents ought to be applied, lest they should produce schirrous swellings in the glands.

As the crisis of this fever, as well as of that last described, often consists in miliary eruptions over the whole surface of the body, but particularly on the neck and breasts, by which the fever is carried off, nothing ought to be given, which will either greatly increase or diminish the circulating force, but such only as will keep out the eruptions. But if, notwithstanding these eruptions, the fever, instead of abating, is augmented, it will be necessary to diminish its force, and prevent its increase, by those evacuations we have mentioned above. On the contrary, should the pulse sink, the eruptions begin to retreat inwardly, and the morbid matter be in danger of falling upon the *Viscera*, we must endeavour to keep them out, by such opiates and sudorific medicines as we have already prescribed in obstructions of the *Lochia*; and here blisters may be applied with success. On this subject Sir *David Hamilton* and *Hoffman* may be consulted.

S E C T. VII.

Of the PROLAPSUS VAGINÆ, RECTI ET UTERI.

WHEN the head of the child is long retained about the middle of the *Vagina*, the lower part of that sheath sometimes swells; and as the head comes farther down, is pushed out at the *Os externum*, occasioning great difficulty in delivering the woman: sometimes, also, the lower part of the *Rectum* is protruded through the *Sphincter ani*, especially if the patient is troubled with the inward piles. The cure of both these complaints, consists in reducing the *Prolapsus*; if this cannot be done immediately in the last, on account of the swelling of the protruded part, emollient fomentations and poultices must be used, in order to remove the inflammation. When it is reduced, the woman must be confined more than usual to her bed; and if the part fall down again, in consequence of her straining at stool, or in making water, it must be reduced occasionally, and as she recovers strength, the complaint will in all probability vanish: otherwise, astringent fumigations or fomentations must be used. If the disorder be of long duration, pessaries, adapted to the part, whether *Vagina* or *Rectum*, must be applied.

A *Prolapsus uteri* may happen from the same causes, or from any thing that will too much relax the ligament and *Peritonæum*, by which the womb is suspended; such as, an inveterate *Fluor albus*, that by its long continuance and great discharge, weakens the womb, and all these parts.

This misfortune, when it proceeds from labour, does
not

not appear till after delivery, when the *Uterus* is contracted to its smallest size; nay, not for several weeks or months after that period, until, by its weight, the *Os externum* is gradually stretched wider and wider, so as to allow the womb to slip through it; and in this case, it descends covered with the *Vagina*, that comes down along with it, and hangs between the thighs: though the *Os tincæ* only can be perceived on account of this covering, the shape and substance of the *Uterus* may be easily distinguished.

As this *Prolapsus* comes on gradually, the woman of herself can (for the most part) reduce and keep it up while in bed; but when she rises and walks, it will fall down again. When the complaint is not of long standing, and the womb does not come altogether through the *Os externum*, the patient may be cured by astringent injections; and in the next pregnancy, when the upper part of the *Uterus* is distended, so as to rise in the *Pelvis*, and rise above its brim, the *Os internum* will be raised higher in the *Vagina*; and after delivery, if the woman is confined to her bed for twenty or thirty days, the ligaments generally contract, so as to keep up the womb, and prevent any future *Prolapsus*: but, when the complaint is of long continuance; when the *Uterus* and *Vagina* descend quite through the *Os externum*, and by the friction in walking, occasioned by the *Vagina*'s rubbing against the thighs and the *Os uteri*, upon the cloths that are used for supporting it, an inflammation, excoriation, and ulceration, is produced, inviting a greater flux of fluids to the part: these symptoms, joined with a *Fluor albus* from the inside of the *Uterus*, destroy the hope of a second impregnation, or cure by injections, and we can only promise to palliate the disease, by reduc-

ing the *Uterus* and keeping it up with a pessary; by which means, used for a length of time, perhaps the parts will recover their tone, and the disease be radically cured.

If the *Uterus*, be so much inflamed, that it cannot be reduced, generally evacuations must be prescribed, fomentations and poultices applied, in order to diminish its bulk, so as that it may be replaced: for this complaint, different kinds of pessaries have been used; some of a globular form, others that open with a spring, as described in the medical essays of *Edinburgh*. But, those most in use are of a flat form, with a little hole in the middle, and made of cork waxed over, ivory, box, ebony, lignum vitæ, of a triangular, quadrangular oval, or circular shape. Those that are circular seem best to answer the intention, because we can more easily introduce a large one of that than of any other figure; it lies more commodiously in the *Vagina*, and as it always tilts a little upwards and downwards, never hinders the passage of the urine or *Fæces*: these instruments, however, ought to be larger or smaller, according to the laxity or rigidity of the *Os externum*.

There is a pessary lately invented at *Paris*, which hath an advantage over all others; because the woman can introduce it in the morning, and take it out at night: it is supported and kept in the *Vagina* by a small stalk, the lower end of which forms a little ball that moves in a socket; this socket is furnished with straps, which are tied to a belt that surrounds the patient's body. This pessary is extremely well calculated for those who are in an easy way of life; but the other kind is best adapted to hard working women, who have

have not time or conveniency to fix or mend the bandage when it wants repair.

S E C T. VIII.

Of the Evacuations necessary at the End of the Month after Delivery.

THOSE who have had a sufficient discharge of *Lochia*, plenty of milk, and suckle their own children, commonly recover with ease; and as the superfluous fluids of the body are drained off at the nipples, seldom require evacuations at the end of the month: but, if there are any complaints from fullness, such as pains and stitches, after the twentieth day, some blood ought to be taken from the arm, and the belly gently opened by frequent glysters, or repeated doses of laxative medicines.

If the patient has tolerably recovered, the milk having been at first sucked or discharged from the nipples, and afterwards disused, no evacuations are necessary before the third or fourth week; and sometimes not till after the first flowing of the *Menses*, which commonly happens about the fifth week; if they do not appear within that time, gentle evacuations must be prescribed to carry off the *Plethora*, and bring down the *Catamenia*.

C H A P. II.

*Of the MANAGEMENT of new-born Children, with
the DISEASES to which they are subject.*

S E C T. I.

Of washing and dressing the Child

THE child being delivered, the navel-string is tied and cut, a warm cloth or flannel cap put on its head, and its body wrapped in a warm receiver, it may be given to the nurse, or the infant, in order to be washed clean from that scurf which sometimes covers the whole scarf-skin, and is particularly found upon the hairy scalp, under the arm-pits, and in the groins. This ablution is commonly performed with warm water, mixed with a small quantity of *Hungary* water, wine, or ale, in which a little pomatum, or fresh butter, hath been dissolved. This composition cleans all the surface, and the oily part, by mixing with, and attenuating the *Mucus*, prepares it for the linen cloth, which dries and wipes off the whole: nevertheless, milk and water, or soap and water, is preferable to this mixture.

In laborious or preternatural cases, when considerable force hath been used in delivering the child, the whole body ought to be examined; and if there is any mark or contusion on the head, it will disappear, if anointed with pomatum, and gently rubbed or chafed with the accoucheur's hand: if any limb is dislocated or broke, it ought to be reduced immediately: luxations, though they seldom happen, are more incident to the shoulder, than to any other part, the *Humerus* being easily dislocated,

located, and as easily reduced. The bones of the arm and thigh are more subject to fractures, than any other of the extremities: the first is easily cured, because the arm can be kept from being moved; but a fracture in the thigh bone is a much more troublesome case, because, over and above the difficulty of keeping the bones in a proper situation, the part is often necessarily moved in cleaning the child. In this case, the best method is, to keep the child lying on one side, after the thigh hath been secured by proper bandage, so that the nurse may change the cloth without moving the part; and to lay it upon bolsters or pillows raised above the nurse, that it may suck with greater freedom: if any of the bones are bent, they may be brought into their proper form, by a slow, gentle, and proper extension.

The navel-string must be wrapped in a soft linen rag, and folded up on the belly, over which is to be laid a thick compress, kept moderately tight with a bandage commonly called a belly-band. This compression must be continued for sometime, in order to prevent an *Exomphalus*, or rupture, at the navel; and kept tighter and longer on children that are addicted to crying, than on those that are still and quiet: yet not so tight as to be uneasy to the child; and the bandage must be loosened and the part examined, every second day. The navel-string shrinks, dries, and about the sixth or seventh day, commonly drops off from the belly; though not at the ligature, as some people have imagined. This being separated, a pledgit of dry lint must be applied to the navel, and over it, the thick compress and bandage, to be continued several weeks, for the purpose mentioned above.

During the time of washing and dressing the child,

it ought to be kept moderately warm, especially in the head and breast, that the cold air may not obstruct perspiration: the head and body ought also to be kept tolerably tight with the cloaths, for the convenience of handling, and to prevent it catching cold, especially if the child be weakly; but, if it be vigorous and full grown, it cannot be too loosely cloathed, because the brain, *Thorax*, and *Abdomen*, suffer by too much compression. The cloathing of new-born children ought also to be suitable to the season of the year, the nature of the weather; the extremes of cold and heat being avoided, as equally hurtful and dangerous. Instead of the many superfluous decorations of nurses, and those who make cloaths for children, with a view to make an expensive and pompous appearance, the dress ought to be contrived with all imaginable simplicity: the child being washed, the navel-string secured, and the head covered with a linen or woollen cap, as already directed, a shirt and waist-coat may be put upon the body, and over it a flannel skirt or petticoat, open before, with a broad head-band, as commonly used, or rather a waistcoat joined to it, so as that they can be put on at once: this ought to be rather tied than pinned before; and, instead of two or more blankets, may be covered with a flannel or fustian gown; while the head is accommodated with another cap, adorned with as much finery as the tire woman shall think proper to bestow.

In short, the principal aim in this point is, to keep the child's head and body neither too tight nor too slovenly, too hot nor too cold; that it may be warm, though not over-heated; and easy, though not too loose; that respiration may be full and large; that the brain may suffer no compression; and that, while
the

the child is awake, the legs may be at liberty ; to reject all unnecessary rollers, cross-cloths, neck-cloths, and blankets ; and to use as few pins as possible, and those that are absolutely necessary, with the utmost caution.

S E C T. II.

How to manage when any of the common Passages are locked up, or the Tongue tied.

WHEN the child cannot make water, because the passages are filled up with *Mucus* ; after having successfully practised the common methods of holding the belly near the fire, and rubbing the parts with *Oil of Rutæ*, &c. we must introduce a probe, or very small catheter along the *Urethra*, into the bladder ; an operation much more easily performed in female than in male children.

In boys, the prepuce alone is sometimes imperforated ; in which case, an opening is easily made : but, if there is no passage in the *Urethra*, or even through the whole length of the *Glans*, all that can be done is to make an opening, with a lancet or bistory, near the mouth or sphincter of the bladder, in the lower part of the *Urethra* ; where the urine being obstructed, pushes out the parts in form of a tumour : or, if no such tumefaction appears, to perforate the bladder above the *Pubes*, with a trocar : this, however, is a wretched and ineffectual expedient, and the other can but at best lengthen out a miserable life. If the *Anus* is imperforated, and the *Fæces* protrude the parts ; or, if it be covered with a thin membrane, and a bluish or livid spot appears, the puncture and incision commonly

ly succeed : but, when the *Rectum* is altogether wanting, or impervious for a considerable way, the success of the operation is very uncertain : nevertheless it ought to be tried, by making an artificial *Anus*, with a bistory, remembering the course of the *Rectum*, and the entry in both sexes. For further information on this subject, *Mauriceau's* and *Saviard's* observations, and the *Memoirs* of the academy of surgeons, may be consulted.

In female children, there is a thin membrane in form of a crescent, called the *Hymen*, that covers the lower part of the orifice of the *Vagina*, and is rent in the first coition. The middle of it is sometimes attached to the lower part of the *Meatus urinarius*, and on each side of the bridge is a small opening, that will only admit the end of a probe, though it is sufficient for the discharge of the *Menses*. This obstruction is commonly unknown till marriage, and hath often proved fatal to the unfortunate woman, who had concealed it through excess of modesty, and afterwards sunk into a deep melancholy, which cost her her life ; rather than submit to inspection, and the easy cure of having the attachment snipt with a pair of scissars. On this consideration, *Saviard* advises all accoucheurs to inspect this part in every female child they deliver ; and if there should be such a defect, remedy it during her childhood : or, if the entry is wholly covered with the membrane, make a sufficient perforation, which will prevent great pain and tension in their riper years, when the *Menses* being denied passage, would accumulate every month, and at last push out this and the neighbouring parts in form of a large tumour, the cause of which is generally unknown, until it be opened.

Sometimes, a thin membrane rising from the under-
part

part of the mouth, stretches almost to the tip of the tongue, bracing it down, so as to hinder the child from taking hold of the nipple and sucking. This disorder, which is called tongue-tying, is easily remedied by introducing the fore finger into the child's mouth, raising up the tongue, and snipping the bridle with a pair of scissars.

If, instead of a thin membrane, the tongue is confined by a thick, fleshy substance, the safest method is, to direct the nurse to stretch it frequently and gently with her finger: or if it appears like a soft *Fungus*, to touch it frequently and cautiously with lunar caustic, or roman vitriol: but ought to take care that we are not deceived by an inflammation that sometimes happens in the birth, from the accoucheur's helping the head along with his finger in the child's mouth.

S E C T. III.

Of Mould-shot Heads, Contusions, and Excoriations.

IN laborious and lingering labours, the child's head is often long confined, and so compressed in the *Pelvis*, that the bones of the upper part of the *Cranium* are squeezed together, and ride over one another, in different manners, according as the head presented. If the *Ossa parietalia* rise over the *Os Frontis*, the case is called the mould-shot; if over the *Occiput*, it goes by the name of the horse-shoe mould. When the *Fontanelle* presents, (though this is seldom the case) and is pushed down, the form of the head is raised up in the shape of a hog's back; whereas, in the former case, the *Vertex* or crown of the head presented, and the whole was turned from a round to a very long figure.

gure. If the head is kept long in the *Pelvis*, and the child not destroyed by the compression of the brain, either before or soon after delivery, it commonly retains more or less of the shape acquired in that situation, according to the strength or weakness of the child. When the bones begin to ride over one another in this manner, the hairy scalp is felt lax and wrinkled; but, by the long pressure and obstructions of the circulating fluids, it gradually swells, and forms a large tumour.

In these cases, when the child is delivered, we ought to allow the navel-string, at cutting, to bleed from one to two or three spoonfuls, especially if the infant be vigorous and full of life: and to provoke it by whipping and stimulating: for, the more it cries, the sooner and better are the bones of the *Cranium* forced outwards into their natural situation: or, if the head hath not been long compressed, and is not much inflamed, we can sometimes, with our hands, reduce it into its pristine shape. The *Meconium* ought also to be purged off as soon as possible, to give freer scope to the circulating fluids in the *Abdomen*, and make a revulsion from the surcharged and compressed brain. This may be effected with suppositories, glysters, repeated doses of *Ol. Amygdal. d.* mixed with *Pulv. Rhabarb.* or *De Althæa*, or *Syr. de Cichoreo, cum Rheo.*

If the child is seized with convulsions soon after delivery, in consequence of this compression; and the vessels of the navel-string have not been allowed to bleed, the jugular vein ought immediately to be opened, and from one to two ounces of blood taken away; an operation easily performed in young children: the urine and *Meconium* must be discharged, and a small blister applied between the *Scapulæ*. When the scalp

is bruised, inflamed, or swelled, let it be anointed, or embrocated, with a mixture of *Ol. Chamomel. Acet.* and *Spt. Vin. Camphorat.* and cerates and poultices applied to the parts.

If the tumefaction is large, and we feel a considerable fluctuation of extravasated fluids, which cannot be taken up by the absorbent vessels, assisted with those applications, the tumor must be opened; though generally there is no occasion for a large incision, because after the fluid is once discharged, the hollow scalp, by gentle pressure, is more easily joined in children than in older subjects.

When the head is shaven, it should not be bound or pressed, but left lax and easy; lest the brain being compressed, convulsions should ensue.

The body of the child is sometimes covered all over with little red spots, called the red gum, and commonly proceeding from the costiveness of the child, when the *Meconium* hath not been sufficiently purged off at first. And here it will not be improper to observe, that as the whole tract of the *Colon* is filled with this viscid excrement, which hath been gradually accumulated for a considerable time; and as the small intestines, stomach, and gullet are lined with a glary fluid or *Mucus*, the child ought to take no other nourishment than pap as thin as whey, to dilute this fluid, for the first two days; or indeed, till it sucks the mother's milk, which begins to be secreted about the third day, and is at first, sufficiently purgative to discharge these humours; and better adapted for the purpose than any artificial purge.

If the mother's milk cannot be had, a nurse lately delivered is to be found; and if the purgative quality of her milk is decreased, she must be ordered to take

repeated small doses of manna, or lenitive electuary, by which it will recover its former virtue, and the child be sufficiently purged.

If the child is brought up by hand, the food ought to imitate, as near as possible, the mother's milk: let it consist of loaf-bread and water boiled up together, in form of panada, and mixed with the same quantity of new cow's milk; and sometimes with the meat of fowl or mutton. When the child is costive, two drachms of manna, or from two to four grains of rhubarb, may be given: and when the stools are green and curdled, it will be proper to absorb the prevailing acid with the testaceous powder, such as the *Chel. Cancror. simp.* or *Test. Ostrear.* given from the quantity of ten grains to a scruple: and for this purpose, the *Magnesia alba* is recommended from one to two drachms a day, as being both opening and absorbent. The red gum may likewise proceed from the officiousness of the nurse, by which the scarf skin hath been abraded, or rubbed off; in which case, the child must be bathed in warmed milk, and the parts softened with pomatum: the same bath may be also used daily in the other kind, and the belly kept open with the aforementioned medicines; with which, some syrup, tincture, or powder of rhubarb, may be mixed, or given by itself, if the stools are of a greenish hue.

Excoriations behind the ears, in the neck and groin of the child, are sometimes, indeed, unavoidable in fat and gross habits; but most commonly proceed from the carelessness of the nurse, who neglects to wash and keep the parts clean: they are, however, easily dried up and healed, with *Unguent. Alb. Pulv. e Cerussâ*, or fuller's earth. Yet we ought to be cautious in applying

applying drying medicines behind the ears, because a discharge in that part frequently prevents worse diseases.

S E C T. IV.

Of the A P T H A.

THE *Aptha*, or thrush, is a disease to which new-born children are frequently subject, and is often dangerous, when neglected at the beginning. This disease proceeds from weakness and laxity of the contracting force of the stomach and intestines, by which the acedent food is not digested; and from a defect in the necessary secretion of bile, with which it ought to be mixed. This prevailing acid in the *Primæ viæ*, produces gripings and loose green stools, that weaken the child more and more, deprived of its proper nourishment and rest, and occasion a fever from inanition and irritation. The smallest vessels at the mouths of the excretory ducts in the mouth, gullet, stomach, and intestines are obstructed and ulcerated in consequence of the child's weakness and acrimonious vomitings, belchings, and stools, and little foul ulcers are formed.

These first appear in small white specks on the lips, mouth, tongue, and at the fundament: they gradually increase in thickness and extent; adopt a yellow colour, which in the progress of the distemper becomes dusky, and the watry stools (called the watry gripes) become more frequent. The whole inner surface of the intestines, being thus ulcerated and obstructed, no nourishment enters the lacteal vessels; so that the weakness and disease are increased, the milk and pap which are taken in at the mouth, passes off curdled and green, the child is more and more enfeebled, and the brown colour of the *Aptha* declares a mortification, and death at hand.

hand. Sometimes, however, the *Apthæ* are unattended by the watry stools; and sometimes, these last are unaccompanied with the *Apthæ*.

In order to prevent this fatal catastrophe, at the first appearance of the disorder, we ought to prescribe repeated doses of testaceous powders, to absorb and sweeten the predominant acid in the stomach, giving them from ten to twenty grains in the pap, three times a day; and on every third night from three to five grains of the *Pulv. Rhei. comp. e Cketa*; oily and anodyne glysters, with epistemes to the stomach may also be administered. When these, and every other prescription fail, the child, if not much weakened, is sometimes cured by a gentle vomit, consisting of *Pulv. Ipecacuan.* gr. i. given in a spoonful of barley-water, and repeated two or three times, at the interval of half an hour between each. When the child is much enfeebled, the *Oleo-Saccharum Cinnamomi*, or *Anisi*, mixed with the pap, is sometimes serviceable. If the milk is either too purgative or binding, the nurse should be changed, or take proper medicines to alter its quality; or, if the child has been brought up by hand, woman's milk may be given on this occasion, together with weak broths; but, if the child cannot suck, the milk of cows, mares, or asses, may be substituted in its room, diluted with barley-water.

S E C T. V.

Of TEETHING.

CHILDREN commonly begin to breed their fore-teeth about the seventh, and sometimes not before the ninth month; nay, in some the period is still later. Those who are healthy and lax in their bellies, undergo

undergo dentition easier than such as are of a contrary constitution. When the teeth shoot from the sockets, and their sharp points begin to work their way through the *Perioſteum* and gums, they frequently produce great pain and inflammation, which, if they continue violent, bring on feveriſh ſymptoms and convulſions, that often prove fatal. In order to prevent theſe miſfortunes, the ſwelled gum may, at firſt, be cut down to the tooth, with a biſtory or ſcram: by which means, the patient is often relieved immediately: but, if the child is ſtrong, the pulſe quick, the ſkin hot and dry, bleeding at the jugular will be alſo neceſſary, and the belly muſt be kept open by repeated gliſters. On the other hand, if the child is low, ſunk, and emaciated, repeated doſes of *Spt. C. C. Tinct. Fuligin.* and the like, may be preſcribed; and bliſters applied to the back, or behind the ears.

C H A P. III.

Of the requisite QUALIFICATIONS of Accoucheurs, Midwives, Nurſes who attend lying in Women, and wet and dry Nurſes for Children.

S E C T. I.

Of the ACCOUCHEUR.

THOSE who intend to practice Midwifery, ought firſt of all to make themſelves maſters of anatomy, and acquire a competent knowledge in ſurgery and phyſic; becauſe of their connections with the obſtrict art, if not always, at leaſt, in many caſes. He ought

to take the best opportunities he can find, of being well instructed ; and of practising under a master, before he attempts to deliver by himself.

In order to acquire a more perfect idea of the art, he ought to perform with his own hands upon proper machines, contrived to convey a just notion of all the difficulties to be met with in every kind of labour ; by which means he will learn how to use the forceps and ~~the~~ with more dexterity, be accustomed to the turning of children, and consequently be more capable of acquitting himself in troublesome cases, that may happen to him when he comes to practise among women : he should also embrace every occasion ~~of~~ present at real labours, and indeed of acquiring every qualification that may be necessary or convenient for him, in the future exercise of his profession : but, over and above the advantages of education, he ought to be endued with a natural sagacity, resolution, and prudence ; together with that humanity which adorns the owner, and never fails of being agreeable to the distressed patient : in consequence of this virtue, he will assist the poor as well as the rich, behaving always with charity and compassion. He ought to act and speak with the utmost delicacy of decorum, and never violate the trust reposed in him, so as to harbour the least immoral or indecent design ; but demean himself in all respects suitable to the dignity of his profession.

S E C T. II.

Of the MIDWIFE.

A Midwife, though she can hardly be supposed mistress of all these qualifications, ought to be a decent sensible woman, of a middle age, able to bear fa-
tigue :

figure: she ought to be perfectly well instructed with regard to the bones of the *Pelvis*, with all the contained parts, comprehending those that are subservient to generation; she ought to be well skilled in the method of touching pregnant women, and know in what manner the womb stretches, together with the situation of all the abdominal *Viscera*; she ought to be perfectly mistress of the art of examination in time of labour, together with all the different kinds of labour, whether natural or preternatural, and the methods of delivering the *Placenta*; she ought to live in friendship with other women of the same profession, contending with them in nothing but in knowledge, sobriety, diligence, and patience; she ought to avoid all reflections upon men-practitioners, and when she finds herself at a loss, candidly have recourse to their assistance: on the other hand, this confidence ought to be encouraged by the man, who, when called, instead of openly condemning her method of practice, (even though it should be erroneous) ought to make allowance for the weakness of the sex, and rectify what is amiss, without exposing her mistakes. This conduct will as effectually conduce to the welfare of the patient and operate as a silent rebuke upon the conviction of the midwife; who, finding herself treated so tenderly, will be more apt to call for necessary assistance on future occasions, and to consider the accoucheur as a man of honour, and a real friend. These gentle methods will prevent that mutual calumny and abuse which too often prevail among the male and female practitioners; and redound to the advantage of both: for, no accoucheur is so perfect, but that he may err sometimes; and on such occasions, he must expect to meet with retaliation from those midwives whom he may have roughly used.

S E C T. III.

Of NURSES in general.

NURSES, as well as midwives, ought to be of a middle age, sober, patient, and discreet, able to bear fatigue and watching, free from external deformity, cutaneous eruptions, and inward complaints, which may be troublesome or infectious.

N U M B. I.

NURSES that attend lying-in women ought to have provided, and in order, every thing that may be necessary for the woman, accoucheur, midwife, and child; such as linen and cloths, well aired and warm, for the woman and the bed, which she must know how to prepare when there is occasion; together with nutmeg, sugar, spirit of hartshorn, vinegar, *Hungary* water, white or brown candle ready made, and a glyster-pipe fitted. For the use of the accoucheur, she must hang a doubled sheet over the bed-side, and prepare warm cloths, pomatum, thread, warm, and cold water, and two hand-basins; and for dressing the child, she must keep the cloaths warm and in good order. After delivery, her business is to tend the mother and child with the utmost care, and follow the directions given to her relating to the management of each.

That the mother herself should give suck, would certainly be most conducive to her own recovery, as well as to the health of the child; but when this is inconvenient, or impracticable, from her weakness, or circumstances in life, a wet nurse ought to be hired, possessed of the qualifications above described, as well as of those that follow.

NUMB. II.

THE younger the milk is, the better will it agree with the age of the infant. The nurse is more valuable, after having brought forth her second child, than after her first; because she is endued with more knowledge and experience touching the management of children. She ought to have good nipples, with a sufficient quantity of good milk: the abundance or scantiness of the secretion may be distinguished by the appearance of her own child; and the quality may be ascertained by examining the milk which she may be ordered to pour into a wine glass, about two or three hours after she hath eaten and drank, and suckled her own child. If, when falling in a single drop upon the nail, it runs off immediately, the milk is too thin; if the drop stand in a round globe, it is too thick; but, when the drop remains in a flattened form, the milk is judged to be of a right consistence: in a word, it may be as well distinguished by its opacity or transparency, when it is dashed upon the side of the glass: besides, it ought to be sweet to the taste, and in colour inclining to blue rather than to yellow. Red-hair'd women, or such as are very fair and delicate, are commonly objected to in the quality of nurses; but this maxim is not without exceptions: and on this subject, *Boerhaave's Institutes*, with *Haller's commentary*, may be consulted.

Although it is certainly most natural for children to suck, it may be sometimes necessary to bring them up by hand; that is, nourish them with pap: because proper wet nurses cannot always be found, and many children have suffered by sucking diseased women. Some can never be brought to suck, although they have no disorder; and others are prevented by some disorder about the mouth or throat.

NUMB. III.

UPON such occasions, we must chuse an elderly woman properly qualified for the task, and well accustomed to the duties of a dry nurse. The food (as we have formerly observed) ought to be light and simple, in quality resembling as nearly as possible, the mother's milk, such as thin panada mixed with cow's milk and sweetened with sugar; or, should the child be constipated, instead of sugar, honey, or manna, may be used. If there is any reason to believe, that the loaf-bread or biscuit is made of flour which hath been mixed with alum, for the sake of the colour, the common panada ought, in this case, to be laid aside, in favour of thick water-gruel, mixed with milk, and sweetened as above.

Some children thrive very well on this diet; but, when it is neither agreeable to their palates, nor nourishing, a wet nurse must be procured, before the child is too much emaciated and exhausted; and if it can suck, the good effects of the milk will soon be manifest. But, for further information on this head, the reader may consult Dr. Cadogan's letter on nursing of children.

END of the FIRST VOLUME.