
Obstetrics: The Science and The Art, by Charles
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Obstetrics: The Science and the Art - Part III. The Therapeutics and Surgery of Midwifery; Chapter XIII. Of Preternatural Labors

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CHAPTER XIII.

OF PRETERNATURAL LABOR.

ANY labor that cannot be brought to a safe conclusion by the natural powers of the system might properly be denominated a preternatural labor; and, as the causes that might prevent the accomplishment of the parturition, save by the intervention of our art, are very numerous, it follows that there are a great many kinds of preternatural labor.

Causes.—A labor may be accidentally changed from a natural to a preternatural one; or it may possess a preternatural character from the very beginning, and be unavoidably so. Thus, a woman may have brought her child almost into the world without any appearance of disorder, or danger, or uncommon distress, and be then suddenly attacked with convulsions, apoplexy, hemorrhage or laceration of the womb, &c. &c., either of which occurrences completely changes the character of the labor. Or she may, in consequence of disease or accident, be found incapable of bringing her child into the light without surgical aid; as, where the passages are closed by stricture, or by some fibrous tumor, or by a deformity of the bones of the pelvis. Lastly, the labor may be preternatural because there presents at the strait some portion of the child which cannot pass through it, but must be put aside in order to let some other part advance, before the labor can be brought to a close. For example, if the arm or shoulder should present, it is necessary to put them out of the way and bring the head back to the opening, or else the feet must be brought there, the child being for that purpose turned quite over; for have we not learned that one or the other of the extremities of the foetal ovoid must advance, in order to admit of the escape of the child?

It appears from the above that the causes which constitute preternatural labor are very various; and it is reasonable to infer that the medical and obstetric treatment of the several cases will be founded upon the peculiar and distinguishing character of each individual

example of the labors. The subject, therefore, embraces so wide a field of discussion and detail, that it will be requisite to treat it according to the nature of the several causes that happen to interfere with the usual process of childbirth; whence I shall endeavor to describe the different sorts of preternatural labor according to the circumstances that make them what they are, and point out the modes of treatment most suitable to their several natures.

Perhaps it matters not which kind of preternatural labor is here first treated of, for there is no natural order or method of their occurrence; each one might be the subject of a separate monograph. Yet I have chosen to commence with the account of presentations of the shoulder, in which the operation of *T u r n i n g* is generally considered to be inevitable as a part of the treatment; and since that operation is not unfrequently resorted to in other kinds of preternatural labor, I deem it of some advantage to take an early opportunity of describing it in this connection.

I have already said that, in order to constitute a natural labor, one of the extremities of the foetal ovoid ought to present at the opening; and I have treated of the pelvic presentations as being natural; and I have supposed that the knee and footling cases are but accidents or deviations of the natural pelvic presentation.

In presentations of the head, there is also, I said, a liability to deviations, by which the head glances off from the brim of the pelvis, whereupon it is either turned upwards into the venter of the ilium, or rises above the top of the pubis.

In a case where the direction of the uterus is very oblique, so as to allow the fundus to fall far down into the right flank of the patient, the child, if pressed by the contractions of the fundus, might be pushed towards the left side of the brim of the pelvis in such a manner as to make it doubtful whether the head would enter the strait, or slide upwards on the left side of the womb. For the most part, it fortunately happens, even in the very greatest lateral obliquity of the womb, that the head is not deflected, but enters the strait; but in a few examples it is found to rise upwards, instead of engaging. When this takes place, it must almost inevitably happen for the shoulder to fall into the cavity from which the head was turned away, and as the shoulder is a projecting part, it is very likely to maintain the position in which it is once ensconced. The shoulder, therefore, when the head glances off, descends or engages in the superior strait, and is pushed downwards by the uterine contractions as far as it can possibly be urged, and there it stops. The strait being now jammed full of a mass, composed of the shoulder, arm, neck, throat, and part of the thorax of the child;

so that no additional portions of the child can be pressed into it, a total arrest of the progress takes place, and the woman, after vain struggles, protracted according to the strength of her constitution, sinks at last, without the possibility of rescue from death except by the skilful aid of the obstetrician, or by the happy event of what is called a spontaneous evolution.

There can scarcely be any need for me to enlarge upon the impracticability of delivery here except by art; for even could the shoulder be pushed down as low as the vulva, it would happen, at last, that the head would be again brought to the strait from which it had been turned off, but it would be accompanied by the child's body, either of which, alone, is sufficient to fill the plane and the excavation, so that the two together could by no means pass through. The remedy is either to push the shoulder out of the way, and to bring the child's feet down so as to deliver it footling, or to restore the head to its proper place. There is, even where the operation is impracticable, an exceptional escape from death under these circumstances by the very rare occurrence of what is called spontaneous evolution of the foetus, to be hereafter described.

I ought to remark that while the shoulder presentation is a deviation or accident occurring in an original head presentation, so it may happen that, instead of the shoulder, the hand or elbow may come down; but in fact they are mere circumstances of a shoulder case; and when they are advanced to a certain degree, it is the shoulder, after all, that fills the strait and the excavation, and which constitutes the presentation. The hand and arm are merely prolapsed, and their prolapsion adds nothing to the difficulty of the case; indeed, their prolapsion serves as a means of guiding us in our diagnosis, and does not at all oppose the successful treatment of the labor. In the management of a pelvic presentation, I should, in general, prefer that the feet should not prolapse; in a shoulder presentation, it would be rather a favorable circumstance for the arm to prolapse.

CASE.—Some months since I was in attendance in a labor case, in which, though the os uteri was very much dilated, and completely dilat-able and distended with the bag of waters, I could not with the index finger touch the presentation. The patient was very much flexed, which relaxed the abdominal integuments. Upon placing my hand over the right iliacus muscle, I distinctly felt the orbicular mass of the child's head under my palm. Introducing the fingers, again, I waited until a pain came on. As soon as the bag of waters became tense from the pain, I pressed with my left hand, the head out of the right

iliac fossa towards the chasm of the superior strait. I then ruptured the ovum, and exhorting the woman to "bear down, bear down," I had the pleasure to perceive the head driven quite into the excavation, and to find it born after a few minutes. Doubtless, I prevented the shoulder from coming to the os uteri by pushing the head to it.

Two Shoulder Presentations.—Two Positions for each Shoulder.—As there are two shoulders, a right and a left one, there must be a set of positions for each shoulder; but in determining what is the position of the shoulder, it is also necessary to determine the situation of the child's head. In speaking of natural labor with the vertex in the first position, I endeavored to explain the causes which give a greater number of first positions. The same reasons operate to produce, in shoulder presentations, a greater proportion of instances in which the head is to the left side of the pelvis, than those in which it is to the right side. Now if the right shoulder presents at the strait and the head is to the left, as in Fig. 88, the face of the child, and its toes and feet, will look towards the mother's back; but if the same shoulder presents, and the head is to the right side of the pelvis, the face and front of the child must look towards the mother's front: so of the left shoulder in the first position, the face will look in front, and in the second position it will look towards the mother's back. By speaking, therefore, of the positions of the two shoulders separately, we get a better and less complex idea of this sort of labor than we should have were we to enumerate a set of positions without such a division.

I think that the form of the fœtus, and the capacity of the womb, are such as to make it unnecessary to establish more than two positions for each shoulder: for example, for the right shoulder a first position, or that in which the head is to the left, looking backwards, and a second, in which the head is to the right, and looking front: for the left shoulder a first position, wherein the head is to the left, looking front, and a second, in which it is to the right, looking towards the back of the mother. This will, I think, be quite sufficient; and gives us four positions for the shoulders, hand, or elbow. It is not to be denied that the head might be in front, looking to the left, or looking to the right side of the mother, giving us in the former case a right shoulder, and in the latter a left one, in the strait; but it is needless

Fig. 88.



to enumerate such a position, as the contractions of the womb and abdominal muscles would soon turn it into one of the attitudes I have before pointed out.

Diagnosis.—The signs by which a shoulder at the strait may be diagnosed are, 1. The want of the regular form of the bag of waters, which, in all preternatural presentations, is without that proper convex shape that we notice in favorable instances of natural labor: whenever the membranes pass down into the vagina, shaped almost like an intestine, or in a cylindrical form, there is good reason to think there is something untoward in the posture of the infant. 2. The spinous process of the scapula; the clavicle; the round-shaped shoulder; the axilla; the ribs; the arm, distinguishable by its size from the thigh, are evidences that a shoulder presents; but should the attendant retain any doubts, let him never omit to remove those doubts by the introduction of half his hand into the vagina, whereby he will be able freely to examine the nature of the presenting part, and learn its true position: no person is excusable for mistaking the diagnosis who knows he can command so infallible a method of making a correct one. The diagnosis can always be made in good time—that is, as soon as the dilatation will admit; and until then nothing can be done to aid the labor.

Turning.—Having ascertained that a shoulder is at the strait, there remains but one determination for the practitioner, and that is to put it away and bring another part of the child to present. This necessity, and the hazard in which, consequently, both the mother and child are involved, should be plainly and seriously laid before those who have the best right to know her case; namely, her husband or parents, or such near relative or friend as may seem to be, for the time, in *loco parentis* for her. The necessity for interference ought also to be explained to the sufferer herself, but in the gentlest and most cheering manner possible. If it be within the bounds of possibility to do so in good time, a medical brother ought to be invited, in order that his counsel may be taken, and particularly that the friends, and the patient also, may have no doubt left in their minds as to the propriety of the operation, nor claim the least right afterwards to find fault with the physician, should any untoward event follow the plan he had recommended. The act of turning to deliver by the feet is fraught with danger, for there is danger of uterine laceration, or of fatal contusions of the parts of the mother, and of failure to succeed in effecting the version, and great danger of destroying the life of the child in the act

of turning. In early times, our ancestors, who did not understand the mechanism of labor, used to wait, after pushing the shoulder back into the body, in hopes the head might descend. For example, here is the doctrine of Thomas Rainald, to be found at fol. lxxv. of his "Woman's Booke:" "And yf so be that it appears and comes forth first the shoulders, as in the XI figure, then muste ye fayre and softlye thruste it backe again by the shoulders till suche tyme as the head come forwarde." It may be that those old practitioners of the days of Queen Elizabeth may have sometimes succeeded, by pushing up the presenting shoulder, in getting the head at last to come to the strait again; but such an event appears to me in any case most improbable.

But no operation can be performed while the os uteri is so closed as to refuse admittance to the hand. It cannot and must not be forced. The mouth of the womb must be dilated or dilatable before any operation is lawful; it must be dilated or sufficiently yielding to allow the hand to pass upwards into the uterine cavity; of this degree of dilatability the obstetrician is the only judge. He must never run the risk of tearing or inflaming such an important organ, since its laceration by his hand would be much increased by the following birth of the child, and place the woman in danger of sudden death; or he might contuse the parts so much as to establish a highly dangerous inflammation in them. So important is it to judge aright concerning the *time* to be chosen for the exploration of the womb, that it is thought to be the most responsible duty of the physician in the whole case. If he proceed too soon, the most lamentable consequences are apt to ensue; and if he defer the procedure too long, the difficulties and dangers are greatly enhanced by the delay, while the patient also suffers useless and pernicious pain. The bladder and rectum should be evacuated before the operation. The position should be carefully ascertained; this can be done by the introduction of the hand, if necessary, into the vagina; and if it be certain that the left shoulder presents with the head on the left side of the womb, then he must make choice of that hand which can most conveniently be employed in the operation. The rule is to use that hand whose palm, when open in the cavity of the womb, would look towards the face or breast or belly of the child, which, in this instance, would be the right hand; for it is clear that if the left hand were used, it would not apply the palm to the front of the infant, whether it were carried up before or behind the child's body.

Although some accoucheurs prefer the lateral decubitus, the best position for the patient is that on the back, with the end of the sacrum brought quite over the edge of the bed, the feet and knees being pro-

perly supported by assistants, one holding each limb, which should be properly flexed. The woman ought to be carefully covered with a sheet or a light blanket, according to the season of the year, and some thick cloths should be placed on the floor, under the foot of the bed, to receive any discharges of water or blood that might accompany the operation.

Everything being fully prepared, the operator's right arm should be bared to the elbow, and well anointed with lard, while a sufficient quantity of the same material should be applied to the external parts. During a pain, two fingers, and then three, should be passed into the vagina, to be followed by the little finger, and afterwards by the thumb, strongly flexed into the palm. The hand, having gained possession of the vagina, may then rest until the pain is gone off, after which the presenting part must be pushed upwards and leftwards, the fingers and whole hand following the receding shoulder into the cavity of the womb. The shoulder being moved somewhat to the left as it mounts upwards, when the hand is fairly introduced, it ought to be opened and glided along the breast or abdomen towards the feet or knees of the fœtus, which will be looked for towards the right superior posterior portion of the cavity. In searching for the feet, the contractions of the womb are excited, and pains are produced, especially if the waters are much drained off. During these contractions, it is absolutely necessary to open the hand, lest the uterus, from the violence of its own action, might be torn on the knuckles; and the hand ought never to move except the organ be in a state of relaxation. At length, after more or less research, one or both feet, or a knee is found; and, whether it be one or the other, it should be taken hold of; for it is nearly a matter of indifference whether it be one foot or both, or one knee that is used as the point on which to act in turning the child. Dr. Collins, p. 69, remarks, on this point, that "it is quite sufficient to bring down one foot," and I find that Dr. Simpson, of Edinburgh, is of the same opinion—deeming it far more injurious to make persevering attempts at exploration, than to deliver by one foot only. I say nearly a matter of indifference, because, the object being to turn the child as soon as practicable, with proper caution it may be effected in either of these ways; it is always desirable to get the hand out of the uterus as soon as may be, and it is far better to turn by one foot or by a knee, than to incur the risk of laceration or contusions of the organ, by a tedious search after the other foot, which, if it be not originally near its fellow, is very hard to be found by any search for it. The inexperienced student can have little notion of the extreme difficulty there is to move the hand about while it is compressed

betwixt the womb and the child; a short experiment of this difficulty would suffice to convince him of the propriety of the foregoing directions. If he should use the knee as a point of traction, it would be very easy, when the version is nearly complete, to draw the foot down. If he use only one foot to turn by, he will have nearly all the proposed advantage of the breech presentation combined with the greater facility enjoyed in manipulating in the footling case—that is to say, he will have the abundant dilatation, and the power of traction by the limb. It sometimes happens that a foot is met with close to the orifice; so that, even without carrying the hand within the uterus, the foot can be hooked down by means of one or two fingers, as has been done by Dr. Robert Lee, of London, and as I also have done.

Having found the foot, if a pain should come on immediately, and prove severe, the foot should be let go, and caught again after the pain is gone off, according to the discretion of the operator. During all the time he is passing his hand up and exploring for the child, either his own unoccupied hand or that of an assistant should be applied to the abdomen, in order, by pressing the womb downwards, to keep the os uteri below the strait; and when he is ready to turn the child, his own hand only should be used by the operator to press on the outside of the abdomen, so as to favor the version by pushing the breech of the child downwards, while he also draws it downwards by the feet or knees. If the hand ought not to move during a pain, it would, *à fortiori*, be the height of rashness to attempt to turn the child with the womb in a state of contraction. The time for turning ought to be chosen as soon as the pain has gone off. Then the womb feels yielding and soft as a wet bladder, and the part held in the hand may be drawn towards the os uteri slowly and gently, but firmly, and, if possible, brought quite into the vagina, or even to the vulva. External pressure with the free hand favors this version very considerably, and ought never to be neglected.

It is easy to ascertain, by external taxis, if the version be complete, and by noticing how far the child is drawn downwards, and judging of its length as compared with the length of the uterus; as well as by noting the effect of the next pain, which propels it if it be turned, but does not move it if it be still transversely fixed in utero.

The Student should remember that the child, from the extremity of the buttock to the crown of the head, is between eleven and twelve inches in length. Hence his hand placed on the abdomen will inform him whether the uterus is of this length or not. If he find the buttock at the os uteri, and the uterus not so long as it should be under

the circumstances, he will know that the version is not yet completed, and take his measures accordingly.

Wherever it is possible to make choice of a foot to pull on, we should select that which is nearest the front of the pelvis. In the present case, it would be the left foot, because, in drawing upon that one, the left hip would come under the pubic arch, and favor very decidedly our wish to bring the vertex at last to the pubis, and carry the face to the hollow of the sacrum; whereas, should we draw down upon the right foot, the child's face would, at last, be very sure to come to the pubis.

Under all circumstances, the practitioner is only called upon to do that which he can do, and not that which he would but cannot do; therefore, when he can only find the most unfavorable foot, let him draw by it and meet the consequences.

As soon as the turning is completed, the case has become a footling one, and must be treated as if it were originally so; that is, it should be left to the expulsive powers alone, if they are sufficient, for it is always bad and almost always unnecessary to draw out the body; it should be expelled by the pains. The arms must receive such assistance as they may need; and the head, being properly situated in the vagina, ought to be expelled by the womb with such aid, from slight traction, as the obstetrician may adventure with safety to make.

In going about to perform this operation, the medical attendant ought to reflect upon all the dangers incident to it, and clearly understand, beforehand, that what is most desired in it is, not speed but safety; *festina lente* ought to be the motto. As to the difficulties of it, they are so great, in a womb long drained of its waters and lashed into fury by a long period of unavailing irritation suffered previously to the operation, that nothing but practical experience of them can make them known, unless indeed the fact be understood that it cannot in some instances be effected at all, and that we are obliged to extract the child double, after having removed the thoracic viscera, as well as those of the abdomen, by the crotchet and perforator; upon doing which, the foetal remains may be drawn forth.

I have, after having had my hand in the womb, found it so completely benumbed by the pressure, as to be unable to feel with it or to close it; in such a case, the other ought to be made use of, however ill adapted either for the exploration or seizing the feet, &c.

The child being delivered, and the placenta taken away, the mother must be drawn up into her bed, so as to enable her to stretch out her feet, and be bandaged and put to bed properly. A grain of opium,

or a dose of laudanum, containing twenty or forty drops, is very soothing and calming after such high excitement and fatigue, and ought not to be withheld from her. A cup of tea or gruel may next be presented to her, and a short sleep, if she can take it, is followed by a comfortable state for the before exhausted woman.

There is very little difficulty in this operation if the waters are not gone off; they should, therefore, be always left whole, if possible, until the moment for interference is at hand. Could we, indeed, always have the privilege of rupturing the ovum at the time of carrying the hand into the womb, we should avoid much difficulty, and a large moiety of the danger. Unfortunately, however, turning is rarely determined on until the waters are lost, and then the danger is necessarily greater.

There are many ignorant persons, who are generally the more presumptuous the more they lack knowledge, into whose hands women are so unhappy as to fall on the occasion of their childbirth. If, in a shoulder presentation, the hand happens to prolapse, they, finding a very convenient handle, make use of it to pull the child away by, and I have seen a case in which an unfortunate woman had been so treated; the arm was wholly withdrawn, and the acromion process of the scapula was actually under the pubic arch, so violent were the tractions that had been made on the hand and arm. This was done, too, with a rigid os uteri, which, after yielding a reluctant passage for the arm and point of the shoulder, was now grasping the parts above it with a strength like that of a rope, and which afterwards resisted for a long time all attempts to pass the hand along betwixt its circle and the child. To one unaccustomed to the incidents of the lying-in chamber, it would be, perhaps, vain to attempt to convey an idea of the resistance sometimes met with in the circle of the os uteri. Dr. Collins, in speaking of one of his cases in the Dublin Hospital, says, at p. 67: "The mouth of the womb was absolutely as firm as a piece of thick leather, and embraced the arm of the child as tightly as a ligature could be applied without cutting the part."

There cannot happen anything but evil from pulling at the hand and arm. Such force cannot pull down the child, which is too large to pass doubled. The arm is not in the way; for the hand of a practitioner and the arm of a foetus at term can never equal in size a circle sufficiently large for the head to pass through it. The lack of space is not in the faulty construction of the pelvis, but in the rigid constriction of the os uteri and vagina, which, if too rigid to admit the hand, is also too much so to allow the child to escape. That rigidity can be overcome. It cannot be needful to excise the

arm, or twist it off at the shoulder-joint, a horrid practice, which seems to have received a salutary check from a judicial investigation that was had a few years since in France: a practitioner there, finding it impossible for *him* to deliver in an arm presentation, cut it off at the shoulder-joint, and nevertheless the child was born alive. The obstetrician was justly prosecuted on a charge for maiming.

If an os uteri will not admit the hand of the accoucheur, it is because it is not dilated or dilatable. Let the proper measures, then, for effecting the requisite change in the uterine tension be resorted to. These are bleeding, the warm bath, antimonials, emollient enemata, followed by enemata of laudanum; and patience, though last, is not the least of the resources for such an occasion. Women in labor bear venesection remarkably well; and they demand, in some instances, very plentiful bleeding in order to get the full benefit of the remedy. A patient bled ad deliquium animi will be more capable of undergoing safely the operation of turning than one left to the unmitigated provocations and stimulus of useless labor pains.

It will have been seen that, in a preceding page, I have strongly expressed my dissent as to the anæsthetic practice in Midwifery. If there could be a case to render a complete anæsthesia by ether or chloroform a desirable condition for the patient and the practitioner, this is the case *par excellence*; certainly, a complete anæsthesia might have the effect to abolish the voluntary power of the mother, and, thus taking away the injurious force of the abdominal muscles and diaphragm, leave her to the sole influences of the uterine powers, which are not wholly annulled even by the deepest anæsthetic insensibility. Professor Simpson and other distinguished gentlemen warmly advocate the induction of anæsthesia in these cases; let the Student give heed to the opinions of these meritorious men, but let him be the sole judge of his own duty in any and in every case.

The warm bath is a safe and easy remedy for the obstinate constriction of the orifice, as it is for all spasms and other congenerous disorders. Tartar emetic, in doses of the eighth or sixteenth part of a grain, repeated every thirty or forty minutes, conduces very powerfully to the reduction of the spasm or rigidity, and may be very safely resorted to in the management of our case. Much reliance is also to be placed on the power of the belladonna ointment applied to the cervix uteri, in which it often most speedily induces a complete local anæsthesia. Copious enemata of infusion of flaxseed, with a portion of castor oil to render it somewhat more aperient, should be had recourse to, and they may be followed by anodyne enemata, composed of an ounce of flaxseed tea or starch, with from fifty to eighty

or one hundred drops of laudanum. We should also not forget that patience ought to work her perfect work, and no more; the accoucheur must be the sole judge of how far patience ought to go.

I should think that there can never be the least use in attempting to return the arm. The arm must be returned by the version of the child: it goes upwards into the womb as the head rises and the breech descends. It would always be prudent to secure it by a noose, for the purpose of preventing its going too high within the cavity, where its presence might cause some embarrassment in the delivery of the head.

P. Cosgreave, Esq., in the *Lancet* of 1828-9, p. 298, informs us that he has at no time lost a child in an arm presentation. His method is to push up the arm during the absence of the pain, and return it into the womb and hold it there; after which the spontaneous evolution takes place, and the infant is born by the spontaneous powers of the womb. Mr. C. must certainly be regarded as a very lucky practitioner, to have met only with cases in which he could restore the arm to the cavity in this way, or in other words turn the child without searching for the feet. I am not aware of the number of his cases. I cannot, therefore, judge of the comparative success.

Some persons have imagined that in the conduct of some of these dreadful cases of shoulder presentation, great facility in delivering the woman is obtained by amputating the arm, or wrenching or twisting it off by sheer brute force. Indeed, I am aware of an instance in which the doctor tore off in utero the arm of a child which was afterwards born alive, with the end of the humerus projecting below the ragged and torn edges of the wound. The arm was hidden, but afterwards discovered. The people interested, were made to believe that the lost arm had been destroyed by absorption.

Such a course of proceeding is to the last degree unjustifiable. Unjustifiable before the outraged family, and equally so as bringing unmerited discredit upon the whole profession of physic. If in any case it were deemed necessary to remove the prolapsed arm, it ought not to be done without any antecedent announcement of the purpose, and its motives. For my own part, I cannot understand what are the motives that should leave an accoucheur to do so barbarous an act.

The extirpation cannot be deemed needful to provide space within a pelvis, since the arm of a foetus can never fill up a pelvis so as to prevent the introduction of the accoucheur's hand for exploration and version. Whenever it is done, it is done with a view to make space within soft parts, but those soft parts will dilate in due time and under

wise treatment. My clear opinion is that the amputation of the arm in shoulder presentations is a mala-praxis, and that it ought to be dis-couraged and protested against.

Spontaneous Evolution of the Fœtus.—It has happened that the operator, being unable to turn the child, has abandoned any further and useless attempts to deliver. In such instances, the woman has sometimes delivered herself by what is called spontaneous evolution of the fœtus.

It is very important for the Student to understand clearly what is meant by spontaneous evolution of the child; and it will not be difficult for him to do so, if he will bear in mind the facts: 1st, that there is a superior strait; and, 2d, that the child's head and its body cannot be within the plane of that strait at the same time.

Now when the shoulder is presenting, and the arm, fallen down, allows the shoulder to be thrust or drawn quite out underneath the triangular ligament of the pubis, it happens that the side of the child's neck lies against the inner aspect of the symphysis of the pubis. But, if the side of the neck is pressed against the wall of the symphysis, the head of the child will lie upon, and even project over and beyond the horizontal part of the pubal bone, making a hard orbicular tumor that may be felt there with a hand laid on the hypogaster.

Now, things being situated as above, let the Student conceive that the trunk of the child's body, still contained in the womb, is thrust by the continued contractions more and more downwards, the head still resting upon or above the brim. The effect of this downward thrusting force will be to push the shoulder farther and farther out beyond the crown of the arch, and the head more and more over the top of the bone, leaving a space in which to thrust the trunk of the child. If it be a left shoulder case in the second position, the third rib will come out at the vulva, then the fourth, fifth, sixth, seventh, and so on until all the left side of the thorax is pushed out; after which follow the left flank, the left ischium, and trochanter; upon the escape of which the left thigh and leg are delivered, followed immediately by the right thigh and leg, then the right arm, whereupon nothing remains but the head, which is speedily born.

Such is a spontaneous evolution. It differs from Version or Turning in this—that in turning, the head goes up to the fundus, while the buttock comes into the passage. Here the head is held close to the plane of the strait by the shoulder which has got under the arch, and even projects beyond it, so that the head is, as it were, tied fast to the brim so that it cannot rise.

Here I repeat the figure of the double-headed foetus, which I already have given at page 223, Fig. 63. Let the Student see in this figure a case in which evolution was indispensable. For example, suppose the right head to have presented, and to be delivered. That head would be held close to the vulva, outside by the left head and body—the left head and body could not possibly be in the plane of the strait at the same time. It would be impossible to deliver by Turning—for the delivered head ties the undelivered one to the plane of the superior strait. Of course, then, it only remains that the undelivered head shall be forced over the horizontal ramus of the pubis to allow the trunk to descend by evolution, as I have described that process in the shoulder case. As soon as the trunk is born, the remaining head may be brought away.

Dr. Pfeiffer, who showed me the specimen, delivered the woman, as I found upon inquiry, by compelling the evolution of the body of the foetus.

Here is a repetition of the figure of Dr. Rohrer's case, given at p.

Fig. 89.

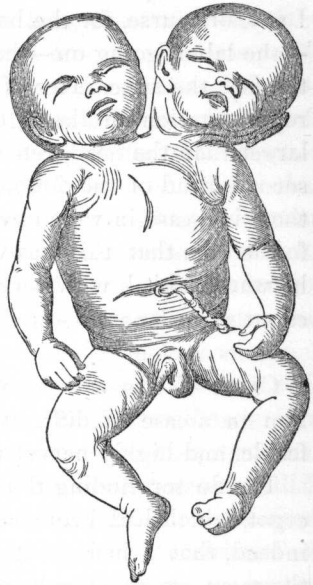


Fig. 90.



225. Let the Student observe that such a vast fluctuating tumor on the vertex of the child could never be the really presenting part; that it must necessarily deviate, and go up in the iliac fossa, allowing the true head to present, and making that, of course, a face presentation. I say, of course, for the head would be of course in extension. Well—the labor going on—the head is born in face presentation—giving the face the appearance of suggillation—of which I have made a good representation in the figure; but the head being born, the tumor, larger than the head, remains above the strait, in the same way as the second head of the double-headed foetus of Dr. Pfeiffer's did. Here, then, is a case in which evolution is indispensable, and Dr. Rohrer informed me that this was what he brought about—after doing which he was enabled, with very violent force of traction, to pull away the caput succedaneum—as you see it in the figure.

CASE.—I was called, some time since, by a friend of mine to assist him in a case of difficult and alarming labor. The woman, small, feeble, and highly nervous, was the mother of several children.

The doctor, finding the labor very slow, had administered a dose of ergot, which had brought on a most violent ergotism; to that degree, indeed, that I had great reason to fear she might speedily die from the mere excess of pain and irritation, if not from laceration of the womb, which appeared to me imminent. I have rarely witnessed a wilder expression of agony than hers.

I found the left shoulder down, in the second position. The indication was to turn and deliver by the feet—which I was requested to attempt. Protesting beforehand that I deemed success impossible, I reluctantly consented to make an attempt. With great difficulty I passed my right hand through the os uteri; but it was completely pinioned and held fast and immovable by the muscular contraction, and I was but too happy to extract it without having caused a laceration of the cervix. The waters had long gone off. The child was dead. I concluded it was impossible to turn, and I felt equally convinced that she would die before evolution could take place spontaneously.

I opened the thorax at the axilla, and broke up the tissues within both pleural cavities. Then, by means of the crotchet, I drew down rib after rib, the flank, the hip, and the buttock, so that I got the left thigh and leg down; then the other extremity, which completed the evolution. The arms came down, and I delivered the head. The woman recovered happily.

I relate the case, in order that the Student, reading it, may have a

clearer idea of what is meant by evolution in contradistinction to turning of the child.

Hemorrhagic Labor.—Labors are also rendered preternatural by the occurrence of hemorrhage from the womb; for, although it is very common, and not unfavorable for the parturient woman to have an issue of blood during some part of the process of childbirth, it is not either safe or natural for her to lose so much blood as to give to the flow the character or title of hemorrhagic. In general, the quantity lost antecedently to the birth of the child does not exceed an ounce, and it is commonly even less than that. The occurrence, therefore, of a show of blood need not, and does not excite any alarm or even surprise, unless it goes beyond the ordinary amount. But where the effusion becomes excessive, great alarm is felt, and there is more or less real danger according to the cause of the hemorrhage.

I have already expressed my opinion of the mode of connection between the placenta and the womb; and the Student will have seen that I do not admit that any very large vessels pass from each to the other, interchangeably. Hence, when blood escapes from the uterus, it may be, perhaps, in consequence of a hemorrhagic nius or sanguine determination, like that which sometimes causes the effusion of blood from the Schneiderian membrane, in those cases of epistaxis that come on spontaneously, or in the floodings of ordinary pure menorrhagia. We often see very copious outpourings of blood in epistaxis, where we can have no reason to suspect any rupture of vessels or solution of continuity in the membrane. The same thing takes place in the pulmonary hemorrhage, and in hæmatemesis. But as the womb, from its very constitution, is prone to the hemorrhagic affection, it is more liable than any of the organs to losses of blood, without the suspicion of rupture of its tissues. Nevertheless, there is reason for believing that, in some cases of profuse bleeding, the delicate tissue of the uterine veins has been ruptured.

The gravid womb, a *vacuum plenum*, is filled with the ovum, which is really connected with the containing organ only at the placental superficies. All other points of the ovum, except the placental portion thereof, adhere so slightly as to be capable of most easy detachment. The placenta itself may commonly be separated with great facility from the surface on which it sits. When the chorion is detached from the womb, very little or even no blood escapes; but when the placenta is torn off, the womb generally, not always, bleeds freely. The separation leaves exposed many patulous openings that lead directly into the large veins and sinuses of the uterus. Hence, large

effusions of blood, in labor, indicate that the placental surface of the womb is exposed by the separation of the after-birth from it.

If the after-birth is torn off, or in any manner separated from its place, the womb still remaining undiminished in size, it is evident that the blood may continue to flow for an indefinite period, and that the woman may be brought into great danger thereby—for the bleeding orifices may, for an indefinite term, continue to have the same degree of aperture as that which first allowed them to bleed. Supposing the superficial content of the gravid uterus to be two hundred inches, and that of the non-gravid womb to be only three inches, then it is evident that the great desideratum in uterine hemorrhages, before delivery, is to empty the organ as soon as practicable, in order to reduce its superficial content, as nearly as may be, to the smallest number of square inches, or the non-gravid superficies. In treating cases of alarming hemorrhage, therefore, we should ever keep in view the fact that, if the womb be allowed to contract or condense itself, its own muscular fibres will, by their contraction, lessen the calibre of all the bloodvessels that are distributed on or in the organ, and in proportion to this condensation or contraction will be the certainty of arresting the sanguine effusion. It is not the orifice only that is closed, but the whole *tractus* of the vessel that is constricted.

If a labor should commence ever so favorably, with the child presenting the vertex in the first position, and the pains should propel the child downwards, so as to give reason to think the process about to terminate in the most happy manner, it might yet happen that hemorrhage should commence, and continue so abundantly as to make it absolutely necessary to deliver the child, in order to let the womb contract perfectly. This delivery by artificial means converts the labor, which commenced naturally, into a preternatural one. We should hardly be inclined to call that a preternatural labor which, though accompanied with a great effusion of blood, should terminate well, without any assistance on the part of the accoucheur.

There may also be a very copious and dangerous effusion of blood between the time of the birth of the child, and the delivery of the after-birth; and even after the after-birth has been discharged, the flow of blood may be so considerable as to involve the woman in the greatest danger. In the management of all these kinds of bleeding, the same indication is to be kept always in view; to wit, the condensation or contraction of the womb; for when that organ is fully contracted and condensed, the blood cannot flow so abundantly as to endanger the patient, except in some very rare, and almost unheard of cases.

But among the causes of uterine hemorrhage, there is one which has been called the unavoidable cause, and is, perhaps, the most dangerous and difficult to manage: I mean that case which depends on the situation of the placenta happening to be on the cervix and os uteri. This is essentially a hemorrhagic labor, inasmuch as the conoidal cervix of the womb must not only dilate, but must dilate completely into a cylindrical form, in order to admit of afterwards carrying out the great object, the final condensation of the womb. Such a hemorrhage begins very moderately, but as larger and larger portions of the placenta continue to be detached with every successive dilating pain, it follows that the nearer the womb is to its complete dilatation, the more profuse and dangerous will be the hemorrhage.

Every considerable effusion of blood in labor does not demand the manual or instrumental assistance of the accoucheur. A woman may shed a quart of blood, and yet the pains may suffice to expel the fœtus in a natural way, after which the flow ceases. It is the effect, or the probable effect, of the bleeding, that renders it needful to interfere. If the pulse begins to grow small and frequent, the patient becoming weaker, the countenance paler, and the pains less energetic, we have to resolve what course we must take, and then resort to some of the numerous expedients for checking the discharge.

If the pulse in uterine hemorrhage be full and throbbing, and the constitution not as yet affected with debility, we may, with great safety and propriety, have recourse to a bleeding from the arm in order to lessen the momentum of the blood, which, by its too great impetuosity, tends to keep up the flow and the determination to the womb—just as we would bleed in a pleurisy or hæmoptoe, with a similar view. Such a course, however, would be very strongly contraindicated in the case of a feeble pulse, and a general state of weakness, faintness, or sinking, where, indeed, there would be no reasonable ground to hope for relief by the use of venesection.

The application of cold to the hypogastric region is often found to have a good effect in checking the sanguine effusion, and should be freely resorted to by stuping the lower belly with napkins, hard wrung out of cold vinegar and water; the application being renewed from time to time, until we are satisfied that success is, or is not, to reward our efforts. During the employment of the above-mentioned means, the patient ought to be placed in a horizontal posture, with the head very low, and the body covered only with sufficient bedclothes to keep her comfortable; the apartment should be freely ventilated, and the patient allowed to take any reasonable quantity of iced water, or

lemonade, while, at the same time, she makes use of the infusum rosæ rubræ with elixir of vitriol, or the plumbi acetæ with opium.

Such are the general means for repressing the sanguine movement towards the womb; but these means do not suffice always, and we ought to examine by the Touch, in order to make sure, if possible, of the cause of the hemorrhage. If, upon inserting the finger within the os uteri, no portion of the placenta can be felt, and the membranes are found to be unbroken, we may, perhaps, resolve to rupture the ovum, with a view to diminish the size of the womb by letting its waters run off. If a quart of water should escape from the organ immediately after the breaking of the membranes, the superficies of the womb, and of course the placental superficies, would be sensibly lessened, since the organ contracts as soon as the escape of the waters permits it to do so. This is the method proposed by Louise Bourgeois, a female practitioner in France, many years ago, and it is found to answer perfectly well, in many cases. Louise says, "The bag of waters being as yet not formed, we must break open the membranes that enclose the child, just as we would break open a door to save a house on fire, and draw forth the child by the feet; for this is the way to save the mother's life, and give the child a chance to receive the rite of baptism."—*Obs. Diverses, &c. &c.*, 1627, 12°, Paris, p. 65.

There are circumstances, however, that might well induce one to defer to the latest period the breaking of the ovum; such as a known bad presentation of the child, requiring it to be turned. In such a case, no prudent person would be willing, without an absolute necessity, to permit the water to escape from the womb previous to dilatation, since the operation of turning is vastly more difficult, when performed in a female from whom the waters have been quite evacuated, than in one in whom they are still present. Hence, if the mouth of the womb be still very rigid and undilatable, rendering it impossible or improper to introduce the hand for turning, any prudent person would give a very deep consideration to the question, whether the membranes ought to be now broken or not; he would certainly feel inclined to defer, till it should become unavoidable, the rupture of the membranes. Louise goes on to say, "Je n'entend pas que, si tost qu'une femme a une perte de sang, que l'on y procede de cette façon là, mais il faut veiller sur elle comme le chat la souris, et faire la guerre au doigt et à l'œil"—p. 67.

"I do not pretend to say that, as soon as ever a woman is seized with a flooding, we are to proceed after this fashion; but that we must watch her as a cat watches a mouse, and carry on the war by seeing and by feeling."

If, upon rupturing the ovum, the flow of blood should not be stayed, and the os uteri should still continue to be so rigidly contracted as to make it impossible to turn the child, recourse should be had to ergot, in small doses, with a view of producing a feeble ergotism, or tonic contraction of the womb—not severe enough to injure the child, but yet so strong as to condense the uterine tissue sufficiently to arrest the flow of blood from its vessels. With this purpose, five grains of the *secale cornutum*, in powder, ought to be administered every half hour, or every hour, according to the pressing nature of the demand for its aid; or a teaspoonful of the vinous tincture of the same article might be exhibited, at proper intervals, with the same view.

There is, in general, under these circumstances, a strong disposition among practitioners to make use of mechanical means of stopping the hemorrhage, such as the application of napkins to the vulva, strongly compressing the orifice; and also the plug or tampon, which, filling the vagina, is supposed to favor the coagulation of the blood. But, if it be remembered that the bleeding orifices of the placental superficies on the womb are—except in *placenta prævia*—near the fundus uteri, and that the extravasated fluid trickles down, betwixt the chorion and the womb, from the fundus to the orifice, I think it will be seen that such mechanical means can scarcely exert any other than injurious effects in the case. They may enable us to conceal the fact both from the patient and from ourselves, that the vital fluid is escaping in a dangerous abundance; but common sense ought to show us that, while we may prevent the fluid from falling out of the orifice of the vagina, by plugging that orifice with sponge or other materials, we do not prevent it from flowing back upon the outer surface of the ovum and the placenta, both of which it detaches more and more completely from the womb, leaving the woman exposed to greater hazard than she would incur were we to permit the blood to escape as fast as it is effused. Such methods, assuredly, will not favor the arrest of the effusion by coagulation; the source of the flow being too distant from the compress. It is better, in uterine hemorrhage near term, to let all the blood that escapes from the vessels also escape from the vagina. When the uterine superficies is diminished, the bleeding is stayed. The application of cloths, wrung out of iced vinegar and water, to the hypogastrium, is of greater avail, and far more safe than the tampon. I would gladly urge upon the Student the necessity of the greatest caution in the employment of so dangerous an agent as the tampon, except in the early stages of gestation, or where the capacity of the womb is not sufficiently large to admit of its containing a great quan-

tity of blood. No hemorrhage is so dangerous as the concealed hemorrhage.

Whenever, in a hemorrhagic labor, it is clearly ascertained that the period has arrived for the delivery to be hastened, which is known by the state of the patient's strength, the pulse, the color of her lips and cheeks, and by the dilatation or dilatibility of the mouth of the womb, preparation should be made for the operation by placing the woman at the foot of the bed, as in the case before mentioned. The choice of means, whether it is to be of the hand or the forceps, will turn on the degree of advancement of the head, which is readily seized by the forceps, if low in the pelvis, but which is to be pushed away to make room for the search after the feet, provided it be still within or above the brim of the pelvis. In all cases wherein the vertex is to the left side of the antero-posterior diameter of the pelvis, the left hand is to be used; while the right hand is adapted for turning, in all examples of labor where the vertex is to the right half of the pelvis. The operation differs, in no respect, from the one already described, except that the head instead of the shoulder must be pushed out of the way. If the head should have already occupied the upper strait, that strait would be nearly filled with the mass; the hand could not be carried up alongside of it. The palm of the hand, therefore, being placed underneath the head, would push it gently upwards, in the absence of pain, and carrying it to one side, it would be retained on the brim, by the wrist or arm of the physician, which occupies the space recently in possession of the head, while the exploration or search for the feet would be then conducted as in the case already treated.

When I come to speak of the use of the forceps, I shall say what is requisite concerning the indications and manner of its use in the hemorrhagic affections; wherefore, it seems by no means needful for me to anticipate here, what I shall feel obliged to say in a future page of this book.

Placenta Prævia.—The unfortunate location of the placenta on the cervix and os uteri is an accident which does not very frequently happen, and which, when it does occur, can scarcely ever fail to produce much anxiety and alarm among all those who understand the case, and feel any interest whatever in the mother and her offspring. The after-birth may cover the os uteri so exactly, that the very centre of the placenta may correspond to the orifice. The danger is enhanced by as much as the location is more central; that case being the least dangerous in which the edge of the placenta is nearest to the os uteri.

The occurrence will not probably be discovered until about the seventh month, a term of gestation at which the cervical portion of the womb begins more considerably and rapidly to expand, in order to become a part of the general containing cavity for the ovum proper; and it is in some rare instances not discovered, nor even suspected to exist, until the labor at full term comes on. In a majority of cases, it happens that as soon as (in the seventh month) the cervix begins to stretch, or give way, parts of the placenta are broken off or detached from the surface of the womb, and a more or less violent flow of blood ensues, but stops as soon as the patient lies down, or makes use of a venesection or some cooling drinks. The flow having been concluded, it is thought to have depended upon some strain or shock, &c. &c., and the patient having recovered, goes about her usual occupations. I have met in practice with examples, in which the first gush of blood was very copious, and I have even seen the very first gush take away the pulses at the wrist and overspread the whole surface with a death-like and most ghastly pallor. It is not difficult to understand that such a sudden and copious exhaustion of the vessels is capable, in a weakly woman, of extinguishing her life in a few minutes. If in such a death-like deliquium the auricle and ventricle should be filled with blood suddenly coagulated within the cavity, animation could not be restored.

Happily, however, a first hemorrhage is rarely fatal; the woman recovers from the immediate effects, and supposes it a mere accident requiring no great precautions. In a short time, a further expansion of the cervix detaches a fresh portion, and the exposed womb bleeds again. These attacks of bleeding are renewed again and again, with varied intervals, until, by their violence or the weakness they produce, such an alarm is taken, that an examination per vaginam is proposed, and acceded to, when the cause of so much bleeding is discovered in the fact of the untoward location of the after-birth. It does not invariably happen that the woman bleeds previously to the attack of labor pains, but such occurrence is far too general, not to cause the danger of these frequent repetitions to be kept before our eyes, until the patient is finally delivered. The loss of blood by repeated attacks, during the last two months or six weeks of gestation, renders the subject of them far less capable of bearing the frightful effusion with which she is menaced for the day of her parturition. A woman who should go into labor with a good stock of strength, could bear, without injury, a very copious draught on the sanguine mass, whilst another one, with vessels already drained, should sink from the further exhaustion of a few ounces. I saw, about two years ago, a woman

drained nearly to the last drop that could be spared, in a labor that had been preceded by many attacks of bleeding from a placenta prævia.

Hemorrhage arising from the presence of the placenta at the os uteri, called placenta prævia, is also denominated unavoidable hemorrhage. The case should be always suspected to exist when pregnant women are attacked with hemorrhage between the seventh month and Term; and the existence of it should be verified or disproved, in all such cases, by an examination. If it be found to exist, then the friends of the patient, but not the patient herself, ought to be notified of the nature of her position; full instructions ought to be given for the management of any future attacks in the physician's absence; and the services of another medical practitioner should be retained for all sudden emergencies, during the absence of the regular attendant. By such attentions as these, the patient might confidently expect to secure the services of at least one medical man, should her own regular physician happen to be engaged when her time of suffering arrives.

When the placenta is *prævia*, it will be almost certain to produce a bleeding before labor comes on, as I have above intimated; nor is the first flooding, or even the second or third, very apt to usher in the pains or contraction of labor. Such bleeding will be far more likely to occur in a woman who exposes herself to fatigue and various causes of excitement, or to accidents, than in one who keeps herself quiet, carefully avoiding to make any great exertion, or experience any violent emotions of the mind. In all cases of a strong predisposition to bleeding, an increased momentum of the blood augments the predisposition. Hence, cooling diet, gentle aperients, small venesections, and repose, and relaxation of occupation especially, ought to be very carefully prescribed for our patient. The friends should be enjoined to give us the earliest notice of the attack of labor pains, or flooding, or faintness, so that, all preparations being complete, we may have nothing to embarrass us in the exercise of our judgment, during the actual progress of the labor. I should esteem it a sacred obligation resting on the physician, to take precautionary measures in all instances where placenta prævia is ascertained to exist before the onset of labor. To know that a woman is exposed to the greatest danger, and yet to omit warning her friends or herself, would be unpardonable. Women sometimes die in this way very suddenly, and such hazards ought to render us extremely watchful over them. It is true that we have cases of placenta prævia unattended by notable hemorrhage. Indeed it is easy to understand, that a woman so situated

might be rapidly delivered by the spontaneous power of parturition. In such cases, the placenta is rapidly displaced, and suddenly thrust forth before the head of the child. Such a labor, lasting not more than ten minutes, could scarcely prove fatal, or even exhausting, to the woman. Viardel's case, in which he turned and delivered by the feet (*vide* Viardel, p. 87), seems not to have weakened the patient very much.

The degree of hazard of perishing to which the patient is exposed depends on the dilatability of the os uteri, and the strength of the pains to be employed in dilating it: if it be soft, and the pains strong and good, the dilatation may be completed so rapidly, as to prevent the effusion of any very great quantity of blood. If, on the contrary, it be rigid, and yield very slowly to the feeble contractions of the fundus, the loss of blood may be very great, and the woman may sink before the mouth of the womb becomes prepared for the introduction of the hand. It must be prepared before the hand can be introduced. There is no more important doctrine, in operative midwifery, than that which avers that we must never presume to force the uterus, until dilatation or dilatability abstracts from the operation of turning one of its most objectionable characters. Dr. Collins, in his late work, speaks so sensibly upon this subject, that I shall not refrain from quoting the following passage from page 93 of his book:—

“I know of no circumstance *so much to be dreaded* as the forcible introduction of the hand where the parts are in a rigid or unyielding state; for, although turning the child is the established and most desirable practice, yet the success of this operation will mainly depend on the judgment of the practitioner in selecting the most proper and favorable time. Cases will happen where he is obliged either to suffer his patient to sink from loss of blood, or proceed to deliver when the parts are in an undilated and rigid state, in order to afford her the only chance of life; but dire necessity should alone compel him to hazard the consequences of such violence.” Such is the language of an eminent author, who has witnessed a vast number of labors, and whose ample experience gives him a title to speak as of authority upon this and all other subjects connected with Midwifery.

The time for delivery having arrived, the woman, if sufficiently strong to bear it, should be brought to the edge of the bed, and placed on her back; otherwise, she should not be moved, but attended to as she lies upon the left side. If the head present, and the position be unknown, we ought to infer that the vertex is to the left acetabulum, which is the most common one, and of course commence the operation with the left hand. The palm of the left hand easily applies itself to

the face, breast, and abdomen of the child lying in the first vertex position—and of course that is the hand most conveniently applicable to the operation of turning.

In some instances, as when the patient is not very fat, we may detect the position by external exploration, for we may trace the curve of the spine of the child from the buttock to the head with our hands applied to the belly of the parturient patient during the absence of the pains, and the orbicular head is generally to be distinguished through the lower belly by its form and hardness. In April, 1850, I ascertained, in this way, a head presentation with the vertex to the right ischium, and so used the right hand to turn and deliver, which I found to be correct, as I easily caught the child's knee in the left side of the womb.—It is very desirable, in this operation, to use that hand first with which the whole operation is to be effected—and not introduce it and take it away in order to introduce the proper one.—Time and blood are both liable to irreparable waste by such manœuvres. If we happen to select the wrong hand to detach the placenta, and find ourselves under the necessity of withdrawing it and substituting the other, a great many ounces may be lost in consequence; but it is our duty to save all that it is possible to save. By means of the fingers, we soon learn which side of the uterus is detached from the placenta, and then conduct the fingers in that direction, dilating the womb as we proceed, and carrying the fingers as far upwards as we conveniently can, betwixt the womb and the chorion. The membranes may then be ruptured high up in the uterus, and the feet immediately sought for; the child should be turned as speedily as possible, with proper regard to its safety and that of the mother; and the legs, and even the thighs, should be drawn into the vagina, not only with the view of expediting the delivery, so as to permit the womb to contract, but also in order that the thighs or body of the child being come into the cervix, may, by compressing the bleeding parts there, arrest or impede the flow, and thus save for the patient as many ounces of blood as possible. It is to be remembered that it is the loss of the last half pint of blood that kills the patient. I think that no prudent person would undertake to pierce the placenta, in order to get the hand within the womb. There never can be so much difficulty in detaching, as there would be in piercing the organ; and these two objections lie against perforating it: namely, that the rupture or laceration of its vessels could not but be destructive to the child, which would bleed to death; and also, that if the feet should be dragged through a perforation made in the placenta, the final delivery of the body and head might be very much retarded, by having that mass to

pass through, in addition to the other obstacles to the birth; and further, it is evident that, in perforating the placenta and extracting the child through its centre, the organ could scarcely fail to be completely detached from the womb, while only a partial detachment is required if it be made on one side. It is best, therefore, in all cases, to pass the hand betwixt the placenta and the womb, and not through the placenta: one could hardly expect to find the whole circumference of the placenta still adhering to the womb in any case where the dilatation is considerable. Some segment of its margin must early have left its seat on the uterus.

A strong desire to reinforce the tonic contractility of the womb would induce me, always, to exhibit a portion of the *secale cornutum*, in these cases, taking care to time the dose so as to secure its operation for a period subsequent to the delivery of the child. The *ergot* should be in readiness, and given as soon as the turning is completed. If it should operate successfully upon the uterine muscular fibres, it could not but afford additional hope of preserving the patient, at least, from the danger of a good deal of drainage, if not from a more violent and rapid effusion subsequently to the delivery. So confident am I in the power of the *ergot* administered in this way, that I venture to recommend it very strongly. Many persons, who were constitutionally prone to hemorrhage after delivery, have escaped well, from having taken the spurred rye in the last moment of labor, in order to secure a tonic action of the uterus after delivery of the child.

I need not reiterate my opinion that the operator should never be unprovided with the forceps, with which to extract the head, in case of any uncommon or dangerous delay in its delivery, as I have already stated my opinion that such means of security ought to be provided for every instance of breech labor, or preternatural presentation, of whatever species.

Fortunately for us, we do not have to contend with a great many cases of *placenta prævia*. I have seen eight cases of these accidents, in which the orifice was completely covered by the after-birth, and several others in which the edge of the placenta was located on the cervical portion of the womb, and occasioned a certain degree of hemorrhage, during the dilatation, but not to any dangerous or very alarming extent.

Dr. Collins mentions that eleven cases occurred during his mastership of the lying-in hospital, equal to one case in one thousand three hundred and ten labors, since he had sixteen thousand four hundred and fourteen labors during his mastership.

It is rather a surprising circumstance that Mauriceau, who was so largely engaged in midwifery practice, and who witnessed a good many cases of placenta prævia, should have been supposed to be ignorant that the original attachment of the after-birth was on the cervix. It has been asserted that this distinguished writer always supposed that, when the placenta was before the child, it was owing to an accidental detachment of it from the fundus, and that it had afterwards fallen down to the orifice, so as to get in advance of the presenting part; and yet, he very distinctly gives directions how to pass the hand, so as in the easiest way to get it by the placenta, when the operation of turning has to be performed; and the twenty-eighth chapter of his second book is devoted to a very full account of the mode of delivery in such cases—and he gives at full length the description of twelve cases of placenta prævia most admirably managed by himself, which are in the first volume. The celebrated Levret gives us, in his article on placental presentations, an elaborate *résumé* of the history of opinions on that accident as expressed by writers antecedent to him. It seems that many practitioners had treated the case, and well, too, but without possessing such correct notions upon it as are entertained at the present time.

It will have been perceived that I have not, in this article on placenta prævia, adverted to the new method of treatment which has been so strongly advocated by Drs. Simpson, Radford, and other eminent persons among the brethren in England and in this country. I mean, the total separation of the placenta, by the hand of the accoucheur, as a certain method of putting a stop to the effusion of the blood. The journals and other publications, in which this treatment has been set forth and recommended, contain the relations of numerous cases in which the placenta was either accidentally or designedly separated from its place on the womb, and in which the blood ceased to flow immediately after the complete detachment of the after-birth. Notwithstanding the good success of this practice has begun to render it very popular, I think that too much confidence is reposed in its power to arrest this most dangerous flooding, and I attribute its success so far rather to the well-known power of nature to cure the cases than to the method or the dexterity of the friends and promoters of it. It has been supposed heretofore that alarming uterine hemorrhages proceed from patulous orifices of vessels of the womb, and that the essential remedy for these effusions consists in the condensation of the uterine texture under the active contractility of its muscular fibres. But the advocates of the new practice in placenta prævia explain their success and urge the adoption of their method upon the new ground

that the blood flows, not from the uncovered portion of the uterine placental superficies, but from the uncovered surface of the placenta itself, averring that while a part of the placenta is detached and the rest of it retains its adherence to the uterine surface, the blood of the uterus continues to pass into the cells of the still attached placenta, from whence it escapes into the cells of the detached portion, and thence issues in torrents from its free surface; whence the idea that, by wholly separating the placenta from the womb, no more blood can gain admission to the cells of that tissue, and therefore no more blood can be lost. I regret to see that this unphilosophical and anti-physiological view still has its advocates—as for example in a discussion on Dr. Barnes' paper in the Medical Society of London, Dec. 22d, 1848, reported in *Lancet*, No. 1, vol. i. 1856, p. 14. Dr. Barnes advises that part of the circumference should be detached, to obviate the traction of the rest, and Prof. Murphey, in his remarks, insists that the flooding proceeds from the womb through placental vessels. I hope a sounder physiology may soon remove so erroneous an impression, and set aside so evil a practice.

Entertaining those views, which I have already, at page 202, expressed, as to the constitution of the placenta, and its connection with the uterus, and to which I beg the Student to refer, it is clearly impossible for me to admit the truth of the foregoing explanation of the hemorrhage of placenta prævia.

To say that the detachment of the placenta, without any consequent reduction of the superficial contents of the uterus, could arrest a hemorrhage by breaking off the curling arteries (as they are called) of the womb, appears too quite unphilosophical, for there are thousands of facts of ante-partum and post-partum hemorrhages to prove that the arrest of hemorrhage is the consequence of condensations of the womb under its muscular contraction.

The incision of the womb, in a Cæsarean operation, often cuts through the most vascular part of the organ, and as the bistoury sinks into the tissues, the blood spurts from numerous divided vessels; but as soon as the child and the secundines are taken out of its cavity, and the organ is allowed to contract, the immense orifices are nullified by the condensation of the texture, a cut of five inches in length being immediately reduced to a length of not more than two or two and a half inches, and its incised edges scarcely allowing of the smallest sanguine exudation.

This I have observed to happen in the instance of Mrs. Raybold, whose case is related in this work. To separate the placenta, and not allow the womb to contract, is to gain nothing; for the hemorrhagic

molimen, or the mere traumatic flow, cannot be supposed to cease merely because the curling arteries (so called) are broken off.

Further, in placenta prævia the effusion is, in many instances, most dreadful, long before the hand of the accoucheur can be passed upwards, in order to turn and deliver. Nay, it is alarmingly great in some samples, while the os uteri is still not larger than a quarter of a dollar. But as the placenta is eight inches in diameter, it seems to me not possible to detach the whole viscus with a finger, which is not long enough to reach the very circumference of a centrally implanted after-birth, and, *à fortiori*, not long enough to reach to the remote edge of one not centrally implanted. How shall the accoucheur accomplish the detachment in a rigid and slightly open cervix?

If the os uteri be dilated, or dilatable enough to introduce the hand for turning, the time has arrived for that operation, and there is then assuredly no occasion to detach the placenta. Let the operation be performed at the earliest possible period; for the indication, as in all dangerous uterine hemorrhages, is to let the womb contract, which it cannot effectually do until the ovum is extracted or expelled from its cavity. When that is done, it speedily draws itself to the smallest possible cubic content. Messrs. Simpson, Radford, and the other gentlemen who advocate the new method in placenta prævia, very earnestly recommend the prompt separation of the whole of the placenta, and they are persons whose opinions are justly to be esteemed of the greatest weight; but, notwithstanding the profound respect with which I receive any statement of theirs, I cannot but think that in any case in which it is possible to detach the whole of the placenta, it would be also possible to introduce the whole of the hand, and thus commence at once the operation of turning, which ought to be esteemed as the essential indication of treatment, and which the earlier it is done so much the greater chance does it give both of rescuing the child and saving the woman from fatal losses of blood.

Heretofore, in turning for a shoulder presentation, I have found the placenta lying at the fundus uteri, wholly detached and without any immediate hemorrhage; but I have seen a vast number of most dangerous post-partum hemorrhages, occasioned by coagula filling the vagina, and acting there as a tampon, allowing the uterus to expand again with influent blood, and rendering the orifices of vessels upon its placental superficies nearly as patulous as before the birth of the child. I cannot suppose, therefore, that when I have found the placenta wholly detached at the fundus uteri in a labor, hemorrhage failed to occur because of that detachment; nor can I suppose that, in placenta prævia, hemorrhage is arrested because of the artificial

detachment, but rather, in both cases, from association of the hemorrhagic molimen, with the disruption of the utero-placental bond. Let me, before I lay aside this subject, say that, should the Student happen to come in charge of such a labor, and find the woman dangerously exhausted of blood at his arrival, I advise him, when about to deliver, to raise the foot of the bed, so as to let the patient lie upon an inclined plane, the head downwards. I once delivered a poor woman in such a case. The foot of the bed was elevated some fifteen or twenty degrees, so that I might say that I lifted the child upwards in delivering it. Probably I saved her from fatal deliquium by this precaution.

Although I have, already, at page 253 of this volume, made mention of Braun's colpeurynter, and spoken of the applications I have made of it in the case of very obstinate retroversions of the womb, it becomes necessary to show, in this place, the great advantages derivable from its employment in placenta prævia.

No person will ever be able to persuade me that it is either good physiology or sound practice to proceed in curing or rather in trying to cure placenta prævia by detaching the whole placenta, with an incomprehensible notion that to do so, is certainly to arrest the hemorrhage, and that on the erroneous assumption that the blood in this condition runs out of the uterine vessels into certain hypothetical cells of the placenta, and from those cells into the womb or vagina. I utterly deny the doctrine and sincerely hope that the American Student will reject it, which he cannot but do if he will but receive proper views as to the structure and functions of the human placenta.

With these opinions I adhere to the long settled practice of Turning and delivering by the feet in all cases of placenta prævia in which the indication is presented of emptying the womb as soon as it can be safely done. In saying so, I am not forgetful of the fact that I have in placenta prævia delivered by means of the forceps, a case that might occur a few times in one's practice of half a century. Nor am I oblivious of the undeniable truth that some women have had vigor enough to thrust the presenting part of the child upon the placenta prævia and push it rapidly before it, so as to expel the foetus by a labor so rapid as to prevent the loss of any considerable quantity of blood.

Unhappily, these rapid labors are very uncommon, and the woman is compelled to suffer dangerous and sometimes fatal losses of the vital fluid, before the os becomes sufficiently open to allow a hand to pass within it.

Should the Student find himself in charge of a case of placenta prævia, with excessive flooding and a slow dilating os, he would be sure to reflect that turning is the indication which is to be fulfilled as soon as the os will permit, and he will think that if any measure could be taken to get the os open enough to allow the hand to pass upwards in search of the feet, such measures ought to be resorted to. He has just the thing he wants in Braun's colpeurynter. (*Vide* Fig. 74, p. 253.)

If a colpeurynter should be placed within the vagina, he might fill it with water at 60°, or 50°, or 45°, and he might gently go on with the injection of water into the vulcanized rubber bag until the woman complains of the distension. I have thrown cold water into the sac in such quantity as to make it expand to the size of the child's head; and in doing so I have felt quite sure that I was not only aiding in the process of dilatation, but I was applying a salutary therapeutic means (cold) for the checking of the flooding.

If a head is above the os uteri striving to dilate or force it open, a colpeurynter below the os, and made as large as the head, could not but materially assist the dilatation. Indeed, so effective is the method that, if a woman be seized with the flooding, without any dilatation, a colpeurynter, continued about four hours, generally opens the os uteri enough to allow the hand to pass within and explore for the feet. Such a dilatation, effected within four hours, with the double advantages of being an admirable cold application, would save a large proportion of blood that must be inevitably lost in a case where the dilatation might require twelve or fifteen hours before the hand could pass upwards to Turn. I believe few cases of placenta prævia will, henceforth, be treated by European or American accoucheurs, without the use of colpeurynter; and I trust every Student will, on going into practice, be provided with a set of well constructed instruments of the kind.

Concealed Hemorrhage.—There is another kind of hemorrhage that is met with in parturient women; I mean the concealed hemorrhage. It may take place from the placental surface, and continue to a dangerous extent, without detaching the circumference of the after-birth from its connection with the womb. In this case, the whole placenta is separated from the womb, with the exception of its rim; and the distensible material admits of so large a quantity of blood being effused betwixt itself and the womb, as to make it take the appearance of a bag filled with blood, and depressed into the uterine cavity. I have never met with a clear sample of this kind of bleeding; but the phenomena that accompany excessive loss of blood would give

to an intelligent physician, intimation sufficiently clear to engage him to proceed aright in lessening the bleeding superficies, either by merely discharging the liquor amnii, or by turning, or by delivering with the forceps. The symptoms, under such circumstances, would be weakness; dull pain in the womb; suddenly increased size and tension of the organ; frequency and smallness of the pulse; paleness; yawning and sighing; and syncope. The occurrence of such phenomena, in a pregnant woman, if alarmingly great, would, I think, be a full warrant for opening the ovum, or for an expeditious delivery; the latter always, however, to be held in reserve until the womb is dilated or dilatable. Such a case invariably deserves to be profoundly considered before proceeding to the adoption of an extreme measure. The ergotic action might, with great prospect of advantage, be resorted to, in case the hemorrhagic symptoms should not abate upon the discharge of the liquor of the amnios. I will now show how I lately proceeded in a

CASE.—In February, 1854, Mrs. S—— C——, of —— St., being pregnant near seven months, descended the stairs to dine, being conducted to the saloon by a gentleman who was the guest. At the foot of the last step laid a favorite dog asleep, and she not perceiving it, stepped upon the animal, which made a great howling as if badly hurt—the lady, who was nearly thrown to the floor, was greatly agitated—but recovering, took her place at the table and thought no more of it.

Three days later, she was suddenly seized with flooding, so that a large quantity of fluid and clotted blood fell from her on the carpet, and wetted her dress excessively. She got to bed and sent me an urgent message. I found her in labor—but flowing considerably. As soon as the os became about $1\frac{1}{2}$ inches in diameter, I ruptured the membranes, and not long afterwards the foetus was expelled dead. I found that nearly the whole uterine face of the placenta was invested with a dense coagulum of a dark almost black hue, and in some places more than half an inch thick. Only a very small part of the placental surface was red or fresh. Hence, I supposed that hemorrhage commenced soon after the accidental mishap above mentioned, and, that three days elapsed before the concealed hemorrhage became open or manifest flooding.

Post-Partum Hemorrhage.—The hemorrhages that take place between the delivery of the child and the expulsion of the placenta, are frequently met with, and are so violent as to excite great alarm in the patient herself, or her friends who happen to witness the distressing symptoms that accompany the accident. I think that, in a

great majority of labors, the placenta is partially detached by the time the child's head has emerged from the vagina, and that the complete separation frequently takes place still earlier.

In such women as have feeble pains, with long intervals, the effusion of blood is sometimes very great, so that a large quantity frequently is found to be expelled immediately after the child is born, being evidently the result of hemorrhage taking place in the intervals between the pains, yet detained behind or above the presenting part until the delivery of the child is completed, whereupon it rushes forth with great violence. If this is a correct statement, then it may, *à fortiori*, happen, that the effusion may go on rapidly as soon as the body of the child has escaped. The womb, in some instances, is perfectly passive for a good while after the great effort it has made, and the placental superficies being exposed, a torrent of blood issues and suddenly fills and distends the cavity, and the woman faints and dies without any one perceiving that she has flooded at all. I believe that this blood would always flow out of the vagina, were it not that a firm clot occasionally happens to stop the os uteri, or vagina, like a tampon, so that none can escape; and if the womb be deprived of its irritability, its fibres will offer no resistance to the fluid poured into the cavity, which, being sealed up by a coagulum at the os uteri and in the vagina, must expand more and more, and with a rapidity that augments as the placental surface grows larger and larger.

A careful practitioner ought not to allow such an event to take place, in his presence. He will frequently place his hand upon the hypogastrium of his patient, and ascertain whether the womb be properly contracted, and enforce its contraction, if necessary, by frictions, and by gently pressing the womb with his fingers applied to the lower part of the abdomen. The irritability of the organ is readily excited into effect by this means; and when the womb becomes properly condensed, there is little danger of any effusion taking place. It should be an invariable custom to place, after the child is born, the hand on the mother's abdomen, to make sure of the contraction of the uterus. This custom will always give prompt information of the existence or non-existence of a tonic contraction; and he who fails of attention to this point will, sooner or later, have reason to regret the neglect of so salutary a precaution.

But when flooding comes on, whether after delivery or antecedently to it, the same universal principle of practice is applicable, namely, to empty the cavity as speedily as possible consistently with prudence. Let the placenta be taken away, and, after its removal, let pressure be made on the hypogastrium by the hand, or by a compress and band-

age, and the pressure continued until the signs of hemorrhage have completely ceased. After having removed the placenta, or after having turned out from the cavity of the womb a pound of coagula, more or less, the woman cannot be deemed safe until the lapse of an hour or more shall have given assurance that no repetition of the hemorrhage can take place. I have, on a great many different occasions, found myself compelled to turn out the clot again and again, to prevent the patient from falling into fatal syncope. Let the Student, therefore, take heed, that, while he may have saved his patient from fatal hemorrhage at ten o'clock, she fall not into the same hazard again at half-past ten or eleven, or at half-past eleven, being careful not to quit her apartment till he can clearly pronounce her safe. Where the flooding returns again and again, let the Student feel for the pulsating aorta above the fundus uteri, and, pressing the vessel with the ends of his fingers, endeavor so to check or lessen the circulation in that great artery, as to hinder the excess of circulation in the branches below, and so of the uterine arteries. In this way, some lives have been preserved.

It happens that the womb is incapable, sometimes, of separating the placenta wholly from its surface; but if it be half detached, there may flow a great quantity of blood, while the uterus continues unable to expel the after-birth. The duty of the medical attendant here is to separate it entirely, by introducing his hand, and gently detaching it with his fingers; taking every possible care not to leave any portion behind, which, by keeping up a continued irritation, would tend to maintain a hemorrhagic nismus, or even dispose the patient to metritis. He will separate the placenta, then, in order to let the uterus contract for the suppression of the hemorrhage, which it will do as soon as it can thrust the secundines forth from its cavity: but let it be always remembered that the hand is not to be introduced unless real need for it exists.

The greatest care should be taken, in this case, to keep the patient quiet, and strict order should be given not to lift her head from the pillows, until all the appearances of danger are gone. Indeed, she ought to have no pillows. Any attempt to sit up in bed, or even to turn, for a woman excessively reduced by hemorrhage, is dangerous; since any muscular effort, by occasioning faintness or exhaustion, invites a renewal of the hemorrhage and debility, which are both to be deprecated.

Hour-glass Contraction.—I have met with several examples of the hour-glass contraction of the womb; of which incident, although I

have spoken of it at p. 340, I desire to add something in this connection. Hour-glass contraction depends either upon the contraction of the womb at the upper limit of its cervical portion, so that the after-birth is contained, as it were, in a separate cell, or the contraction may take place so as merely to include the placenta still retaining its original connection with the uterus. The finger may pass up to the constricted point, and find the cord closely embraced by it. If no bleeding comes on, it is commonly deemed proper to wait an hour, to see whether the co-ordinate action of the muscular fibres will not overcome the horizontal constriction; but, if an hour elapses without the least change in the case, we have reason to infer that two, or even four hours may not suffice to remove the difficulty, and we are always justified in taking away the secundines in that time, even should we not be prompted to do so earlier. It is, in general, not difficult to overcome the stricture, by introducing, first, the hand into the vagina, and then inserting one, then more fingers alongside of the cord, until a sufficient portion of the hand is introduced to command the placenta.

But I can truly say that I have never yet met with an hour-glass contraction in which I was not compelled to separate the placenta with my hand.

I cannot well conceive of an hour-glass contraction, independently of a preternatural adherence of the after-birth to the womb.

I suppose that when the after-birth is so firmly attached that the contractions of the womb cannot slide it off, the substance of the placenta acts as a soft splint, counter-extending the utero-placental superficies. The rest of the womb, having nothing to antagonize it, contracts as usual, leaving the placenta shut up in an upper pouch: it usually contracts at the upper extremity of the cervix. Sometimes, as where the placenta is situated upon the side of the womb, and cannot be displaced by its contractions in consequence of the preternatural adherence, the pouch in which it is contained is on the side of the womb, and the fingers, in dilating the constricted part, must be conducted to the right, or to the left, or to the front, or backwards into the chamber containing the after-birth, as the case may be.

If this explanation be just, there is no very well-founded reason to hope for the spontaneous expulsion of the after-birth—for the adhesion will not give way after the birth of the child, if it would not do so just before that event. Hence, the indication in hour-glass womb is, perhaps, to deliver at once, and I now heartily and warmly advise the Student to introduce his hand and separate the placenta, as soon as he can clearly determine that the real hour-glass contraction does exist.

He will be compelled to do so sooner or later—and the sooner it is attempted, the easier will it be effected.

What can be more disagreeable, or even distressing, than to be compelled to carry the hand and half of the forearm inside of the body of a patient already weakened and exhausted by the labor, and, above all, to be obliged to remove from the womb, while she is agonized, the adhering mass, which sometimes is so firmly united as to be apparently confounded with the texture of the womb. I am sure that, in performing this painful office, one is occasionally obliged, by a sense of duty to the patient, to continue the effort to get off the placenta, even when far from certain that he is not either leaving portions of the lobules still united to the uterus, or perhaps injuring the uterine tissue itself; all that can be expected of any practitioner, under such circumstances, is that he should faithfully do his duty according to his ability. If he cannot get off the whole after-birth, he must leave portions of its lobules. Let him, however, always try to get every vestige of it off. To leave an ounce adhering is better than to leave a pound, and he can and ought to protect his own credit against any untoward results by a full and candid statement of the difficulty he has met with, and of the impracticable nature of the case. I have taken away a great many such, and all of the women save one have recovered, even where I was certain that my utmost care and desire to succeed in removing the whole had been in vain. The Student will learn that he will rarely, in practice, meet with these vexatious adhesions in cases that go on regularly and with a proper celerity; but if he have a labor that gives him great trouble and long detention, from irregular action and feebleness of the pains, he may justly fear that the after-birth will not come off easily. I doubt not that a very firm adhesion of the after-birth is capable of greatly impairing the regularity and strength of the uterine contractions. Such an after-birth, by preventing that part of the womb in which it is situated from contracting in due proportion with the other parts of the organ, is probably the cause of most of the difficulty we have to contend with throughout the whole parturient process in such a case. When the placenta adheres with such preternatural force, the uterine surface on which it rests is, to a certain extent, splinted or counter-extended during the contractile efforts of the rest of the organ.

If one could suppose a placenta converted into bone, and retaining such preternatural union with the womb, it is clear that so much of the organ as should be united to it could not contract, and that all the rest of the womb might contract, shutting the ossified placenta within a cell.

But, in fact, when the adhesion is so strong that the uterus cannot abolish it by its contraction, the same result is virtually attained as if the ossification above supposed should really exist.

Hemorrhage following delivery of the After-birth.—The application of a compress, made by folding one or two napkins, and securing them upon the lower part of the abdomen by the common bandage, is a precaution that ought never to be overlooked where there is a great disposition to hemorrhage. Such a pressure not only prevents the womb from filling again, but it tends very successfully to secure a firm tonic contraction of the organ. Besides this compress, we shall find that the sacchar. saturni, combined with opium, in doses of three or five grains of the former, with from half a grain to a grain of the latter, repeated in an hour, offers us a very useful resource in the styptic influence of the acetate of lead. In like manner, infusion of red rose-leaves, with elixir of vitriol; powders composed of five or ten grains of sulphate of alumina, with a few grains of nutmeg; and the application of cloths pressed out of cold vinegar and water to the pubes—all these are measures that must be sometimes resorted to, when the flow of blood continues after the delivery of the secundines has taken place.

Violent and dangerous effusions of blood sometimes come on immediately after the delivery of the placenta, and at a time when the labor is supposed to have been terminated in the most successful and fortunate manner. If half an hour elapses after the delivery of the after-birth, without any flooding, we shall rarely meet with it, and may, for the most part, consider the patient safe. Nevertheless, it does sometimes come on many hours later; or even many days are passed, without any apparent tendency to the accident, before the female is attacked.

The causes of this bleeding are to be sought for in the relaxed state of the womb, arising from loss of power in its muscular element. The cases are almost invariably connected, too, with an excited and impetuous circulation, by which the blood is propelled with such power and momentum into the uterine arteries as to force open their extremities, when they are not sufficiently supported and constricted by the muscular contractility of the uterus.

Such an attack ought to be foreseen in the state of the pulse, and obviated by the use of such measures as may serve to abate the violence of the blood's motion; and the patient ought not to be abandoned by the physician, until he has become fully satisfied that the danger is past. Let the patient lie in a truly horizontal posture; let blood be

taken from the arm if required; let cool drinks be given, and cold water applied to the face and forehead; and let great care be taken to ascertain, from time to time, by the touch externally, whether the womb is firmly condensed or not. It is not good, I am sure, to allow the napkins that are usually applied to the vulva, to be too firmly pressed to the parts; they act, when so pressed, as a sort of tampon, which enforces the coagulation of the blood in the vagina; and that itself is a dangerous tampon. The blood which cannot escape accumulates within the womb and constitutes a concealed hemorrhage, that is likely to increase with frightful rapidity and that may sink the patient irrecoverably by the time it is discovered. When blood has once escaped from its vessels, it is of no further service, and therefore the sooner it is got rid of, the better for the sufferer.

If the Student should find the hemorrhage not to be stayed by his treatment, let him press his fingers, gathered into a cone, firmly down upon the aorta, near the umbilicus. If the patient should not be troubled with extraordinary obesity, he will be able to feel the throb of the aorta with the points of the fingers. Let him compress the tube according to his judgment, in such a way as to check the downward rush of the torrent: This will operate usefully in two ways: first, by lessening the force with which the blood reaches the bleeding orifices, which will then have an opportunity to close themselves more or less completely; and second, by causing a greater determination of blood to the encephalon, whereby the tendency to deliquium will be lessened. Many lives have apparently been saved by thus compressing the aorta.

I have always governed myself as much as possible by the rule acted on and enforced in his lectures by the late Professor James, which was, "Don't leave your patient for one hour after the termination of the labor." The pressure of business upon a medical man in a large practice will sometimes make it impossible to stay so long near the lying-in woman, but, when under the necessity of leaving her, he ought always make arrangements for his recall in case of need. Leaving a newly-delivered woman a few minutes after the deliverance, he exposes himself to the shock of hearing, upon his return to his house after one or two hours, that "Mrs. B. wants him immediately, as soon as possible—has sent again and again—they think she is dying!"

I have many times been saluted with such messages, and it would be difficult to express the emotions they excite. It is true that most of the cases are neither fatal nor even dangerous; yet occasionally a woman is found to sink and die, almost without warning, from effu-

sion of blood which either flows out upon the bed, or is retained within the vagina and womb, distending them enormously, without giving rise to the least suspicion in the friends or nurse that the woman is bleeding.

In case of being summoned in this sudden manner to return to the patient, it is obviously the first duty of the physician to make sure of the state of the womb; and accordingly as soon as he reaches the bedside, he should place his hand on the hypogastrium in order to learn whether the organ is too much distended; if it be found too large, his course is plain—he must break up the clots which fill it and press them out. This is to be done in every such case. If it be not too much distended—and yet there are those signs of weakness which show that the patient has lost too much blood, while no great external or open flooding has taken place—he should still act as if there were really a hemorrhage. Let him then introduce one or two fingers into the vagina, and he will be almost sure to find that the tube is filled to distension with a very solid clot—a clot as large, perhaps, as a child's head, and extending up into the womb. Upon tearing this clot with his fingers, and pressing at the same moment with the other hand on the lower part of the belly, and exhorting the woman to bear down, the coagula are expelled with more or less violence, and the woman immediately expresses herself as relieved. I must reiterate in this place the injunction, never to forget that, in uterine hemorrhage, all proper measures must be taken to cause the womb to contract; never to forget that with a condensed womb there is no hemorrhage, nor that the womb will nearly with invariable certainty contract or condense itself, if some antagonist or distending force does not prevent. Remove or withdraw, therefore, the antagonist force, and the patient is saved. Always turn out the clot.

The bandage for the abdomen ought never to be omitted in these cases of flooding; for the belly growing suddenly flaccid by the contraction of the womb, there is produced a feeling of inanition and weakness, that often is, alone, able to bring on faintness or a state approaching to it; and that is highly conducive to the increase of uterine hemorrhage. I have already, in my remarks on labors, spoken on this topic, and will refer my readers to page 360 of this volume.

I have long been impressed with the beautiful simplicity and graphic fidelity of the following affecting story, from the pen of the celebrated Mauriceau; and as his writings are little known in the United States, I have, on that account, as well as for the intrinsic practical importance of the case, resolved to translate it for this part of my work. Those who read it must, I think, agree with me, that it conveys a most

instructive lesson to the Student of Midwifery, and, if I am not mistaken, will require no apology for its introduction here.

Case of Mauriceau's Sister.—"Many women (says Mauriceau, liv. i. p. 158) have perished, together with their offspring, for want of prompt assistance on such occasions [hemorrhage]: and not a few have escaped from an otherwise inevitable death by early succor; while their children have received the holy sacrament of baptism, of which, but for that aid, they would have been deprived. Guillemeau, in liv. ii. chap. 13, of his *De l'Accouchement*, mentions six or seven cases confirmatory of this truth, in most of which it is seen that both the mothers and their children were the bleeding victims of want of promptitude in delivery under such circumstances, while some of them escaped in consequence of early assistance. But, that I may confirm this doctrine by the results of my own experience, I shall relate one case, among many, that is very remarkable; and the remembrance of which is so vividly impressed upon me, that the very ink with which I now am writing, in order to make it known for the benefit of the public, seems to me to be turned into blood; for on that piteous and fatal occasion, I witnessed the effusion of a part of my own vital fluid, or, to speak more correctly, the whole of what resembled the blood of my own veins.

"It was sixteen years ago that my sister, who was not yet quite twenty-one years of age, about eight months and a half gone with her fifth child, and at the time in excellent health, was so unfortunate as to hurt herself, though to all appearance very slightly, by a fall on her knees, the belly at the time striking the ground; subsequent to which she passed a day or two without experiencing any considerable inconvenience, so that she neglected to keep herself as quiet as she ought to have done; but on the third day, at about eleven o'clock in the morning, she was suddenly seized with strong and frequent pains of the belly, which were also accompanied by a great discharge of blood from the vagina. She immediately sent for the midwife, who was not too well versed in her occupation, and who, when she arrived, informed my sister that it was necessary, before delivering her, to wait until the pains should spontaneously open the mouth of the womb, assuring her that she had nothing to fear from the accident, and would be soon delivered, because the child presented very favorably. In this way, she fed her with vain hopes for three or four hours, until, the flow of blood continuing very great, the pains began to leave her, and the poor lady fainted away several different times; upon seeing which, the midwife requested that a surgeon might be

sent for to assist her. They came immediately to my house, to notify me of the affair; but being unfortunately not at home, they called on one, who, they supposed, was one of the ablest obstetricians or surgeons in the whole city at that period, and he was immediately conducted to my sister's residence, where he arrived about four o'clock in the afternoon. Having seen the state she was in, he contented himself with merely saying that she was a *dead woman*, for whom nothing was wanting but the last sacraments of the church, and that it was absolutely impossible to deliver her. To all this the midwife readily agreed, for she thought the opinion of this man, so universally esteemed, must be, beyond doubt, correct. As soon as he had pronounced his judgment, he went away, refusing to stay any longer; and in this deplorable condition, and without offering the smallest succor, he left this lady, whose life, as well as that of her child, he could certainly have saved, had he delivered her then, which he might easily have done, as will be seen in the sequel of this history.

"After the judgment of a person of such great reputation, added to that of the midwife, every one who was present thought that since M. ——— could do nothing for her, there could be no other recourse, in so great a misfortune, than placing confidence in God, to whom alone everything is possible.

"They now endeavored, as well as they could, to console my poor sister, who with a passionate earnestness desired to see me, that she might know whether I also would pronounce the same judgment upon her; and whether her disease, which was constantly growing worse, was beyond all remedy; for her blood was steadily flowing in great abundance. At last, I returned to my house, where they had been a long time before, to tell me this sad news; and where most unfortunately, I was not to be found at the time, as I have already related. As soon as I heard of it, I hastened to her house, and upon arriving there, saw so piteous a spectacle, that all the passions of my soul were, at the sight, agitated with many and different emotions; after which, having somewhat recovered my composure, I approached the bedside of my sister, who had just received the last sacraments; and being there, she implored me again and again to assist her, saying, that she had no hope but in me. After I had learned from the midwife all that had happened, and she had told me of the opinion of the surgeon, who had seen her more than two hours before, for it was now past six o'clock, I perceived that the blood still continued to flow profusely and without ceasing, though she had already lost more than three quarts, and, what is remarkable, more than forty-eight ounces within the two hours since the surgeon left her—as I supposed from the

numerous napkins and cloths which were all saturated with it; which blood, by remaining in her body, had she been timeously delivered, would, beyond doubt, have saved her life. I also saw that she was seized almost every minute with sinking turns, that were increasing; which convinced me that she was in far greater peril than she could have been had they not lost the opportunity of delivering her two or three hours sooner, which was both possible and of easy execution; for at that time she had almost the whole of her strength, which she afterwards lost by the continual effusion of her blood. Wishing to know whether it was true that she could not be delivered, I found, upon examination per vaginam, the orifice of the womb dilated, so as easily to admit two or three fingers. Having remarked this, I made the midwife examine her again, in order to ascertain whether the os uteri had been in the same state when the surgeon stated that she could not be delivered; and whether she was still of his opinion: she told me, 'Yes,' and that the parts had remained unchanged ever since he had gone away. As soon as she made this declaration, I perceived her ignorance, and what had been the difficulty with the surgeon. Touching this, I told her of my astonishment that they had both been of such an opinion, as I was of a wholly different opinion—for it would have been as easy for him to deliver her then as now; which I should, in truth, have immediately done myself, could I possibly have commanded my judgment, long vacillating upon this resolution, which, from the loss of all hope from other quarters, I was at last constrained to adopt. What hindered me was, not the prognostic of the surgeon, celebrated as he was, who had persuaded everybody that to deliver her was impossible (for it would seem like rashness to resist the dicta of those who are looked upon as oracles), nor the weakness of the patient; but it was chiefly the quality of the person, who was my own sister, and whom I tenderly loved, that agitated my mind with various passions. For my mind was so preoccupied with seeing her ready to expire before my eyes, from the prodigious waste of that blood that had sprung from the same sources as my own, as to make it impossible for me to come to an immediate resolution and action. This obliged me to send incontinently for the surgeon who had left her so long before, and beg him to return to her house, so that I might show him how easily she could be delivered—and by making him understand and confess that there is no hope on such occasions except in prompt delivery, induce him to operate instead of leaving the mother, as he had done, to despair, and allowing her infant to perish without baptism, which it might have enjoyed had he obeyed the requirements of the art; which are, that if both cannot be saved, we

should at least, try to save the child, if that be possible without doing anything prejudicial to the mother. But he would not come back for all the prayers and solicitations that could be offered; and excused himself by saying that it would be impossible to do anything in such a situation. As soon as I learned all these things, I sent for another surgeon, with whom, had he come in time, I should have concluded in favor of the necessity of the operation, of the possibility of which I could have satisfied him; but, as misfortune would have it, he was absent from home. Meanwhile, at least more than an hour and a half more elapsed, during which the blood was incessantly flowing, and the faintness increasing more and more. Finding myself, therefore, hopeless of the aid of the persons I had sent for, I resolved to deliver her myself immediately, for I had not been able to resolve upon it, except in this extreme necessity, for the reasons already given; which, indeed, was somewhat too late for the mother; for, had I been able to command myself sufficiently to proceed to the delivery at my first arrival, there was great reason to hope for her safety, as it afterwards proved as to her child, when I had completed the task in the following manner:—

“I introduced two fingers into the orifice of the womb, which was open enough to receive them; I then gradually inserted a third, and little by little, the ends of all the fingers of my right hand, with which I so dilated the orifice as to admit the whole hand, which is readily to be done on such occasions, because, as has been already said, the abundant discharge of blood moistens and relaxes the entire womb very much. Having introduced my hand very gently, I found that the head of the child presented, and that the waters were not yet gone off, which obliged me to break the membranes with my finger nails. Having done this, I immediately turned the child so as to draw it down by the feet, which I easily effected, as I shall describe the operation in the 13th chapter of the second book. The operation was effected in less time than it takes to count a hundred, and I protest upon my conscience, that I never in my life performed an accouchement (of a preternatural case) with greater ease and expedition, or less pain to the mother, who never complained in the least during the operation, notwithstanding she then was quite herself, and knew perfectly well what I was doing. Indeed, she found herself quite relieved as soon as I had delivered her, whereupon the flow of blood began to cease.

“As to the child, I delivered it alive, and it was instantly baptized by a priest who was in the chamber. The patient and all the bystanders, who were numerous, then perceived very clearly that the

surgeon and midwife who had pronounced it impossible to deliver her, had done so without any good reason.

“The operation was performed in good time to procure baptism for the child, who received it, praise be to God, as I just now said; but it was too late to save the life of its mother, who died an hour after its birth, in consequence of having lost too great a quantity of blood; for she fell into a great swoon, like those she had had previously to the delivery. The flow of blood ceased, it is true, but there was not enough left in her body to resist these frequent syncopes, which she could doubtless have done, had the surgeon, who saw her first, delivered her three full hours earlier, as he could have done, without doubt, as easily as I did it; since which time she had lost, without exaggeration, more than eighty ounces of blood, twenty of which, had it been reserved, would have insured her escape; particularly, as she was a young woman, of a good constitution, free from all disease or inconvenience at the time she was attacked by this fatal accident, which happened, as before said, at eleven o'clock in the morning. She was delivered at seven in the evening; but the operation was unsuccessful for her because she had been drained of blood; she died an hour afterwards, in full possession of her senses, and speaking until the last moment of her existence, which was at eight o'clock P. M.”

Convulsions.—Among the many grave and alarming accidents that occur to pregnant, puerperal, and lying-in women, the puerperal convulsion is regarded as one of the most dreadful; it never breaks forth without carrying terror among all the spectators, and the scenes exhibited during one of its paroxysms cannot be observed without emotion even by the most experienced and use-hardened physician. There is scarcely any trouble for pregnant women that I would not prefer to witness, rather than this shocking and distracting one, and I say so after an ample experience of almost every possible form of obstetrical horrors.

It would seem that any person conversant with the nature of obstetrical disorders, accidents and tendencies, ought not to feel surprised at the outbreak of a paroxysm of eclampsia in a pregnant woman not as yet advanced to her term, and much less in a woman enduring the pains, terrors and fatigue of her labor, for labor is almost always attended with augmented impetus of the blood's motion, and with those coincident changes in the animal heat, sensibility and irritability I have already discoursed of in a former page. Whether we advert to the changed susceptibility of the pregnant woman, which develops a state closely allied to the hysterical condition; or whether we con-

sider the extreme violence with which the blood of a woman in labor rushes along the arteries of the encephalon, we must admit that the brain cannot but be in an excited state and prompt to exert its powers in such a manner as to convulse the whole or part of the muscular system: the activity of the cerebro-spinal system is always proportioned to the quantity and impetus of the blood circulating in the vessels, and every woman in labor whose pulses become hard, large, frequent and violent, ought to be held liable to be convulsed by the neurosity extricated in consequence of such a circulation. An experienced practitioner is invariably surprised when he observes no augmentation of the blood's motion in a severe labor, for it is a rule attended with rare exceptions, that the heart beats with excessive force, and that the arteries are highly charged and loaded with blood during the pains and exertions of the parturient state. Long protracted pressure of the womb on the parts in the abdomen that may have produced cedema gravidarum, must also in some measure have impeded the downward course of the aortic current, and checked the flow in the emulgent veins. The effects of such impediments are inevitably to cause protracted, habitual hyperæmia of the brain and cord, and to fill the vessels of the kidneys, and so interfere with the discerning action of those important organs. Thus is laid the foundations of the double mischief of an over-filled encephalon, and of an engorged or hyperæmic kidney; which is one of the stages of Bright's disease, and which cannot but vitiate the mass of the blood.

When a woman whose blood has become impure by the retention of the principles of the urine within it, and who has had habitual hyperæmia of the brain and cord, has safely passed through the perils of parturition, only a few hours are required to wholly remove the encephalic fulness and take away the renal engorgement, and so remove altogether the conditions that had brought her life into peril: even where she may have been seized with eclampsia, and that of the most violent grade, she very soon recovers her health, after the birth of the child; provided some lesion of the brain, the cord, or an internal viscus has not taken place during the violent stages of the convulsions. In such an event, she could not be expected to recover speedily, and where the lesion has been a grave one, perhaps not at all.

The pregnant woman who reaches her term and falls into labor without having suffered from cedema or other results of pressure, will rarely be found to have an attack of puerperal convulsions; while every woman who has swelled feet and legs in her gestation; every woman whose urine, on being tested, exhibits the presence of albumen; all those who complain of headache, transient seizures with

amaurosis, tinnitus aurium, deafness, convulsive twitchings, red and tumid hands and fingers, and all in whose urine casts of the tubuli uriniferi are discovered by the microscope; all such people should be regarded as in danger of convulsions either before, during, or after the labor, and watched and treated accordingly. The omission of such precautions is the real cause why the attacks are so numerous, and the observance of a due degree of vigilance would, without doubt, greatly lessen the ratio of the cases in a given number of parturitions. But no such needful vigilance and no such wise precaution can be expected except a proper understanding is first obtained of the nature, causes and treatment of the disorders of pregnant women.

I shall not repeat, in the present connection, what I have already said at p. 240, on the subject of the pressure and obstruction consequent on it, within the abdomen. I have there and elsewhere said enough to put the Student on his guard, and teach him that he can, and that he ought to ward off the attack of convulsions, which it is far easier and better to do than to cure it after it has come on. It is far better, I say, to ward it off, because it is impossible to witness a seizure and not fear that some fatal effusion, or some mortal rupture and extravasation will take place in the brain, during the paroxysm. Not, indeed, few are the cases in which a fatal blow is struck at the very onset; so that the woman who feels it, never speaks nor recovers in the least from the moment of the invasion, but dies apoplectic, and sometimes outright.

For some women, to be pregnant is to be in the best possible health, while for others the state of gestation is but a protracted disorder, in which the constitutional irritation is analogous to the hectic state. They are feverish from the beginning, suffer from nausea, cephalalgia, pains in the limbs and trunk; become oedematous, hydræmic, hysterical; are seized with albuminuria; experience what is called uræmic intoxication; and run the greatest risk of dying in childbed with eclampsia. Every such woman is in the condition denominated by Wiegand *compulsibilitas*. I have treated multitudes of women affected with this compulsibility, and in most of them I have warded off attacks of convulsion that appeared to me to be imminent, while, in some few, the seizure has taken place in despite of all my vigilance, all my precautions, and my most carefully considered prescription.

I feel very sure that precisely the same sort of convulsions as those that attack pregnant women do affect both men and children, as well as virgins, and no one, I presume, will now deny that the most exquisitely marked examples of puerperal eclampsia do occur, without any discoverable complicity with morbus Brightii or other visceral disorder,

or that numerous individuals with albuminuria do go through labor without convulsions. So convinced am I that the disorder is one of the effects of the impetus sanguinis and the cerebral and spinal hyperæmia, and a result rather of the quantitative than of the qualitative force of the blood, that I have placed at the head of this article the words puerperal convulsions instead of the words puerperal eclampsia, which, if I had obeyed the dictates of our modern fashion in medicine, I should have chosen for its caption.

The Student, therefore, will please observe that I have placed the words puerperal convulsions at the head of this article because I was unwilling to follow in the track of a small number of writers, who have recently regarded puerperal convulsion as symptomatic of the morbus Brightii in pregnant women, and who limit the use of the word eclampsia to cases of albuminuria with uræmia, in pregnant women.

The researches of Dr. Blackall and Dr. Bright relative to dropsical and other affections, led to the detection of certain diseased conditions of the kidneys, which, in consequence of his publications, have been called Bright's disease, or morbus Brightii. Dr. Bright's first case, which led to his important investigations, was observed by him in the year 1825. These researches ended in establishing the opinion now, I believe, everywhere adopted, that the urine becomes loaded with albumen wherever Bright's disease exists, and that Bright's disease may consist either in hyperæmia of the kidney, in granular or fatty degeneration of it, or in atrophy of the organ, in any of which states the nitrogenous element accumulates beyond normal measure in the blood, and so, gives rise to uræmia, or urinous blood. Meanwhile, the blood loses a large portion of its albumen, which passes off in solution by the kidneys. Any person in whose blood is accumulated a certain extra quantity of urea is poisoned thereby, intoxicated, or disordered by what is denominated uræmic intoxication. This toxic condition is manifested by weakness, by vertigo, by amblyopia, by hemeralopia, amaurosis, startings of the tendons, and by convulsions resembling epileptic fits, but which are true eclampsias, none other being so except these uræmic convulsions. Such is the doctrine they teach.

It is well known that certain animal products remaining within, from want of elimination, and others accidentally entering the vital stream, do produce disorders whose characteristics depend on the nature of the noxious material or residue accumulated in the blood. Thus, in cases where pus enters the circulation, as in pyogenic phlebitis, the symptoms of purulent intoxication become obvious and peculiar. The influence of opium, tobacco, wine, belladonna, arsenic,

pus, urea, &c., are each peculiar; though they all give rise to states of intoxication, so that there may be vinous, alcoholic, cinchonic, pyæmic, cholæmic, or uræmic intoxication. All these forms of intoxication, or, to speak more correctly, all these toxic conditions differ according to the special powers of the poisoning material, and there is as great a difference between the intoxication of uræmia and pyæmia as there is between the intoxication of beer and that of chloroform, ether, or champagne.

These modern writers insist that the convulsions of pregnant women are effects of uræmic intoxication, and they regard the cases as special, and as requiring a special and distinguishing name. Hence, they call those convulsions eclampsia, and the word signifies albuminuria, uræmia, or morbus Brightii, three expressions that are really synonyms.

In ordinary cases, however, of dropsy from Bright's disease of the kidney, convulsive disorders appear not to occur so frequently as they do where the uræmia occurs in a pregnant woman. Dr. Bright, in his 4to. vol., *Reports of Med. Cases, &c.*, 1827, found in his first 25 cases only two instances (cases 12 and 13), in which convulsions occurred. The Case 12, Gallaway, occurred in a broken-down syphilized drunkard. The 13th case, Drudget, died convulsed on the seventh day after his admission into Guy's Hospital. The other 23 cases of Bright's disease evinced no convulsive affection whatever. In 35 other cases by Dr. Bright, related in *Guy's Hospital Reports*, p. 189, for 1843, there were only three instances of convulsion—thirty-two of the number having been exempt.

Dr. Imbert Gourbeyre, whose admirable prize essay illustrates the 20th vol. *Mem. of the Imp. Acad. of Med. of Paris*, 1856, tells us at p. 341, that in 164 observations of albuminuria in pregnancy, by various authors, whose names he cites, there were 94 cases of albuminuria accompanied with eclampsia, 65 cases of albuminuria without any eclampsic attack, and 5 cases of eclampsia in women whose urine contained no albumen. In 41 albuminuric pregnant women, Blot found only seven of them attacked with eclampsia.

Will the Student then endeavor to settle for himself the question, whether "the presence of urea in the blood does or does not cause the convulsions of puerperal women? Will he determine whether or no every albuminuric is a uræmic woman? Will he consider whether the hyperæmic state of the brain induced by the presence and obstructing pressure of the gravid womb, and the hysterical tendency superinduced by the state of pregnancy, by panic, by pain, by fatigue, by violent haste in the circulation, by modifications of the blood brought about in the

increased throbbing of the heart, the muscular effort, &c. &c., may be fairly admitted as coequal at least with the uræmia or albuminuria in the causation?"

It is to Dr. J. C. W. Lever, the distinguished accoucheur at Guy's Hospital, London, that we are indebted for the first intimations of some connection of albuminuria with puerperal convulsions. In *Guy's Hospital Reports*, vol. i., second series, p. 495, the Student will find Dr. Lever's paper, entitled "Cases of Puerperal Convulsions," with remarks by J. C. W. Lever, M. D. In the four first cases in Dr. L.'s series of 14 cases, the state of the urine was not noticed, and it was only in Case 5 (Ellen D—), that "the great similarity that presented in her appearance and that of patients laboring under anasarca with the morbus Brightii," induced to an examination of the urine. It was found to be highly albuminous; and though it might perhaps have been owing to some transient cause, Dr. Lever "examined the urine in every case of puerperal convulsions that has since come under 'his' notice, both in the Lying-in Charity of Guy's Hospital, and in private practice; and in every case but one, the urine has been found albuminous at the time of the convulsions." Dr. L. further investigated the urine in more than fifty women in labor. In no case did he detect any albumen except in those in which there had been convulsions, or in which symptoms readily recognized as precursors of childbed fits were noticed.

CASE.—Philada., Sept. 9th, 1856, 2 o'clock A. M. At one o'clock, just an hour ago, I delivered Mrs. S.—, a primipara, 22 years of age, of a daughter, after a labor of 15 hours, in which she suffered more than women commonly do.

Two weeks ago, I observed her feet to be œdematous, and took away a portion of the morning urine, which proved by nitric acid and by ebullition to contain no trace of albumen. Yesterday morning, Sept. 7th, at 10 o'clock, I found her in pain, and with increased œdema of the feet, which pitted on pressure. On testing the urine by heat in a test tube it was found to contain about 20 per cent. of albumen. She was pale, but in very good spirits. The labor pains having become frequent, I was called to her at 6½ P. M. She had rigidity of the os uteri, and seemed to suffer excessive anguish when the pains were on. At 11 P. M. she said she was dizzy, but without headache, and though the pulse was not very large, frequent, or hard, I took 10 ounces of blood from the arm. The child was born as the clock struck one—the placenta came off in seven minutes, and I came away to make this note. Now here is a case of Bright's disease, or

albuminuria, in a primipara, who, throughout a most painful labor of 15 hours, exhibited no sign whatever of coming eclampsia, unless indeed the slight vertigo above mentioned was such a sign. I left her at half past one perfectly comfortable, and I expect that the urine of the 10th inst. two days hence, will display no signs of any remaining morbus Brightii. Was Mrs. S. uræmic? She had no uræmic intoxication. Sept. 9th, 10 o'clock A. M. Mrs. S. is as well as people usually are in the first day of a lying-in. Sept. 11th, 10 o'clock P. M. Neither the urine of last night or that of this morning contains any trace of albumen; so that a very considerable albuminuria has disappeared.

Dr. Lever's statement above cited was made in the vol. of Reports for 1843, now 13 years ago, since which time the idea has gradually overspread the republic of medical letters, and has of late made great progress, particularly since 1850, as any one may perceive who will examine the bibliography of the subject given by Gourbeyre. That author says the word uræmia, *ουρεω* and *αιμα*, made its first apparition in the French press in 1854, in the *Gazette Hebdomadaire*, vols. iii. and iv. Since that year the word uræmia is become in very general use in Europe and in the United States.

I have already indicated the causes that should inevitably give rise to the œdema of pregnant women, and pointed out the reasons why those causes should equally operate to establish a hyperæmic state of the encephalon, the superior extremities, the lungs, &c. It is also manifest that the intrusion of a gravid womb into the abdomen, thrusting away in its rise the whole mass of the intestines, often in pregnant people overburthened with residues of digestion, must exert a considerable obstructing influence on the emulgent veins. Any arrest or stasis of the renal circulation thus produced could not but bring about a transient morbus Brightii, which consists in engorgement or hyperæmia of the kidneys; but inasmuch as the most enormous œdema gravidarum is usually found to disappear within three or four days and sometimes sooner, after the birth of the child, so, the hyperæmia of the kidney, arising from obstructed emulgent veins, might disappear in like manner and from the same cause. In fact, the albuminuria puerperarum does disappear very soon after the birth; and that, whether the woman has had eclampsia or not. If this be a correct view of the facts, I see not what shadow of reason any man can discover for attributing the convulsion to the uræmia, rather than to the engorgement, hyperæmia, or increased impetus sanguinis in circulation. In the meanwhile I am very far from maintaining that the constitution of the blood is an indifferent in the causation, for I do believe that blood rendered morbid or abnormal, by whatsoever

cause, cannot but prove promotive of various disorders of the nervous mass, as well as of the tissues it governs and innervates, to maintain them in their power and their life.

But the Student should endeavor to obtain a clear and concise opinion as to Bright's disease of the kidney, and therefore he should ask what is Bright's disease? Dr. Bright, himself, *Reports, &c.*, p. 67, considered there are three varieties, viz: the first, which he deemed to be a hyperæmic state, in which the kidney loses its firmness, has a yellow mottled appearance, with gray appearance when incised, and with the tubular portion of a lighter color than natural. In the second form the whole cortical portion becomes a granulated texture, with copious interstitial deposits of opaque white substance. In the third form the kidney is rough or scabrous to the touch, with numerous surface projections as big as pin-heads, yellow, red, and purplish. Such are the generalities, which I can only state here for want of space to fill out the picture at length, after the author. But this is sufficient to show that engorgement of the kidney from pressure on the emulgent might well, and must oftentimes, in pregnant women, cause the very greatest hyperæmia of the kidney, and so bring about those lesions of structure or function that result in albuminuria. If this engorged state should end in inflammation of the kidney, we might well expect to discover altered appearance of it, and great alterations in the excreted matters. For example, if a portion of the urine should be drawn off with a catheter and put aside to settle—and if, after becoming completely settled, a drop should be taken by a small pipette from the bottom of the vase or glass, and examined by a microscope, the saline and other substances that should fall to the bottom of the fluid could be seen and studied. Accordingly it does happen that we perceive not only the salts, as urates and phosphates, but what are called tubulicylinders, or casts of the tubuli uriniferi. They are probably either cylindrical coagula of albumen moulded in the tubuli uriniferi of the pyramids, or they may be true exudation-corpuseles shed by inflamed mucous membrane of the tubuli, and cast off, like croup deposits in a larynx. These cylindrical casts are very commonly to be discovered in pregnant women who suffer from œdema and other allied symptoms, as hydræmia, transitory forms of amaurosis, tinnitus, cephalalgia, &c. &c., which the modern neology interprets as uræmic signs, but which the older school explained by the pressure and obstruction. Let the Student choose for himself which school he will follow—but let him never fail, when consulted about a pregnant woman's health, to examine, first her feet, to learn whether they be œdematous or no, and if they be found swollen, let him dread an eclampsia if she be primipara,

and particularly if she have a bounding pulse and the slightest cephalalgia. For a great many years past, long before the name uræmia was concocted by the Germans, I have never failed to inquire for œdema in pregnant patients of mine, nor ever failed to be wide awake and watching for the signs of coming eclampsia, if to my question, "How is your head," there came the alarming reply, "It aches." If upon hearing such an answer I failed to open a vein for my patient, I felt guilty of gross neglect of duty, and for the most part was punished for the offence by being compelled to witness the shocking spectacle of a patient in eclampsia.

For my own part, it is sufficient for me then to see that my patient is a primipara, and that she has œdema of the feet and ankles. I can never look upon such signs and not see in them the threatened mischiefs of eclampsia. Still it is wisest for the Student to go farther than this, and discover, if he can, in the lowest stratum of the morning urine, any tubuli-casts, or cylinders, if any there be—in order to judge from them in regard to the state of the kidneys as a viscus. If he believes the tubuli-casts are exudation corpuscles, then he must believe that the patient has albuminous nephritis—and that she is in peril of passing into the second stage of morbus Brightii.

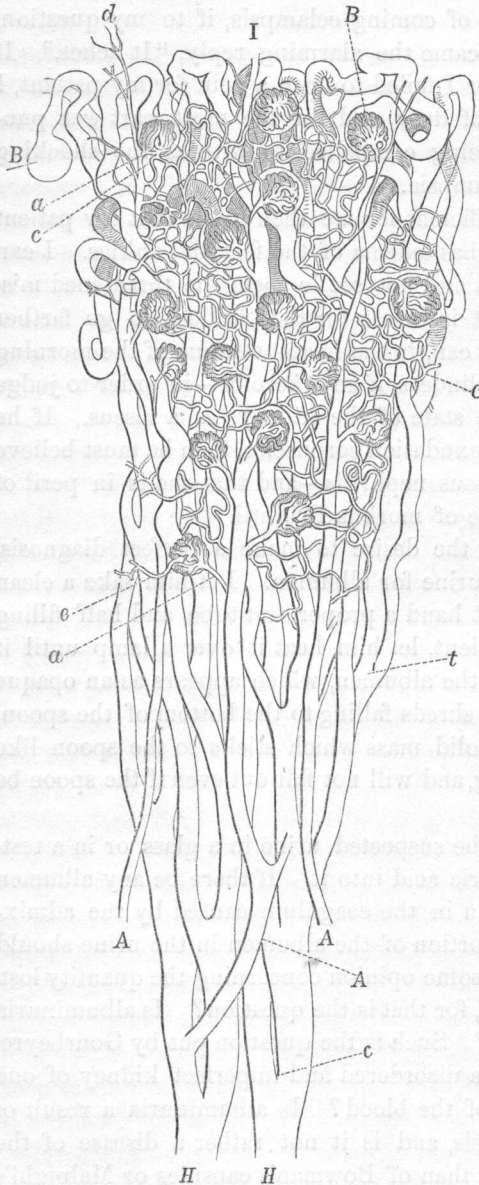
The same motive, to wit, the desire to make a perfect diagnosis, should lead him to test the urine for albumen. Let him take a clean iron spoon, if he have not at hand a proper test-tube, and half filling it with the urine of the patient, let him heat it over a lamp until it boils. The heat coagulates the albumen, which appears as an opaque substance in the urine, or as shreds falling to the bottom of the spoon, or granules, or lastly, as a solid mass which sticks to the spoon like so much boiled white of egg, and will not fall out even if the spoon be turned bottom upwards.

Or let him put some of the suspected urine in a glass or in a test-tube, and drop a drop of nitric acid into it. If there be any albumen there it will be at once seen in the coagulum caused by the admixture of the acid. The proportion of the albumen in the urine should be calculated so as to get at some opinion concerning the quantity lost.

What now is albuminuria, for that is the question? Is albuminuria a disease or is it a symptom? Such is the question put by Gourbeyre. Is albuminuria a leak from a disordered and imperfect kidney of one of the important materials of the blood? Is albuminuria a result of modified power of hæmatisis, and is it not rather a disease of the bloodvessel, the endangium, than of Bowman's capsules or Malpighi's corpuscles? Gourbeyre quotes Frerichs to show that in 292 *post-mortem* examinations of morbus Brightii, the lesions of the kidneys were

more numerous than any others; there was heart disease 99 times, emphysema 77, diseased liver 46 (22 *cirrhosis*), disease of the spleen 30—p. 52. Dr. Gour-

Fig. 91.



beyre insists that morbus Brightii, commonly called albuminuria, and albuminuric nephritis, is nothing more or less than disalbumination of the blood, and that disalbumination of the blood may take place in persons whose health is perfect as far as the kidney is concerned, and in whose urine neither tubuli-casts nor the least trace of albumen can be detected.

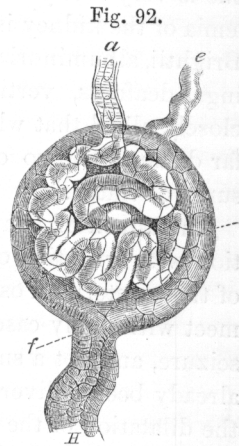
What then, I repeat, is albuminuria of gestation? Is it not a vitiated state of the blood, dependent on morbid changes superinduced by pregnancy in the blood-membrane, and is it anything else than a symptom of hydræmia? Is it not in many of the cases developed during the labor in consequence of the violence of the circulation? The very strongest advocate of the doctrine of uræmic intoxication as causative of eclampsia, Dr. C. Braun, says, at p. 282, *op. cit.*, that there is no constant relation of the quantity of albumen in the urine to the period of labor in

which the convulsions break out, but the amount of albumen does

augment in the ratio of the repetitions of the eclamptic paroxysms. To me it appears that this admission strengthens the opinion that childbed fits depend not so much on the qualities of the blood, as on its impetus in circulation, and that its morbid qualities are rather results than causes.

To set the matter more clearly before the eyes of the Student, I annex two figures, which I have taken from Ecker's edition of *Rudolph Wagner's Icones Physiologicae*. Fig. 91 is a magnified section of a portion of kidney, in which the artist has represented several of the tubuli uriniferi proceeding upwards (H H), and dividing as they go to terminate in capsules. Two of these capsules are seen on the left upper portion of the picture, at B B, while others are seen dispersed in various parts of the field. These capsules are the blind sacs in which the tubuli uriniferi (H H) end, and we may suppose that if water were injected by an Anell's syringe into one of the urine pores of a nipple in the pelvis of the kidney, the liquid would flow towards a Bowman's capsule by *t*, to fill and distend it.

Fig. 92 exhibits a magnified view of a Bowman's capsule, with its contents. The letter *a* in 92 and 91 is a branch of a small artery, which is one of the delicate ramifications of the renal artery. It enters a Bowman's capsule, and, after turning and winding in numerous convolutions within the capsule *a*, goes out as a vein *e*. This mass, tangle, or congeries of small vessels within the capsule is the Malpighian corpuscle of the kidney, and is the secretory apparatus of the organ. The urine is separated from the blood brought by these convoluted vessels to the interior of a Bowman's capsule, and when formed, or secerned, it flows forth through the excretory duct, outlet, or tube marked *h*.



Let the Student trace the course of one of these excretory ducts going out from any one of the Bowman's capsules, and he may follow the track down into a pyramid where numerous excretory ducts have combined to make one of the tubuli uriniferi which are marked with the letter H H.

If we consider that the Malpighian corpuscles are very numerous in the kidney—that the vascular apparatus for secreting the urine is inclosed in the little casket called Bowman's capsule, it is natural to suppose that whatever should prevent the free escape of blood entering a capsule B, or from flowing out again by H, must cause hyper-

æmia or engorgement, not only of the Malpighian corpuscle, which will enlarge and fill up the capsule, and so check the secreting actions there, but that the same obstruction acting on the effluent blood of the emulgent vein, must produce hyperæmia of the entire substance of the kidney, and so give rise to the first stage of morbus Brightii. How can any person doubt that the pressure of the gravid womb and of overloaded bowels lying behind the womb, must very often intercept, in a measure, the effluence of the blood that is driven into the kidney and into the Malpighian corpuscles by the emulgent artery? Or who can deny that if Bright's disease is in its first form, nothing more than hyperæmia of the kidney, a pregnant woman, more than any other, should be likely to bring on morbus Brightii? This rationale of albuminuria of pregnancy appears to me so clear, that I believe the Student cannot fail to understand it well; and if he should really understand this curious apparatus of secretion, I think he will never forget, on seeing that a pregnant woman has œdema of the feet, that she is very likely also to have hyperæmia of the kidney; that hyperæmia of the kidney is a first stage of morbus Brightii, and that morbus Brightii, albuminuria, uræmia, uræmic intoxication, amaurosis, twitchings, deafness, vertigo, cephalalgia, and eclampsia, etc. etc., are so closely allied that where the sign of one is present, the other is not far distant; and so ought to be watched, and by prudent, wise measures obviated.

The attack of convulsions has been supposed to have some connection with irritation of the nervous system occasioned by the *dilatation* of the os uteri. Possibly this may in some examples be true, yet we meet with many cases where the os uteri is fully dilated before the seizure, and not a small proportion are met with in persons who have already been delivered. Dr. Collins, in speaking upon the idea that the dilatation of the os uteri is causative of the disorder, says: "This fact might be brought forward to support the opinion that puerperal convulsions are caused by the irritation produced in the dilatation of the mouth of the womb. This, however, is not the case, as we not unfrequently find patients attacked when the os uteri is completely dilated, and all the soft parts relaxed. I conceive we are quite ignorant as yet of what the cause may be; nor could I ever find, on dissection, any appearance to enable me to even hazard an opinion on the subject."

Nevertheless, since the introduction of ether-inhalation in Surgery, and the proposal to use it in Midwifery, the anæsthetic powers of the ether and other articles employed in that way have served to shed no

little light upon the state of the brain in our eclampsia: in my *Letters to the Class, sub voce*, I have expressed my views upon the nature of the alterations discoverable in the functions of different parts of the encephalon during eclampsia.

While I consider that the attack, or onset, is caused by long-continued or violent determination to the head, by the rapid revolution of the blood excited by pregnancy and labor, or by too intense perception of the pains of labor, I conclude that the profound insensibility ought to be regarded as anæsthesia caused by the presence of much black blood in the brain; that when the black blood grows blacker and blacker, so as to render the patient dark as an Ethiop, the convulsion is nearer and nearer to its close; that as soon as the black blood comes to deluge the cerebellum, the convulsions cease—and that, if it pervades the medulla oblongata, the patient dies from abolition of power in the sources of the vagus nerve. An individual might perish very soon from inhaling ether or chloroform, which is capable in certain persons of directing its anæsthetic force first upon the respiratory brain. But, if the respiratory brain forget in its sleep, or in its asphyxia, to cause the respiration! What then?

The author before cited, Dr. Collins, in a foot-note on p. 200, states, “that of nineteen cases recorded by Dr. Joseph Clarke, sixteen were first children. Of thirty-six by Dr. Merriman, twenty-eight were first children. Of thirty by himself, twenty-nine were first children. So that of the eighty-five cases, seventy-three were first pregnancies.”

This statement is susceptible of very different interpretations, for it may lead to the opinion that the firm, elastic abdominal muscles and integuments do so press the womb backwards as to cause the obstructions to the circulation already spoken of; or it might be insisted that the said firmness of the integuments does lead to a hinderance of the flow in the emulgent veins, and so causes the hyperæmia or Bright's disease, with its albuminuria and its eclampsia. Let the Student judge for himself.

As to the frequency of puerperal convulsions, we have a tabular statement of it, which I here present, as it was printed in Churchill's *Midwifery*, edited by Dr. Condie, 1851, p. 436.

In 103,354 cases of parturition there were observed 172 cases of convulsions, by the following authors:—

	Cases.	Convulsions.
Dr. Bland,	1,807	2
“ Jos. Clarke,	10,387	19
“ Merriman,	2,947	5
“ Granville,	640	1
“ Cusack,	398	6
“ Maunsell,	848	4
“ Collins,	16,654	30
“ Beatty,	304	1
“ Ashwell,	1,266	3
“ Mantell,	2,510	6
“ Churchill,	600	2
“ Boivin,	20,351	19
“ La Chapelle,	38,000	61
“ Hardy and M'Clintock,	6,631	13
	Total, 103,354	Total, 172

It is curious to see how differently the run of cases occurs in the practice of the different reporters; thus, while Mad. Boivin had only 19 in 20,357 women, Mad. La Chapelle noted 61 in 38,000 cases; and while Granville met with 1 in 640, Cusack encountered 6 in 348. I know not how many labors I have witnessed, but I have met with as many convulsions as Braun saw in 24,000 labors, and perhaps nearly as many as Mad. La Chapelle found in 38,000. My private practice can bear no comparison, as to the number of labors, with that of Braun in the great Vienna Lying-in Hospital; the statistics, therefore, are of very little service in one's clinical business. If 172 cases occur in 103,000, or if 52 cases happen in 24,000, or 61 in 38,000, or 19 in 20,000, it is of little moment to the practising physician to know the grand total of labors and of convulsions; since, like Cusack, he may be doomed to treat 6 cases in 398 labors.

In the present state of the question, wherein much difference of opinion exists as to what is and what is not puerperal convulsion, or eclampsia, to tabulate the proportion of fatalities is of little advantage, since in such a table one party might prefer to include all sorts of convulsions happening to pregnant and puerperal women, whilst another party would strictly exclude everything not traceable to uræmic or albuminuric causations. I shall, therefore, omit a statement of the results obtained by Dr. Braun. I may say, however, that, of 165 cases of convulsion stated by Churchill, 45, or more than 25 per cent. of them, were mortal.

In my own obstetric practice, commenced 43 years ago, I have met

with many cases, both in my private and in my consultation business. I have not kept a regular record of all the cases, but the following list will serve to show, at least, that I have had a considerable experience in these cases. I doubt not that the list does not comprise all the instances that I have witnessed, but I believe it to be a correct representation as far as it does go.

The following is the list, with names and results, of the cases I have observed:—

1. Collins,	cured.	26. Lea,	cured.
2. Baylle,	"	27. Gowan,	"
3. Wise,	"	28. Taylor,	"
4. Stewart,	"	29. Esther,	"
5. Griswold,	"	30. Haines,	"
6. Fuller,	"	31. Johnson,	"
7. Farnham,	"	32. Waterman,	"
8. Emerick,	"	33. M'Cauley,	"
9. Eckert,	"	34. White,	"
10. Orne,	"	35. Middleton,	"
11. Charnley,	"	36. Lyman,	"
12. Black,	"	37. Walter,	died.
13. Cambloss,	"	38. Armstrong,	"
14. Hill,	"	39. Musgrave,	"
15. Wilmer,	"	40. Brown,	"
16. Rush,	"	41. Filbert,	"
17. Blight,	"	42. Smith,	"
18. Tiers,	"	43. Tiers,	"
19. Lysle,	"	44. Callow,	"
20. Boves,	"	45. McEwen,	"
21. Richie,	"	46. Abel,	"
22. Collom,	"	47. Sherman,	"
23. Greene St.,	"	48. Desilver,	"
24. Bell,	"	49. Julian,	"
25. Pine by 11th,	"		

Though the above list contains 49 names of which I find notes and memoranda, I am sure that I have lost the memorials of several other instances. In the above recited cases there were 36 recoveries and 13 deaths, or rather more than one death in every four cases. This result, discouraging as it may be, does not lessen my hope that the new light recently thrown on the etiology of childbed convulsions will enable our successors to lessen the ratio of fatalities to the number of cases, by the use of those precautions against the invasion that are so well

understood by many in the present day, and that would be far better understood by the world if care were taken to indoctrinate those monthly nurses, who have far better and more numerous opportunities to observe the state of pregnant women than those enjoyed by practitioners of midwifery. We, unhappily, too often become concerned in the cases only after a fatal blow has fallen on the victim, as certainly was the case in many of the above recited thirteen, whom I had no real opportunity to treat with reasonable expectations to cure them.

The disorder under consideration generally attacks suddenly, and so suddenly and unexpectedly, that like a flash of lightning or a clap of thunder in an unclouded sky, it produces a feeling of astonishment. In some instances it attacks the woman long before any signs of approaching labor are observed or expected. I have seen it occur at the 165th day of gestation, and at various periods from the 6th to the 9th month, and, in a few persons, after the complete delivery of the woman.

As the larger proportion of the cases will occur to patients actually in labor, we do not commonly observe them to fall like people affected with the falling sickness or epileptic fits. The seizures are mostly noticed in patients lying in bed, which is, perhaps, a reason why eclampsia is deemed by some quite different from epilepsy. When the fit comes on long before any labor has begun, the patient may fall heavily to the floor, as I have witnessed, while conversing with the person concerning symptoms that I looked on as prodromes of the eclampsia.

In general, when the attack begins, the woman is first seen to fix her open eyes and stare as if intently looking at some object. If spoken to she takes no notice of the speaker, but in a little while slowly and with a solemn motion turns her head towards the *right* shoulder very far round and then backwards, after which the face-muscles, then those of the shoulders, the arms, the trunk, and lastly, those of the lower limbs are violently and rapidly jerked. The eye-balls are uprolled so as to hide the cornea. The respiration is high but not very frequent, though it soon grows irregular and disordered, being attended with a quantity of foamy mucus and saliva. At first the mouth is open and the teeth quite separated by spasm in the depressor muscles of the jaw. I have always observed the tongue to be a little protruded—in a little while the jaws begin to champ or open and shut on the still protruded tongue, which is badly bitten, and bleeds so freely that the mucus and saliva of the mouth and lungs becomes reddened and flies with a hissing sound, through the closed jaws, which at last become firmly shut by a spasm so severe and so

long, that it is difficult to withdraw from their bite a tooth-brush handle or stick that may have been used to keep the tongue from being dangerously cut or bruised. This champing with the teeth on the bleeding and blackened tongue, the flecks of bloody foam that dabble her person and dress; the dishevelled hair; the purple, swollen and brutified appearance that has come on the face of the most beautiful woman, giving to it an expression scarcely human; the appearance of approaching dissolution seen in her blackening countenance; in the lessened frequency and violence of the convulsive jerking, and finally, a long protracted groan blended with r le and hissing—make it altogether the most pitiable and terrifying of spectacles. When at length the body lies still, one looks at it doubtful whether it be living or dead. The purple stains of the cyanosis soon fade before a coming paleness like that of death—the pulse is gone—the lungs are still—the victim motionless and without consciousness—we doubt if she will breathe again—yet faintly, slowly, irregularly the diaphragm begins again to draw the vital air down into the recesses of the lungs—the heart impels a feeble current into the pulmonary artery, where the life-giving oxygen combines with and brightens it: slowly it is transferred to the systemic heart by which it is sent forwards on its mission of resurrection of the brain. The innervations clear away this black darkness, and in a little while the now gentle breathings are followed by a moment of sleep, from which she wakes conscious and speaking to surrounding friends.

Under the dreadful circumstances of this disorder, one reflection ought obviously to strike the mind of the medical attendant; it is, that if the woman were not pregnant, she would not be assailed by the disease; and the inference very justly follows; namely, the pregnancy ought to be terminated in order to put a stop to the malady. For whether the assault has depended remotely on mere pressure on the great vessels, on ur mia, or on that more metaphysical state called sympathy of the brain and womb, we shall enjoy a far better prospect of rescuing the woman if she can be delivered, than we shall if the womb remains unemptied.

But can we deliver—ought we to deliver—when and how shall we deliver the woman? We can deliver if the womb is dilated or dilat-able. We ought to deliver, provided we find that the discordant operations of the womb and constitution are likely to fail of promptly bringing the child into the world; for, although the womb sometimes acts with great power during convulsion, and is successfully aided by the violent, irregular, and spasmodic constriction of the abdominal muscles and other accessory forces of parturition, it also happens that

the child, in some other instances, makes no progress at all, and the convulsions, returning at short intervals, afford but small prospect of escape for the patient, inasmuch as they will be likely to continue until the pregnancy is brought to a close by the delivery of the entire ovum.

It is, therefore, always desirable that the patient should enjoy the benefit of as early an accouchement as possible, but it must never be forgotten that the attempt to effect it must be regulated, entirely, by the fitness of the parts for the operation. There can be no excuse for forcing the hand into an undilatable os uteri, under any circumstances; and if the medical attendant be ever so anxious to give his patient every possible chance of safety, he will not be excusable, if, on that account, he rather adds to, than diminishes the risks of her frightful disorder, by intempestive violence in the introduction of his hand. It is true to say, that "anceps melius quam nullum remedium;" but let not this trite aphorism lead us to the commission of positive mischief, under the impression that we are about to employ a *doubtful* remedy. Happily for us, however, delivery is not the only resource to which we can appeal in our anxious wish to put an end to the danger and distress of the scene before us.

What are the circumstances of the case? The patient has, perhaps, complained of severe pain in the head; she is under the excitement of labor; she is heated; the pulse is hard, full, and bounding, and greatly accelerated. On a sudden, the muscles of the whole body become convulsed, and the patient writhes, and every feature and every gesture are horribly distorted; the respiration is attended with a hissing noise, and bloody froth issues with violence from betwixt the teeth, which are rapidly opened and closed by spasm, wounding the tongue, and giving rise to the peculiar hissing sound above mentioned. The eyes are rolled upwards, or moved in opposite directions; and after a greater or less duration of the paroxysm, the patient sinks into a stertorous sleep, or profound coma, from which she is roused only by a renewal of the convulsive movements, or to mutter in the intervals incoherent or inarticulate sounds. Here, then, we have the proofs, as they are also the results, of a preternatural development of the innervating functions of the brain and spinal marrow, caused or maintained not by uræmia alone, but by an undue momentum of the cerebral circulation. The remedy is, first, to moderate the excitement by venesection and evacuants, and, second, to remove the cause by delivery. By the abstraction of blood, we can weaken the force of the circulation of the whole system; we can make the heart beat gently, and cause it to send the blood in a milder current into the

vessels of the brain; we can thus diminish the innervative function of that organ, and control the muscular excitement, while, at the same time, we abate, by the remedy, the hazard of extravasations of blood in the substance of the brain, or of the effusion of water into its ventricles. If there be a case of disease in which bold and daring employment of the lancet is demanded, it is the case of the puerperal convulsion. It is scarcely worth while, almost, to open a vessel to draw off eight or twelve ounces of blood. The patient ought to lose from thirty to sixty ounces at one venesection, if possible; and if signs of faintness appear, they should be hailed as the harbingers of success. They will not appear, unless the brain is already, in some measure, freed from its state of hyperæmic tension; unless the blood is no longer pushed upon it with such force as to excite it beyond measure; and if the mischief at the onset was not too great, there will be a greater chance of saving the patient, provided they do come on. But this bleeding must be promptly begun, and rapidly executed. It is, perhaps, already too late, when the darkening countenance and livid fingers exhibit the evidence of a considerable progress towards asphyxiation.

While we thus endeavor by the use of the lancet to diminish the momentum of the mass of the blood, which is propelled in vast quantities upon the brain, we ought not to omit the use of other available means of moderating the turgescence of the vessels of that important organ. The general bleeding should be followed, very soon, by the application of cups to the temples and back part of the neck, and the hair ought to be cut off, so as to admit of the application of leeches to the scalp, or iced water and vinegar. Sinapisms ought to be freely applied to the lower extremities, and to the abdomen; and the location of them should be changed, from time to time, so as to keep up a constant irritation of some distant part, with a view of diverting the sanguine mass from the cerebrum. Enemata of salt and water, or of jalap mixed with water, may be made occasionally, as a further means of diversion to a safer part of the body, while they also speedily unload the perhaps overcharged bowel. Darkness, repose, silence, should all be considered essential prescriptions, in a case where so important an organ as the brain is concerned, and where the slightest irritations are sufficient to turn the scale in an unfavorable manner.

Though long-continued ill health may be, in general, expected to follow severe attacks of puerperal convulsions, and, though nothing but the most constant care and watchfulness can avert many evil affections, the sequelæ of a state the most unnatural and trying to which

the female constitution is obnoxious, it still is true that many women are no sooner out of the paroxysm than they seem to be well again.

I shall relate some cases of puerperal convulsions that have fallen under my notice, with a view to illustrate for the Student the mode of proceeding under such circumstances. I find, in my case-book, the following entry, for example:—

CASE.—To-day (March 24th, 1851) I was called at 5 A. M. to see F., æt. 19, primipara. She had had labor pains all night. Face flushed, hands red, pulse above 100, large and hard. With every pain she had pulsating distress in the forehead just above the eye. I said to her husband that she was in danger of being convulsed in the course of the labor, which must prove a tedious one, for the os uteri, as large as half a dollar, was very rigid, the perineum excessively hard and thick, and the vertex in the fourth position.

She declined being bled, making excuses, particularly in averring that the headache was gone. At 8½ A. M., I went out to pay visits, and ordered her to be bled ten ounces at 9 o'clock, and take oil. The bleeder came, but she put him off. When I arrived again, which was 10 A. M., I had ten ounces drawn from the right arm, which let her pulse down. At about 2 P. M. the head reached the perineum, but was still not rotated. The waters were now discharged, and at 3 P. M. the vertex was got to the symphysis pubis. The pains began now to be of little force, though repeated every three minutes, and lasting about forty seconds. At 4 o'clock, I perceived her eyes fixed as in ecstasy. I spoke to her, when she made an incoherent reply, and went into a most violent convulsion. I immediately opened a large median vein in the left arm, and allowed the blood to flow until she became quiet, and the pulse had sunk very low. I got some fourteen ounces, which, with the ten before lost, made twenty-four ounces. As soon as I had done this, I cut off her hair, and covered the head with a wet, cold napkin, applied sinapisms to the legs, and ordered a salt water enema, which did not operate, she having had three dejections in the preceding night.

I also sent a messenger to Dr. Huston, and one for my forceps. Before Dr. Huston came, she had perfectly recovered her senses, but the pulse came up well, and was indeed too strong.

I applied the forceps and delivered her slowly, say in half an hour, of a son, in good health. The child was not a large one (about seven pounds). The placenta came off soon and well.

After the child was dressed, she took it and kissed it, and remained perfectly well and comfortable for more than hour, when she had a

second and most violent eclampsia, followed by apoplectic stertor, from which in half an hour she was quite recovered.

As soon as she could swallow, I gave her thirty drops of laudanum, and after that, 16th-grain doses of tartar-emetic. She took three such doses and vomited, since which time she has been comfortable. I drew the water at 10 P. M.

25th. This morning I found her comfortable; has slept well. I drew the water again at 10 A. M., and at 6 P. M. The pulse is good, no headache, and in all respects as well as I could desire her to be.

Sunday, 29th March. She has had not the least indisposition since last record, saving that I have used the catheter twice daily, being unwilling to allow her to rise to the commode.

From this time she recovered steadily, and regained her ordinary health.

CASE.—March 13th, 1838.—Mrs. M., first pregnancy. I was called on Sunday night at two o'clock. She lacked fifty-nine days to the completion of her term: was in strong labor pains, evidently of the dilating kind. They returned every five or six minutes. She was sitting up in a chair, with her hands very cold, complaining of intense pain of the head. The pulse was very large, and as hard a one as I ever felt; it beat one hundred and fifteen times in a minute. In consequence of the circumstances above mentioned, I bled her to the amount of fourteen or fifteen ounces, upon which the pulse was softened, and the headache became milder. It had been most violent at the inferior occipital region, which it now abandoned in order to occupy the forehead, temples, and crown. Notwithstanding the bowels had been moved, I gave her some magnesia, seeing she had vomited several times, and hoping that some alvine discharges would assist in calming the violent disturbance of the circulation within the brain.

In the morning she got an enema which operated freely, yet the headache continued to be severe, and the pulse somewhat tense. There was not a great degree of heat, and I expected to find a diminution of the vascular excitement from a severe flooding, which came on at eight o'clock. At nine A. M., the os uteri was about the size of a dollar, hard and unyielding.

At twelve o'clock, my patient complained of *severe* pain in the head, and said to me, "I can't see you; I feel quite confused." As soon as these symptoms were made known to me, I was fearful of the approach of a convulsion, and immediately proceeded to tie up the arm; but before the blood began to flow from the vein which I opened, she had a most violent convulsion. I allowed the blood to flow until

the pulse became reduced, and then the convulsion went off. I did not take more than eight or ten ounces, which was a very small quantity, in view of the effect to be produced, and actually produced by the operation. Sinapisms were applied to the feet. Mrs. ——— remained in a state of insensibility for twenty or thirty minutes after the disappearance of the convulsive movements, and then recovered her senses. She now had a considerable flooding, which continued to trouble her during the morning.

As soon as the spasms ceased, I ruptured the membranes, and the fetus, which was dead, was expelled at half-past twelve o'clock. It was living at seven in the morning.

She had no more spasms or convulsions after this, but the pain, like a *clou* (or nail in the head), was so violent that I ordered leeches to the temples in the afternoon, and gave her a proper dose of salts and magnesia. The pulse continued to abate of its violence regularly. The medicine operated freely; but at seven o'clock the following morning, she was leeches again on account of pain in the head, and was perfectly comfortable from that time. This woman was dressed, and walking the floor within four days after her accouchement, and continued well.

As regards this case, I presume any one of my fellow-practitioners would readily say that it was well managed, notwithstanding the smallness of the second bleeding, since I resorted early and promptly to the use of proper remedies. I conceive that the resort to venesection in the first visit was highly expedient, and though it did not ward off the threatened convulsion, it doubtless mitigated it, and rendered it more manageable by the subsequent treatment. The only real resource in the puerperal convulsion is in the use of the lancet; and the rule ought to be established that a woman is menaced with convulsions, if she is affected with headache near her term, especially if that headache be referred to the crown, or to some point (*clou*) that could be covered with the end of the finger. I intend never to hear such complaint without pondering upon the value of the indication it throws out, namely, that the lancet, the lancet, and nothing but the lancet, is worthy of confidence. I shall make these same reflections in similar circumstances of pregnancy even when not advanced beyond the sixth month, having lately had occasion to witness a desperate attack in a young primipara five months gone in her gestation.

CASE.—March 13th, 1838, called to Mrs. ——— at six o'clock this evening. She was sitting in her parlor. She expects her labor every hour, the time being out.

I said, "How d'ye do?" "I feel weak," she replied. "I cannot see more than half of anything I look at; I can only see one-half of your face: I can see only one of your eyes." I asked her to cover her right eye with her hand. "Can you see the whole of my face now?" "No!" "Cover your left eye; can you see properly now?" "No; I can see only half." "Have you any pain, weight, or dizziness of the head?" "No!" "Any sick stomach?" "No!" "How long have you been so?" "About half an hour!" "Were you ever so before?" "No!" "Any numbness or want of feeling in the hands?" "No: but my hands are cold." The pulse was about eighty-five, and a little tense, yet moderately so. The bowels not bound. This was the amaurosis of a coming eclampsia.

She now went up stairs, and I took four ounces of blood from the arm, having bled her eight ounces six days ago: when I had bled her, she could see the whole of my face, or the whole of any object she looked at. She did well in her lying-in.

It is a curious circumstance, and one well worthy of attention, that the blackening of the blood, or its conversion into venous blood by the interruption of the respiratory or oxygenating function, should be the means ordained and designed by Providence for the cure of the paroxysm. When the whole sanguine mass has become carbonated, the brain and the spinal cord must cease to innervate the muscles convulsively; and the speedy relaxation of every rigid muscle permits the restoration to the lungs of their oxygenating power; so that, in a few moments after the countenance has been black and deformed in every feature, we have the pleasure to see it, though ghastly pale, recover its whiteness; while the brain, I mean the whole brain, wakes up to the renewed performance of its organic as well as its intellectual offices. When, therefore, in looking upon these frightful scenes, you see the face of your patient growing darker and darker, you will discover in that very circumstance the hopeful announcement of a speedy close of the distressing exhibition.

I think that, in a majority of cases, you may expect to find the whole brain recover soon after the ceasing of the convulsing innervations; but this is not always the case; for, in some patients, I have noticed a profound coma to succeed the convulsions; the hemispheres, the cerebellum, and the tubercula quadrigemina, remaining oppressed and extinct, as to their power, while the medulla oblongata and the spinal cord had resumed a quasi regular exercise of their forces.

CASE.—In a case that fell under my care in this city, a few years since, the lady had convulsions, which occupied the hours from about

11 o'clock A. M. till near 5 P. M. During these convulsions, she gave birth to a dead foetus of the seventh month; remaining wholly unconscious during the whole process. I say unconscious, though she moaned a little, during the labor pains, like a person disturbed by some distressing dream, or like one under the influence of ether in a surgical operation. Some hours after the last convulsive attack, and after she had been lying profoundly still, as if asleep, she moved with spontaneous or voluntary motion; showing that the cerebellum was aroused to its true office of directing or co-ordinating the power extricated by the brain and spinal cord. She soon afterwards spoke, and recognized the voices of friends and was perfectly reasonable; showing that her hemispheres had waked up to their office of intellectual perception and combination. After having for some time spoken, and spoken well, she said, "How dark it is—why do you keep it so dark?" "It is not dark," replied I; "do you not see the candle?" "O no; there is no candle here." "Yes, dear Mrs. —, here is a candle; see—I hold it just before your face." Her beautiful eyes were open, and she turned them at will, to look for the light which shone into their large dark pupils. "Do you not see the light?" said I, again. "O no, Doctor, why do you say so? I'm sure there's no light here." She was totally blind—amaurotic—that is to say, her tubercula quadrigemina were still oppressed, while the rest of her brain had recovered, being liberated from the congestion-thralldom of the black blood. She had amaurosis from pressure on the tubercula quadrigemina. After some time, the dawning light of day having considerably increased, she perceived it through a window opposite, and cried out, "Why, it's daylight!" and I then knew that the tubercula quadrigemina was also recovered and her amaurosis gone.

There is a useful moral in this statement;—it is that we should look to it, in the conduct of all such cases of disease, that all the parts of the brain shall recover—and that, in so far as our measures may have efficacy, we fail not to employ them to the entire subduction of even the last vestiges of morbid action, or oppressed or suspended power. These vestiges of disease we may clearly discern in the intellection, and in the muscular innervations and co-ordinations.

The successive recovery of the different parts of the brain in this case is interesting, as it is analogous to the incidents observable under etherization. When a patient is subjected to the inhalation of ether, the different parts of the brain are affected in succession; but not always in the same succession. The sensitive cords of the cerebro-spinal axis are, in etherization, plunged into a state of insensibility—

leaving the hemispheres capable to perceive and understand what the quadrigeminal tubercles see of any operation that the surgeon is performing. Or, the motor fibres are put asleep, yet the sensitive ones communicate to the conscious mind the painful impressions which the mind perceives—but which it forgets, as it forgets a painful dream.

If the etherization go very far, the hemispheres, the cerebellum, the tubercles and the motor and sensitive cords, are all alike hushed in a state of profound apercception of both the direct and the reflex impressions; the medulla oblongata alone continues to do its work of irradiating the parts that are under the control of the pneumogastric, if the ether be given long enough, and in quantity sufficiently great to quell its force of innervation also, the patient dies. Hence, the medulla oblongata is called by M. Flourens the life-tie, the vital knot, *le nœud-vital*. The oxygenating power depends upon it, and without oxygen there can be evolved no neurosity. Take away the ether in good time; admit the pure atmosphere to the lungs, and the functions of the whole brain are revived; so, in our eclampsia, as soon as the abnormal state of the encephalic circulation gives place to a normal, or one more nearly normal, the brain wakes up to its duties again, and the patient sees, hears, speaks, and acts with the most perfect co-ordination of all those vital forces that are dependent on the brain and cord.

If, in etherization, we press the administration of the drug to the point of overwhelming the medulla oblongata, she will die, and we shall find no necroscopic lesions in the encephalon. So, likewise, in the speedy dissolution under eclampsia puerperalis, the autopsy discloses no lesion of any part of the brain. She dies because the medulla oblongata is asleep or asphyxiated. Are we surprised that the woman should die without perceptible physical lesions of the brain? We are not at all surprised if she discloses none such when destroyed by ether-inhalation. May not the brain perish under the one influence as well as under the other, and yet, dying, leave no sign? In eclampsia, there is always abolition, for the moment, of the power of the hemispheres, always of the tubercula quadrigemina, and always (perhaps!) signal change in the cerebellum. All these revive, and are extinguished again and again, as the paroxysms are repeated or suspended by turns, provided the medulla oblongata perish not. When the case has come to its close, and the patient is restored, where are the lesions? No trace of them remains. But—and here is the explanation—if the sleepless medulla oblongata be affected equally with the others, the patient dies, because the sources of the respira-

tion are cut off. To breathe is to live. God breathed into Adam the breath of life, and he became a living soul.

CASE.—In 1841, I attended Mrs. S. R. during her first pregnancy. She was about twenty-two years of age—a short, but stoutly made woman. She was about six months gone with child when I was first called to see her, having been recommended to me by a medical friend, who declined to take charge of her case, supposing her to labor under disease of the heart, which rendered her situation so extremely precarious, that my friend had cause to apprehend she might die in labor, from the exertions she should then be called upon to make. There was already great œdema gravidarum; and slight muscular effort in moving about her apartment served dangerously to augment the respiratory and circulatory embarrassment. I shall cite from my work on *Females*, a notice of this case, which I am desirous to present to the reader of this volume. It may be found there, together with other observations on anæmia in pregnant women, at page 505.

“She presented all the appearances of great dilatation of both the auricles and ventricles of the heart—the impulse of which was perceptible to the right of the middle of the sternum. The pulse, except when she was in a state of recumbent rest, was large, gaseous, unsteady, and very sudden. The face and whole surface were pale and flabby, the cornea nearly uncovered by the upper palpebra. The respiration was troubled, and on the least motion or emotion, became precipitate and difficult. At the end of the seventh month, the lower limbs became considerably infiltrated, and the power of muscular motion much curtailed in consequence of its being always attended with violent beating of the heart, breathlessness, and uneasy sensations in the head, as pain, vertigo, noises, and dimness of sight.

“The progress of the pregnancy was accompanied with aggravation of all these appearances.

“On different occasions she had attempted to walk in her house, and had fallen on the floor in a state of insensibility. I, being hurriedly notified of such an accident, arrived on one of the occasions, at the house, soon after she was taken up from the floor and laid upon the bed.

“I found her absolutely pale, scarcely able to speak, and completely blind when I arrived. She knew my voice, and opened her eyes to look at me as I spoke;—the eyes were bright, the pupils natural, but she was wholly without sight. She complained of some degree of fulness of the head. The pulse was still agitated. In a short time the sight returned, and was perfect as before. I do not

recollect how many times she actually fell in this manner, and with such following phenomena, but the accident was repeated several times. In nearing the term, the swelling of the limbs from œdema was greatly augmented, so as to affect the thighs, and the buttocks, and labia; the pericardium became also the seat of a dropsical effusion, so that complete orthopnœa soon declared itself.

“My patient could not lie down day or night. If she sat up with pillows against her back and shoulders, the oppression became so dreadful, she was obliged to throw them away; but, requiring some support, she placed her back against one of the posts at the foot of the bed; leaning against the slender cylindrical bedpost, she could find the needful support or rest without the oppression brought on by pillows or cushions. Here she sat day and night for many days, with very bad thin blood, which was imperfectly oxygenated, and so, greatly increased the disorders of the innervation. Her condition was truly deplorable, and it was difficult to imagine that the heart could ever recover its form, consistency, and power, should she even escape death in the impending conflict of labor. In fine labor came on, and in due time I delivered her with the forceps in order to save her from the necessity of exerting any voluntary force.”

This young woman is now in the enjoyment of perfect health, having since given birth to several children, without any accident or extraordinary trouble whatever. Nor does she at present labor under any disease of the heart. Was this state of things brought about solely by nephritis albuminosa?

CASE.—Many years ago, I had charge of the case of Mrs. F. B., who was at that time the mother of two children and had been in delicate health since the birth of the last one. She came under my care during the last sickness of a medical friend, who had treated her many months as laboring under disease of the heart. To rise from her bed, and take a seat upon the sofa, was sufficient, on many occasions, to develop signs of approaching asphyxia from the disordered circulation consequent upon even the most moderate muscular exertion. I frequently observed the respiration and the heart's action to be so violently disturbed by these moderate efforts as to excite my serious apprehension of her imminent death. The pulsations of her heart were as well discoverable far to the right of the sternum, as in the left side of her chest. She was deadly pale; her lips swollen and blue; and to lay the expanded palm upon her breast was to discover under it a quaking and a tremulous motion like that perceived upon pressing on a quagmire. After a long treatment, her health amended somewhat.

She conceived, and proceeded with doubt and difficulty to the term of her utero-gestation. I confidently expected she should perish in her approaching labor, during the greater part of which she was obliged to be raised against pillows on account of a distressing orthopnoea. As the labor drew very nigh its close, it was necessary for her to take a lower recumbent position for the greater convenience of her delivery. I expected consequently, during the progress of her labor, to find her convulsed, and in fact the crisis which was brought about by the last uterine contraction, and the final strong tenesmic effort of expulsion which brought her infant to the light, was instantly followed by a short but most frightful convulsion, which, as it retired, left her apparently moribund. Somehow,—I know not how,—yet by the spontaneous powers of the constitution, she revived from this condition, and had no further serious trouble during her lying-in. In fine, this lady recovered a state of robust health. Her vast dilated heart, which seemed to me as large as a quart measure, regained its normal generical magnitude and force, so that, a few years afterwards, when I visited her sick daughter, she ran before me as light as a girl up to the fourth story of the Washington Hotel, without drawing a long breath on reaching the top. Her heart, I feel perfectly assured, was sound and well again. Was it morbus Brightii? If it was so—in what stage of the disease? This was a case of anæmia gravidarum, and the labor was preternatural, for it was orthopnoëic, and it was followed by a terrific convulsion.

With regard to the treatment of labors rendered preternatural, by aggravated degrees of anæmia, I have only this counsel to give to the Student: 1. That he should clearly disclose to the friends of the patient the whole extent of the perils by which she is surrounded, while he gives to herself the reasonable assurances of his hope to conduct her safely through the whole course of her labor. 2. That, in the Conduct of the case, he should take all possible precautions to avoid undue excitement of the nervous and vascular systems, forbidding the bystanders to exhort her to bear down, and frequently advising her to bear her pains patiently, waiting for their dilating effects, and so continuing until the presenting part, having come within reach of the hand or the forceps, may be gently drawn away almost without any spontaneous assistance of her own. If there can be found a case in which the power of the forceps can be deemed more beneficent than in another case, it is that in which a parturient woman, with an immensely dilated heart, useless valves, with cellular infiltration, and serous effusions within the chest, has barely power to live, but not enough both to live and expel the child from the womb.

It is true that the woman may be greatly infiltrated in pregnancy without having a dilated heart, and that such infiltrations readily disappear after the birth of the child; but they mostly leave the patient pale and chlorotic—or, in other words, hydræmic. I shall think that the woman excessively affected with œdema gravidarum should always be held to be threatened with relaxation or flabbiness of the muscular fibres of the heart, and the thereupon dependent disorders of which I have spoken. In order to overcome the œdema, it might in some cases be necessary, and no doubt is often effectual, to draw blood from the arm, to regulate the diet carefully, to entertain a soluble state of the bowels, and more than all these, to command the patient for a week, or more than a fortnight even, to take an unintermitted horizontal rest upon her bed or couch. To rest for a long time, and in doing so to avoid the dorsal decubitus as much as possible, is to put a stop to the progress of the infiltrating secretion, which I believe in true œdema gravidarum always begins and ends in the most dependent parts—to wit, the feet and legs. The circulation in such a posture becomes more and more moderate, and the aqueous humor already effused, being now dispersed almost over the whole of the subcutaneous cellular tela, is imbibed by thousands of absorbing orifices, to whose action it could never be exposed while accumulated solely in the lower part of the trunk and in the inferior extremities. I confidently recommend this mode of treatment, and assure the Student that I saw a young lady, a primipara, in October, 1848, who was five months past gone with child, in whom the œdema gravidarum had distended not the legs only, but very much also the pudenda: in this case the whole of the dropsical effusion disappeared in some ten days of a horizontal recumbency which she observed in consequence of my recommendation. These dropsical effusions should not be regarded by the Student as signs of an hydropic diathesis, but rather, as I have elsewhere explained, as the results of mechanical pressure and obstruction upon veins and absorbent trunks. Where the œdema has become very great, and the anæmical condition aggravated, there arises a real hydropic tendency or diathesis which leads to effusions into the belly or into the chest. As to the advice to draw, on certain occasions, blood from the arm of the hydræmic patient, I do not find I am inconsistent with myself: it is to be remembered that the hydræmia is in this case produced by a pathological state of the hæmatomic tissues, and that to bleed is, in some cases, to cure that malady.

Common experience and observation show very clearly the propriety there is, in all those cases where the anæmia has become thoroughly established, to prescribe for the patient the use of ferruginous

tonics. It is scarcely necessary for me to repeat, in this place, that the article most suitable for the occasion is the metallic iron of M. Quevenne. It may be given in doses of two grains in the form of a pill, to be taken immediately after meals three times a day.

Exhaustion.—Labors are sometimes rendered preternatural by the occurrence of what is called Exhaustion. Any disproportion between the child to be born, and the straits or the excavation of the pelvis, might, by protracting the vain efforts of the woman, serve to exhaust her forces. The disproportion may be absolute or relative. The child may be preternaturally large, to that degree indeed as to make it impossible for it to pass, unreduced in magnitude, through the parts; or the child may be of the normal size, while the pelvis is of under size, though in other respects well fashioned. Again, both the child and the pelvis may be duly proportioned to each other; yet the child may so present itself to the passages, as to retard or render impossible its spontaneous exclusion. Thus, if the child should present its head in extension at the superior strait, and descend in face presentation, with its chin to the sacrum and its forehead to the front of the pelvis, it would prove a very extraordinary circumstance should the woman fail to fall into the state of Exhaustion, unless delivered by the hands of the accoucheur: or there might be a departure of the chin from the breast; or such an occipito-posterior position of the head as to cause the two extremities of the occipito-frontal diameter to become immovably fixed upon opposite surfaces of the pelvis, constituting what is called arrest, and ultimately impaction of the cranium. An unturned or unevolved shoulder presentation; a prolapsion of a hand or a foot along with the head; or the impaction of the parts of two children at the same time in the pelvis, might serve to exhaust the expulsive as well as the vital powers of the woman. In addition to the above causes of this kind of preternatural labor, we ought to mention rigidity of the vaginal cervix, whether simple rigidity, or whether rigidity arising from carcinoma, or the remains of uncured inflammation of the os uteri. I have found that the action of the womb may be contravened by the intrusion of a loop of intestine betwixt the front aspect of the womb and the contracting abdominal muscles, occasioning during the labor throe, such great pain in the prolapsed loop of intestine, by compressing it between the hardened globe of the uterus and the contracting abdominal muscles, as to overcome the proper conformableness of the innervations *ad partum*. It is scarcely necessary for me to enumerate all the possible causes of exhaustion in labor; it is better that I should say that the parturient

action of the uterus and accessory muscles is effected at a certain expense of power developed in the nervous mass of the patient, and that while a woman in ordinary labor, and even in severe and long-protracted labor, is generally found capable of evolving from her nervous mass and sending down to the uterus and adjuvant muscles, an amount of innervative force sufficient to enable them to overcome all obstacles, yet obstacles are in some instances so rebellious that the sources of the nerve streams become exhausted, and the cerebro-spinal axis refuses any longer to repeat vain attempts to deliver; the woman lying motionless, feeble, and in a state which, to be truly denominated, should be called *exhaustion*, or the commencement of the moribund state. Exhaustion does not mean fatigued, but it means constitutional irritation of the most dangerous sort.

The heart has lost its force and increased its frequency, for the sources of its innervation are greatly diminished, and its own physical structure has become changed in impressionability and power. The respiration is hurried and short, for the diaphragm, the respiratory piston, makes short strokes frequently repeated—its power being nearly done. These states of the respiration and circulation necessarily involve disordered and diminished evolution of life-force in the nervous mass, and the blood, the fluid body, becomes fatally changed. Let the Student take heed, therefore, of the beginnings of exhaustion, for she who has gone far into it is irrecoverably gone into it. It is exigent to deliver her, and that in the manner least likely to consume her feeble remains of life power. Exhaustion is preternatural in labor, and even if it were not so, the duty becomes incumbent on him to render the labor preternatural by delivering with the vectis, the forceps, or the embryotomy forceps. Let him bring the chin to the front of the pelvis; or let him use the vectis; or let him reduce its magnitude with the perforator, in order that the child may be born; or let him extract it with the forceps. Let him, where there is departure of the chin and consequent impaction, restore the chin to the breast, or convert it altogether into a face presentation; let him convert the occipito posterior into an occipito-anterior position; let him return the prolapsed arm above the head; let him put away the foot, and give space for the head to descend through the pelvis; let him turn and deliver by the feet, or promote the spontaneous evolution of the fœtus; let him disengage the prolapsed loop of intestine from betwixt the womb and abdominal muscles; let him reduce the size of the hydrencephalic head of the fœtus, in order that it may pass the straits; let him take away from the woman any further necessity to evolve biotic force for the expelling womb and abdomen; let him take

away from her agonized nervous mass all further occasion to perceive the irritation, the pressure, or the pain; and then, tenderly placing her upon her pillows, wait until perchance her blood may be redeemed from its perilous disorders, and her neurine again come to send down its streams of biotic power to all her organs and organisms, with a gently increasing, conformable, and normal power.

There is a great difference between exhaustion and the mere cessation or suspension of labor pains. The woman may fall into labor, and after proceeding many hours towards the accomplishment of her delivery, she may stop for many hours to commence again, and again to cease the work of expulsion. The act of labor being established, does not necessarily imply that the effort shall be continued until the completion of the process. A woman may be in labor during several hours daily for a whole month, dilating her os uteri to the size of a half dollar, and then closing it again so that it shall become as small as before the commencement of the process; so a woman, even in advanced labor, may cease to labor for hours, or for many days, and yet suffer no perceptible illness. Such a case is not sickness. It is not exhaustion. Hence, I warn the Student that he ought not to commit the serious mistake of concluding, merely from the cessation of the pains, that the woman is in a state of exhaustion, or even beginning to fall into that dangerous state. I know not why it happens, as it often does happen, that labors begin and stop without any apparent indisposition; but I know that the records of a man's practice should furnish him with many instances of the kind.

To know the state of real exhaustion, let him look upon the condition of the vital triad—the brain, heart, and lungs; or, in other words, the innervative, the circulatory, and the oxygenating functions. He will discover the condition of the brain by the psychological signs, such as illusions, hallucinations, delirium, altered temper; and by the physical signs, loss of co-ordinating power in the cerebellum, seeing power in the quadrigeminal tubercles, respiratory power in the indispensable respiratory bulb, and lessened intensity of the nervous force in general. The embarrassment of the circulation is discoverable by lessened power of systemic injection, and augmentation of the frequency of it—the oxygenation shows its failure by change of temperature and of colorific power, all of which must be studied, and profoundly studied and understood, in the manifest action of the mind and the whole physical conduct and aspect of the patient. In a difficult labor, tending to exhaustion, there will first be discoverable a most marked violence in the effort of the arterial pulse, which becomes voluminous, hard, and frequent—beating about 110 pulses per minute.

Whenever, after some time of protracted and fatiguing efforts with such a state of the pulse, the contractions of the heart are found to be repeated 120 to 140 times a minute, the volume of the artery becoming reduced, the temperature being also lessened, with a dry mouth and parching thirst, loss of courage and resolution on the part of the poor woman, the presenting part in the mean time making no progress whatever, exhaustion has begun, and has already proceeded even too far.

Exhaustion is not likely to arise from the resistance of the soft tissues only. Even the most rigid cervix uteri gives way when the strength begins to go down. So also the most resisting perineum yields before the constitutional force is abolished or overthrown. But the impacted head, the unturned shoulder, or the impracticable pelvis, can never give way; and the efforts of the nervous, circulatory, and oxygenating forces must ever fail in presence of inexpugnable resistance: in such instances, the sources of the innervation must sooner or later become wholly exhausted, and the woman be lost if she be left to the powers of her own constitution.

In the beginning of exhaustion, to deliver is to save the mother. A too long procrastination of her deliverance is most apt to insure her death.

Exhaustion not being likely to ensue in consequence of soft resistance only, we have, even in the most obstinate cases of soft resistance, little to fear from contusion and a coincident irritation or shock; nor have we ground to look for dangerous sloughing at a later period. But when exhaustion arises from vain attempts to overcome the resistance of solid bone, we have, in addition to the direct effect of such efforts in vitiating the blood and modifying the crisis of the nervous mass, much mischievous impression upon the whole nervous system, radiating from parts engorged, contused, or ruptured. The violent excitement of the sanguiferous system, in painful protracted labors, serves in a sense to demolish the organization of the blood, which becomes broken down, its plastic portion being increased excessively, while it loses in a measure its sensibility to the action of oxygen; it loses, in other words, its healthy crisis and the innervative results of its oxygeniferous force; and its contact with the nervous mass become unconfomable to the wants of the organs, which fail and die under such want.

Cramp.—I do not remember to have met with any published statement of cases of cramp in the legs as causes of Preternatural labor, and yet, having met with examples of it in my own practice which rendered the use of forceps absolutely indispensable, I have thought

fit to relate them in this book. There is no need for great surprise at the announcement of this cause of preternatural labor, since it is well known that the compression or tension of a nerve may give rise to pain so great as to disturb in the most violent manner the functions of life. The head of the foetus, in descending, may be impelled with so great a degree of force against certain of the internal sacral nerves as to render the patient almost or quite frantic from the agonizing sensations developed thereby. Under such intense suffering, the womb may cease to act, or act inefficiently, and the practitioner, seeing that the distress of his patient is greater than she should be permitted to bear, hastens to extend to her the only prompt and efficient means of relief.

Without further discussion of the reasons which, *à priori*, should include the violent cramps to which I refer among the causes of preternatural labor, I beg to refer the Student back to page 48 for accounts of the cases, which I have no occasion to repeat in this connection.

Prolapse of the Cord.—There are other circumstances that may suffice to convert a natural into a preternatural labor. Among these may be mentioned the prolapsion of the umbilical cord. The cord very rarely gets down below the presenting part of the child, and we have reason to be astonished at the rareness of the accident when we consider the great length of that part of the secundines, which is sometimes found to be six feet in length. The mere falling of the loop could not, under any circumstances, interfere with the ability of the woman to deliver herself, because it could not inconveniently occupy any space in the pelvis to the hinderance of the birth. The importance of the accident is relative only to the child, and not to the mother. The child is placed in imminent danger of dying by asphyxia from pressure on its umbilical vein and arteries when they fall below its head in labor. Hence, the necessity of expediting the delivery by manual or instrumental means, and the conversion of the natural into the preternatural kind of labor, either by turning or the forceps.

I do not wish to be understood as advising a resort to art as an invariable rule of practice in such cases; for it fortunately happens, in some instances, that the pelvis is large and roomy, the os uteri dilating rapidly, and the pains sufficiently strong to assure us that the child will be born so speedily by the unaided powers of nature, as to make it unnecessary for us to interfere. The child has so good a chance for escaping uninjured, in a rapid delivery, that it is more

advisable to confide in that chance, than to expose both the woman and the child to the hazards of a forced delivery. I repeat that it is a rare occurrence to meet with a cord prolapsing, after the labor is fairly begun. Indeed, the head so completely fills up the cone of the cervix uteri, as to prevent the navel string from falling down betwixt the head and the walls of that cone. If we find it fallen down, therefore, and the os impracticable, what madness would it be to attempt to turn before the cervix is dilated! Such an attempt would be likely to fail, or kill the patient. But if the os is dilated, and the head on the point of escaping into the vagina, we may expect, as soon as it has cleared the os, to be able with the forceps to rescue the infant, and that with almost no risk to the mother. We also have the advantage of being able, by touching the prolapsed cord, to ascertain the state of the fœtus: if the pulsations continue vigorous, we shall suppose the child to be doing well, and if they become faint and feeble, we shall be led to resort to the forceps or to turning, as the case may be. When the prolapsed cord has no pulsation and is cold, the child is dead, and of course no steps need be taken on account of the prolapsion, which, in that case, becomes a matter of indifference. These prolapsions rarely take place after the mouth of the womb has become well dilated. The cord is probably down, in most cases, before the labor begins, for it is found protruding through an os uteri not larger than a half dollar. Such an os uteri is impassable to the hand; therefore the accoucheur can by no means return the fallen cord into a cavity to which he cannot have access: he makes vain attempts to succeed by pushing the loop back within the constricted circle of the mouth of the womb, from which it again immediately escapes. If he could carry the string quite above the head, it would stay there. It is evident, therefore, that, with the hand alone, little success can be expected, in even the most patient endeavors to get the prolapsed part in a place of safety. I have succeeded with my hand alone, but have much more often failed.

Many various methods of repositing the cord, or putting it back into the womb, above the fœtal head, have been proposed; they have mostly been found ineffectual, from its being apt to fall down again, even after it has been put into the proper place. I have never yet had an opportunity to try a method which I beg leave to propose to my readers, and which is as follows: Take a piece of ribbon or tape, a quarter of an inch wide and four or five inches long. Half an inch from the end, fold the tape back, and sew the edges so as to make a small pocket. Then fold the other end in the opposite direction, and sew that also, to make a pocket of it. Now, if the cord be taken in the tape, and held as in a sling, a catheter may be pushed into one of the pockets, and

that one thrust into the other, so that we shall have the cord held as in a sling, which is itself supported on the end of the catheter or womb-sound. Let the catheter be now pushed up into the womb, beyond the foetal head; it will carry the secured portion of cord with it, and the catheter being withdrawn, the tape is left in the uterine cavity, where no harm can be occasioned by its presence. If required, several such tapes could be secured round the cord, and all of them fixed on the end of the same catheter, and pushed at the same moment far up within the cavity of the womb. By using this method, Dr. S. P. Browne, of Greensburg, in Westmoreland County, Pennsylvania, succeeded in separating the umbilical string, as did also his son, Dr. Robert Browne.

Fainting.—Fainting or syncope, when often repeated in labor, is sometimes of so alarming a nature as to induce the practitioner to be willing to expedite the birth of the child, in order to put an end to so threatening a symptom. No prudent person, however, would be led to perform so serious an operation as Turning, or the application of the forceps, without being first fully convinced of its necessity. Of the degree and imminency of the danger here, none but a medical person can be supposed a competent judge, and the case must be left in his hands, strengthened, as he should be, by the counsel of a professional brother. I shall feel satisfied, therefore, to have merely referred to this cause, and to leave it to the discretion of the attendant physician, without any additional remarks.

Hernia.—A hernia, especially if of a kind liable to strangulation, might be a warrant for the accoucheur to hasten the moment of relief by the employment of the resources of art. We have also, in a few very rare instances, the dreadful accident of laceration of the womb or vagina to contend with. Of course, as soon as either of these accidents is known to exist, we should resolve to take the management of the delivery into our own hands, in order that we may, at least, save the infant, while we can also offer some faint chances of hope for the safety of the patient.

Engagement of a Loop of Intestine in front of the Womb.—Though the gravid uterus, at full term, lies behind the abdominal integuments, and quite in front of the mass of intestinal convolutions and transverse colon and its sigma, it sometimes happens that a portion of the mesentery or mesocolon, I know not which, becomes so relaxed or elongated in the direction of its radius, as to permit a considerable por-

tion of the intestinal tube to fall over the front aspect of the womb, and, when once engaged there, to be driven down by the expulsive force of the belly, as low as, or even lower than the umbilicus, where it is pinched, or compressed, or perhaps in a sense strangulated, by the contraction of the abdominal muscles in the labor throes. The Student will readily conclude that so distressed a condition of an important organ could not but introduce modifications in a labor. In such a case, his attention will be drawn to the extreme suffering of his patient during her pains, which, instead of propelling the child rapidly, as might be expected in view of the intenseness of her distress, cause it not to advance even one tittle; while cries, jactitation, and the most disheartening expressions leave him at a loss to imagine the cause of delay, the more particularly when he finds not, in the position, the presentation, or the state of the soft parts, causes that might arrest the progress of the parturition. He ought to inquire as to the existence of such possible causes, and if he find them not by his vaginal exploration, let him ask questions as to the place and kind of pain, and he will discover that the woman has intestinal pain, and that that pain is situated between the womb and the integument.

CASE.—Without making further special observation on this accident, it will suffice me here to say, that, about fifteen years since, I was in attendance upon a primipara lady occupying a high social rank in this city. The labor had proceeded without any untoward circumstance to almost complete dilatation of the cervix uteri, when my patient began suddenly to complain most unaccountably of her pains. She became excessively agitated, and being a person possessed of great self-control, I was much astonished and alarmed by her moans and agitation. I could discover in the condition of the presenting parts and the textures within the pelvis, no grounds of great distress; but after careful inquiry, learned that the pain was in the uterine tumor, just above the umbilicus. She had not been affected with rheumatismus uteri during her gestation or the antecedent part of her labor; I was obliged, therefore, to fall back upon the painful apprehension that the texture of the uterus was about to give way at the seat of this pain, for that is what the practitioner ought to apprehend under such circumstances. Approaching the lady's bedside, I requested permission to examine the abdomen, for which the nurse prepared her by uncovering her of all save the under garment. Upon touching the abdomen, I found an irregular eminence in the place complained of. Gently percussing it, I discovered from its sonorousness that it was a loop of intestine fallen down there, and

which, being compressed between every uterine and abdominal contraction, had given rise to the agitation and pain. As the integuments were thin, I was enabled by a sort of taxis to push the loop upwards from its dangerous position, whereupon the labor pains became again normal, and the parturition thenceforth proceeded steadily and towardly to a happy conclusion. I have never met with a similar example. This was altogether an unnatural state for a woman in labor, and therefore I consider this woman's labor altogether a preternatural one.

Carcinoma Uteri.—Carcinomatous degeneration of the cervix and os uteri does not, unhappily, always obviate the power of fecundation and conception. A lip of the os tincæ may be far gone into carcinomatous degeneration without exciting suspicious discharges of mucus, sanies, or blood, and even without developing such a degree of sensibility of the part as to preclude cohabitation. The development of heterologue tissue in the cervix uteri is, in some instances, as slow and torpid as the development of similar tumors in other parts of the body. To become pregnant under such circumstances is a great misfortune indeed, for gestation changes the whole life-activity of the uterus, which becomes altered in form and density, and fatally tends to augment the heterologue life which has established itself upon the vaginal portion of the organ. Hence where the torpid and sleepy carcinoma takes upon it the life of the open cancer, and the fœtus has attained its full growth, and labor has begun, let the Student imagine the awful condition of the patient, one-half of the circumference of whose cervix uteri has become a mass of heterologue tissue, filled with the caudate cells and silvery bands of the cancerous mass, utterly unsusceptible of dilatation, and exquisitely sore and painful. If such a womb should ever be opened, the dilatation of the mouth of it must be effected at the expense of the unaffected half, its only dilatable portion. If the circle of the os uteri must in labor become a circle of twelve or thirteen inches in circumference, in order to permit the escape of the head, what must be the unspeakable agony of the patient, half the circumference of whose os uteri has become perfectly undilatable through carcinomatous degeneration?

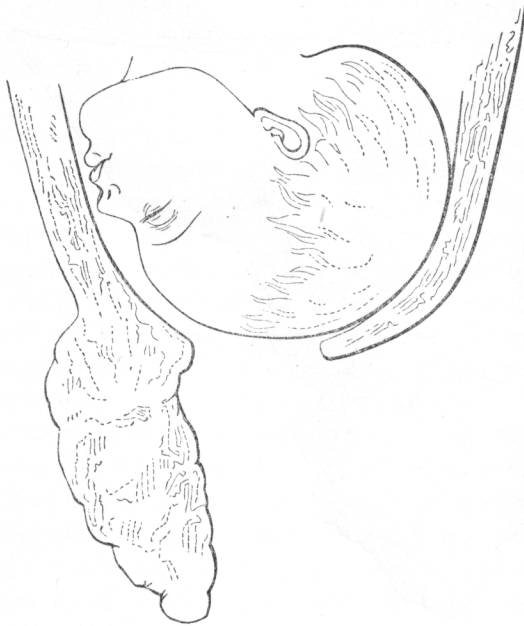
CASE.—I saw, in the early part of the year 1847, a wretched human being, whose cervix uteri and vagina, the seat of a frightful ulcerated carcinoma, had just been torn to pieces by the escape of a full-sized fœtus at term.

CASE.—On the 18th of March, 1848, I was called at 11 P. M. in consultation, to a pregnant lady. She was thirty-three years of age. She has not had a child during the last fourteen years, having previously given birth, I believe, to two children.

Throughout the whole course of the present gestation, she has suffered with distressing, most distressing, nausea and vomiting. She is pale and emaciated. Has had frequent bloody vaginal discharges from the beginning of the pregnancy until now—expects her accouchement about the tenth proximo.

At six P. M. she was attacked with flooding, since which time she has lost probably more than eight ounces of blood, which still continues to ooze slowly away. They showed me a hard vaginal coagulum, larger than the whole thumb. Figure 93, annexed, represents the size of the os uteri and the thickness of its edges: the posterior lip, which is much thicker than the remainder of the circle, is seen on the left side of the plan; this lip is prolonged into a tumor that bleeds at the slightest touch, and is evidently a mass of carcinomatous tissue

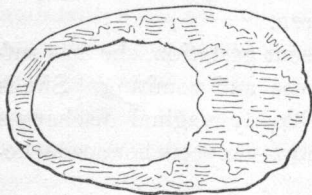
Fig. 93.



in open ulceration. The figure, half size of nature, gives a correct notion of the profile of this tumor, and of the degree of the aperture of the os uteri, in which the child's head is represented as pressing

upon the cervix and os. The tumor is seen in profile descending into the vagina. Figure 94 gives a front view of it. The tumor is hard, wholly undilatable, so that the whole of the dilatation hitherto effected, has been effected at the expense of three-fifths of the circle, the remaining heterologue two-fifths not having furnished anything to the dilatation, or, if anything, an uncomputable proportion.

Fig. 94.

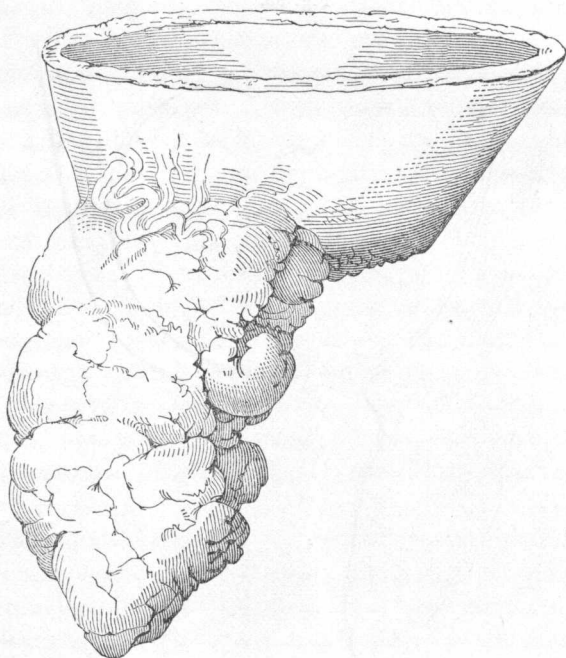


Agreeably to the decision in consultation, she got an enema of forty five drops of laudanum mixed in a fluidounce of clear starch.

March 19th, 12 M. She slept well after the enema, and has had no pain to-day.

21st. Has continued well up to 3 P. M. to-day, when she was seized with the pains of labor, attended with inconsiderable hemorrhage. I

Fig. 95.



was again summoned to the consultation at 5½ P. M. The os uteri was dilating. The tumor was now found nearer to the left ischium, as if the womb had been rolled upon its axis. As the pains in-

creased, her distress became very great indeed,—I may say unspeakably great. The child had attained to within twenty days of term, and it was apparent that full two-fifths and more of the cone of the cervix uteri could not furnish any material for the necessary dilatation. Hence there must be the greatest danger of rupturing the tissue; and accordingly at six o'clock in the afternoon, the whole projecting mass of the tumor came away into the hand of the gentleman in attendance who handed it to me, and of which a good representation is given in Figure 95.

The lady was a person of admirable temper and manners, but the greatest courage and the utmost stretch of her Christian fortitude and patience could not conceal from the anxious spectators the extremity of her agony.

There was no great increase of hemorrhage after the separation and escape of the tumor, but the bag of waters was thrust down far outside of the ostium vaginae, soon after which, at 6½ P. M., the child was expelled. A solution of morphia was administered to her, and she became composed. At one o'clock in the morning, she was seized with a rigor, which soon became a violent ague, that lasted more than an hour, whereupon febrile reaction ensued, with a pulse at 180 beats per minute. This febrile condition was attended with violent pain and intense sensibility of the abdomen to pressure. There had been very little discharge since the expulsion of the child, and the mass of the uterus was well and firmly contracted. Upon the establishment of the febrile reaction, she was bled to the amount of twenty-two ounces, with great relief to her distress, and without the least appearance of syncope.

Wednesday, March 22d. At one o'clock to-day, she suddenly began to sink. She was in the full possession of her intellectual powers, and had not the slightest pain. She died in the afternoon. Upon examining the body about twenty-four hours after death, there was no trace of hemorrhage in the belly, nor any marks of peritonitis. These figures were drawn by Mr. Gihon, and represent the tumor correctly.

I have met with some examples of carcinoma of the cervix in pregnancy, which did not prevent the patients from recovering from the lying-in; but I lately saw a woman who was delivered while affected with carcinoma of the cervix and vagina. The parts gave way, and she died.

Smallpox.—There can scarcely be a more disturbing cause of parturition than smallpox existing in a woman in labor.

I will not say that every woman who gives birth to a child while laboring under smallpox must inevitably perish, since my clinical experience has shown me that the contrary may, however rarely, be the case. But I do hold to the opinion that a pregnant woman, laboring under a considerable attack of smallpox, is far more likely to be lost than saved, whether she miscarries, whether she be prematurely confined, or whether she give birth to her child at the full term of utero-gestation. A pregnant woman may be attacked with smallpox even in its most direful confluent form, and yet recover well, provided labor does not come on in the course of the disease; but if she be confined or suffer abortion, she shall hardly escape death by hemorrhage from the womb, or by metro-phlebitis coming on early after the detachment and expulsion of the placenta.

Late authors on obstetrics have expressed the opinion that the bleeding orifices upon the inner aspect of the womb—those, to wit, which give issue to the lochia—cannot be restored to health save by the intervention of adhesive inflammation of those vessels. That adhesive inflammation, how slight soever it may be, is phlebitis. They further express the opinion that the milk-fever of women, and the milk-fever which is known to affect our domestic quadrupeds after parturition, is the constitutional disorder developed by the purely topical and limited phlebitis affecting the uterine orifices above mentioned. This opinion appears to me to be worthy of respect upon a bare annunciation of it, as well as from the confidence to be reposed in the judgment of the authors in question.

My earnest desire, in introducing this section here is, in the first place to point out the great necessity there is for pregnant women scrupulously to avoid the contagion of variola; for I think I am quite correct in stating that the sentiment of the profession is almost unanimous, that the woman who is confined during smallpox dies; and secondly, to let the Student beware not to expose his gravid patient to the least danger of variolous infection; and, therefore, never to venture, under any circumstances, to vaccinate a pregnant woman, or one recently confined. To give this precept is the essential motive I had for introducing this article into my work, and I am the more desirous to attract the attention of the Student to this point, because I know that the brethren in general are not in the least suspicious, that to vaccinate a pregnant woman is to expose her to great hazard. If the virus of smallpox is eminently inimical to the life of the pregnant female, I aver that the virus of the vaccine inoculation is little less so than that of unmitigated smallpox.

If the Student will take two clean lancets, and insert the points of

them into a mature smallpox pustule, he may send one of them a hundred leagues eastward, and with it inoculate an unprotected individual, who will receive from it the infection of variola; and consecutive inoculation from this line would repeat variola for centuries. Let him send the other lancet a hundred leagues westward, and with it inoculate the udder of a healthy cow. He will in this way communicate to the animal a vaccine infection, from which vaccine inoculation of human beings may be consecutively repeated for centuries. So that the variolous pustule in the human being has communicated the vaccine infection to the cow, which vaccine infection may likewise be repeated, without modifying it further, through an unknown series of human bodies. The generical force of the inferior animal has modified a poison produced by the generical force of the human being. It has changed it, not destroyed it. It retains a portion of its variolous power which is inimical to the pregnant woman, and to expose one to its rage is a gross imprudence and misapprehension which I hope no Student reading this book will ever be guilty of. The shocking spectacles of distress that I have witnessed, from the vaccination of pregnant females, have so impressed my mind with the enormity of the imprudence, that nothing, I think, could tempt me to commit it myself. The most furious phlebitis, which is endangitis, and which becomes pyæmic fever, is one of the consequences likely to result from every true or spurious vaccination of a pregnant female. I am firmly convinced that it is far better for the physician, during an epidemic of smallpox, to leave his pregnant patient to the chance of a natural infection, than to certainly bring her within the range of its virulent power by a vaccine inoculation, which is but a variolous inoculation modified by the generical force of an inferior zoological genus.

If I venture to put forth such opinions as the above, it is hardly incumbent upon me further to protest against the temerity of those who, during the existence of a smallpox epidemic, recommend, and even proffer, what is called *revaccination* to those who, having been already vaccinated, might be held to be protected; I mean, to pregnant women. I have seen pregnant women very nigh to term, unnecessarily revaccinated, with consequences so terrific that I think I would not, for a thousand golden crowns, either vaccinate or revaccinate any woman knowing her to be pregnant.

Scarlatina.—A woman who should have the misfortune to be seized with scarlet fever, and to be brought to bed while affected with it, would be more apt to die than to recover. Dr. Dewees used to say:

"The woman who has scarlatina in her Lying-in, dies." This, though true in general, presents exceptional cases. I have had four such cases, in which all the patients recovered, to my great surprise and pleasure. In my work on *Children*, I gave, in the article on Scarlatina, my views as to the nature of that malady. If, as I there suppose, scarlatina is essentially an inflammation of the vasa vasorum, and derm capillaries, we need not be surprised at the tendency of it in women newly delivered, to result in pyæmic or other forms of the puerperal fever.

Twins and Triplets.—In Churchill's *System of Midwifery*, Phila. ed. 1846, p. 411, there are statistical statements on the subject of twin and triplet pregnancies. Dr. Churchill states that out of 448,998 cases of pregnancy, we have 5,776 cases of twins, or one in $77\frac{2}{3}$, and 77 cases of triplets, or one in 5,831 cases. A case that occurs only once in 77 labors, and in the course of some men's practice not so frequently, will be esteemed to be preternatural; for that is natural which occurs constantly, that is most nearly natural which occurs frequently, and that is preternatural which occurs very rarely. A triplet labor, which, according to Dr. Churchill, occurs only once in 5,831 cases, will certainly be admitted to be an unnatural labor, or, to use a technical phrase, a preternatural labor. I shall not err, then, in setting down twin and triplet cases as cases of preternatural labor; at least, I find it more convenient to arrange them here than to give a separate chapter on the subject.

As a general rule, a twin labor is not suspected to be so until after the birth of the first child, for a woman carrying twins in the womb is frequently found not to be larger than she who carries but a single one. Two children of six pounds' weight each, do not oppress so much as a single child of twelve pounds and a half, and the liquor amnii of the double pregnancy may be far less in quantity than the liquor amnii of a unipara womb. When a woman in the latter weeks of her pregnancy becomes very lusty as it is called, or when the abdominal walls, becoming weakened, allow the uterus to fall far forward so as to make the belly a little pendulous, that circumstance may give rise to misapprehension, and the woman is apt to fear she will be so unfortunate as to give birth to twins. In practice, the Student will find that ten women shall fear twin labor, for one that shall really suffer it; and that in ten twin labors, there shall be only three or four in which twins shall be suspected to exist. It is not difficult during the pregnancy to ascertain the existence of twins, since the stethoscope reveals the pulsations of two distinct hearts; and, moreover, during

the flaccid state of a womb, if a woman lie upon the back, the feet drawn up, it is not difficult by external palpation to detect the presence of two distinct, orbicular, hard heads.

Although I prefer to speak of twin and triplet labors in the chapter on preternatural labors, I am ready to admit that many women giving birth to twins, find themselves delivered promptly and with little pain; especially when the children, as is usually the case, are under size; nevertheless, in twin labors with large children—and I have seen two children the sum of whose weights was sixteen pounds and a half, and where the ova contained a very extraordinary amount of liquor amnii—the process of parturition is slow, disheartening, and painful. The overloaded uterus acts feebly and irregularly; the labor is long in establishing itself, the excessive extension of the muscular tissue of the uterus preventing the organ from propelling the point of the ovum into the cervix and through the orifice of the os; the bag of waters is therefore slow to be formed.

It rarely happens that the waters of both the ova come off together. If the amniotic sac which contains the first child or the presenting child should have discharged its fluid contents, then the expulsive power of the uterus must be communicated to the advancing child through the unbroken ovum of the second birth: such an elastic and compressible medium for the transmission of the expulsive force must have the effect of decomposing it, and rendering its exertion futile. If the membranes of the first child remain whole, and those of the second child be broken and discharged, as sometimes happens, the same effect is produced. I saw a twin labor in which the first child pushed the placenta of its brother before it into the world.

In case both ova are ruptured, the lowermost child must be thrust down by the uppermost child; but, as the uppermost child is never directly above the lowermost, the force must be communicated laterally, and it acts obliquely upon the body of its mate. The practitioner who finds an os uteri ductile and not reluctant, is ordinarily embarrassed to make up his opinion as to the cause of the slowness of the labor, where the resistance is small and the woman in good health. He might be tempted on this account to exhibit ergot, or administer stimulants, or some provocative to increased uterine action. He ought to do no such thing; the duty of an accoucheur is to inquire into the cause of the slowness. Let him rise from his seat and apply his ear to the abdomen of the woman; if he finds the foetal heart, let him ascertain its place, as relative to the top of the symphysis pubis, nearer or more remote from it in the hypogastrium; and knowing where the head is, then, with his hand upon the abdo-

minal uterine tumor, he will at once come to the conclusion that the womb contains one child, or more than one child. In the latter case, let him find the heart of the second child, and the position of that heart will afford him a tolerably good diagnostic as to the presentation of the second twin. If the accoucheur finds the uterus overloaded, and that it is acting at a great disadvantage in consequence of its being compelled to communicate its expulsive force through the body of the first child obliquely to that of the advancing twin, he will understand his case and act accordingly.

In twin labors, the children may present both by the head, or one by the head and the other by the breech, as in Fig. 96.

In case both the children present by the head, there is risk that when the first head shall have fairly sunk below the plane of the superior strait, the other head may be thrust downwards near the superior strait, against the throat of the first child, which it crushes against the opposing wall of the pelvis, and thus locks the lower head, which cannot descend because the thorax to which it is attached cannot enter the brim, on account of the presence there of the second head. Let the Student imagine the difficulty of treating such a case; for the first head fills the cavity in such a way as to prevent his passing his hand up, and when the foetal head is once fairly within the excavation, it becomes an extraordinarily difficult and

Fig. 96.



often impossible thing to thrust it above the superior strait again to turn and deliver. I am happy to say that my clinical experience has never furnished me with an example of this sort. A case of the kind occurred to one of my brethren here a few years since, which embarrassed him greatly. He could neither return the first head, nor displace the second; he took the measure, therefore, of decapitating the lowermost child, and after its head was removed the second child was delivered, and the headless trunk of the first one followed it.

In case the first child should present by the breech, and descend through the pelvis, there is always great reason to fear that the second child, presenting by the head, might have its head urged down faster than the head of the breechling; if it should be jammed into the strait, alongside the throat, before the other head can get possession

of it, it would present another example of the process in which one head is keyed by another. There is less danger in this case than in the former, because the trunk of the child would not form an insuperable obstacle to the passage of a hand, whereby to displace the keying head.

It has happened to me, on different occasions, to find the woman becoming so much fatigued, so much worn out indeed, by the protracted efforts of a twin labor, that I felt obliged at the last to give the assistance of my forceps both for the first and second child.

A labor with twins is one in which there may be either one or two placentæ. It sometimes happens that both the children are contained in a single chorion, but each child must have its own amnion; if there are two chorions, there will be two placentæ, and those placentæ will be situated in different and opposite parts of the uterus. A labor in which there are two separate placentæ, and in which the first placenta is detached and discharged with the child, is one in which the placental superficies is likely to bleed, for there cannot be immediate condensation of the placental superficies of such a womb.

A twin labor, in which there is a single chorion and a single amnion, is one which could scarcely fail to give birth to a monster, for there is nothing to prevent the fusion of the parts of twins contained within the same amniotic sac, whereas such fusion of parts is impossible in two separate amnia. Chang and Eng must have existed in a single amnion; so did Ritâ-Christina. The same must have been the case with Dr. Pfeiffer's double-headed infant, to which I refer the Student, and with my specimens of omphalodperms contained in the museum of Jefferson Medical College.

One never has charge of a twin labor without feeling some anxiety with regard to hemorrhage likely to follow the birth of the first child, and no accoucheur should dare to leave the woman until she be safely delivered of the second. As a general rule, the same contractility of the uterus which expels the first child, after a slight pause resumes its operation for the expulsion of the second, just as happens as to the expulsion of the after-birth in a unipara labor; and we may, therefore, expect that within the hour the presenting part of the second child shall descend through the os uteri into the vagina. I think I have never waited so long as an hour. When the membranes have already been ruptured, I have found the child to descend earlier than that, and when they had not already given way, I have ruptured the ovum within twenty minutes. As my own experience in this particular has been fortunate, I venture, upon that ground, to advise the medical Student to follow the same course. Some persons prefer to

wait longer, and I admit, if the patient be carefully observed, if there be no signs of hemorrhage or faintness, or other urgent motive for interfering, one might feel himself justified in waiting longer than I have indicated. Let him always make the diagnosis as to the presentation before he proceeds to rupture the ovum, and should he find a cross birth, a possible event, let him hasten to pass his hand high up on the side of the ovum, penetrate it there, and seize the feet to turn and deliver.

Whenever hemorrhage is suspected to have begun, or is known to have commenced, there should be no hesitation in rupturing the membranes; the discharge of the second sac fulfils Louise Bourgeois's commandment to let the water off in order that the womb may condense itself. The accoucheur, under such circumstances, would act according to the indication: if the hemorrhage is sudden and startling, he would turn and deliver, provided the head is above the superior strait; he would seize and extract it with the forceps, provided it were in the excavation.

As soon as the second child is born, pressure should be made upon the hypogastrium to promote a tonic contraction of the uterus; the lately over-distended, but now relaxed belly should be sustained by a proper binder and compress, and the placenta or placentas should be carefully extracted.

In triplet labors the same causes of slowness of parturition exist as in the twin case; the expulsive power is even more decomposed, since it is communicated through three bodies; there is the advantage, however, that triplets are smaller than twins, and the distension of the cervix uteri, the vagina and the external organs, is not so great as in unipara or twin labors, in consequence of which the last pains are less distressing. I was called in consultation to a lady in labor, however, who gave birth to triplets, the sum of whose weights was twenty-one pounds and a half; they were fine children; the mother had nearly lost her life from an exhausting hemorrhage, which followed the birth of the last child. The superficies of the placenta, required for the aëration and support of three such children, must have been vast, and a most powerful contraction of the uterine globe would be required to constrict the uterine orifices after such a labor.

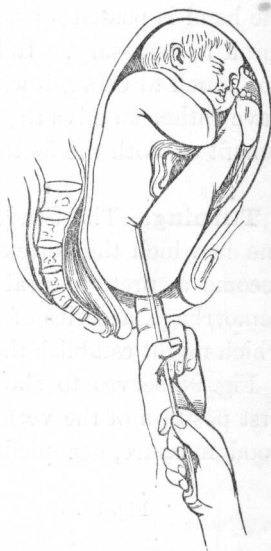
I have never seen a case in which four children were delivered at one birth.

Preternatural labors may be terminated with the hand alone, or by means of instruments. The simplest midwifery instrument is the fillet, which consists of a ribbon of silk or linen. The fillet is now chiefly employed as a means of drawing down the buttock, in cases of breech

labor, where the pains are incapable of completing the delivery. A very good fillet may be made of a linen roller some three inches wide and twenty-eight or thirty inches in length. It is not always a very easy matter to apply it—and there is great difficulty to get it adjusted except when the breech is quite low in the excavation and completely out of the circle of the os uteri. Previously to making any attempt to use it, it should be prepared, by drawing it through the hand filled with a good quantity of lard—or else it may be soaked in thick flaxseed tea, or in white of eggs. Without this precaution, it will not pass over the thigh of the child, or it will rub the surfaces so as to cause excoriation.

To make use of the fillet, let it be passed over the thigh that is nearest the pubis, as in Fig. 97. Roll up four or five inches of one of the ends of the ribbon into a roller, which may be passed into the vagina, and pushed with one or two fingers, between the belly of the child and the front of the thigh which is in contact with the belly. The point of the finger will carry the little ball or roller across the groin either inwards or outwards, as the case may be, and when it has got free from the pressure of the surfaces of contact, the roller or ball at the end may be brought out at the ostium vaginae, and the remaining portion passed upwards, so as to get the fillet arranged to allow the two free ends to be tied.

Fig. 97.



The drawing, Fig. 97, shows the appearance of the fillet, when rightly placed, and the mode of operating with it.

The efficacy of its action would be greatly enhanced by placing it upon the groin that is farthest from the pubal arch—but that is a feat of dexterity that can rarely be performed.

In drawing downwards, one should act only during a pain, or coincidentally with a tenesmic effort of the patient, and it should never be forgotten, that the neck of the thigh bone is a very frangible thing in the unborn foetus. This caution is necessary to prevent a fracture or dislocation of the hip-joint. The mere remembrance that such an accident might happen, would prevent any prudent person from exerting undue force with the fillet.

Notwithstanding the reasonable dread of doing mischief by violent and untimely tractions, it is true that great assistance may, by this simple implement, be given to the woman in a breech labor.

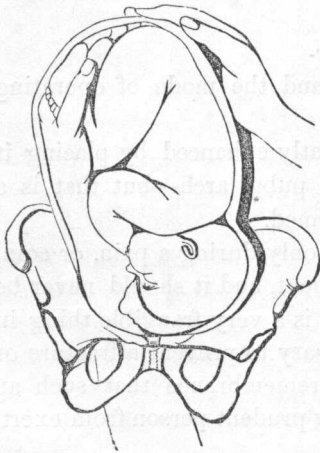
The fillet is also applied, on some occasions, to the wrist in prolapsion of the hand, in order, by means of it, to keep the hand down at the side, when we turn to deliver in shoulder cases. I have never found it necessary to take any such precaution; as I have always thought that I could bring down the arm, in case it should be lifted alongside of the head, and I have not chosen to embarrass myself with the string.

The fillet is also by some writers recommended as a means of securing one foot that has been brought out at the vulva, in turning, while the hand is passed upwards again to seek for the other foot. I do not think it necessary. Indeed, when I have got one foot down, I care not much to bring down the other; for, if it be left in the womb, we have rather an advantage by it; since, in such a delivery, we have the benefit of both the footling and breech labor.

Turning.—The Student has learned that the most natural labor, one in which the vertex presents in the first position, may suddenly become a preternatural one in consequence of the coming on of hemorrhage, a series of bad fainting fits, convulsions, &c. &c., any of which might establish the indication to proceed at once to the delivery.

Fig. 98 serves to show the situation of the child presenting in the first position of the vertex. It may be that this child's head had, in a good measure, occupied the circle of the os uteri before the accident

Fig. 98.

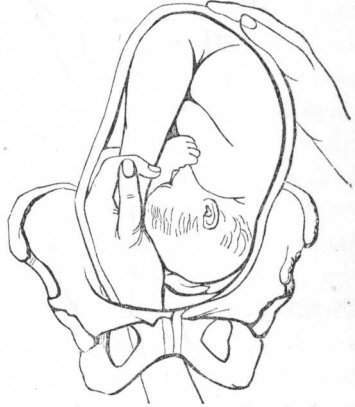


occurred which established the indication to deliver by turning. If the head had wholly escaped from the circle, the indication to deliver by turning must have been considered wholly set aside in favor of a forceps operation; for when the head has once escaped from the os into the vagina, it cannot be thrust into the womb again, because the cervix uteri will by that time have contracted around the neck of the infant. Hence the rule of practice is to turn and deliver if the head be still in the womb; but if it be in the vagina, we are to extract it by the forceps. In fact, if it be

wholly in the vagina, it is below the superior strait; but to attempt to return the head through the superior strait and through a contracted os uteri also, is a thing too preposterous to be thought of.

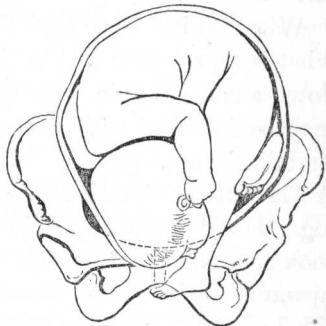
The drawing above mentioned, Fig. 98, will show the Student what he will have to do if he makes up his mind to turn. It will show him, namely, that he will be obliged to thrust the head out of the plane of the superior strait, which it now occupies, to let his hand pass upwards in exploration: he will see, by inspecting the figure, that he must seek for the feet in the right posterior upper part of the womb, and as he must push the head, therefore, upwards and to the left, and not upwards and to the right, and must grasp the feet with the palmar, and not with the dorsal surface of the hand, which hand shall he use? Let him look at the figure, and he will see that, in this labor, he must use the left hand, and, carrying that hand upwards, according to the directions given in my article on Turning, at page 416, he will find the feet, one

Fig. 99.



or both, as in the figure, and grasping them firmly with the thumb and fingers, he will draw them downwards towards the os uteri, assisting his left hand, inside, by means of the right one pressed upon the fundus of the womb, outside. In this way, drawing the feet downwards, he keeps the head above the plane of the superior strait by means of his wrist and palm. This is a precaution he must by no means overlook, lest the head, urged downwards by the force of the contractions, should become engaged in the

Fig. 100.



pelvis together with the foot, as seems about to happen in the drawing annexed, Fig. 100. If, through forgetfulness of this duty, or want of proper dexterity, he should permit this accident to happen, he would procure for himself superabounding vexations, for his patient a great increase of pain and hazard, and for the child an almost certain death. Let him never forget, therefore, while drawing down the foot, that he must keep the head up if possible.

Let him never forget, therefore, while drawing down the foot, that he must keep the head up if possible.

After drawing the feet through the ostium vaginæ, and when the turning is completed, which he will know by exploring with the right

Fig. 101.

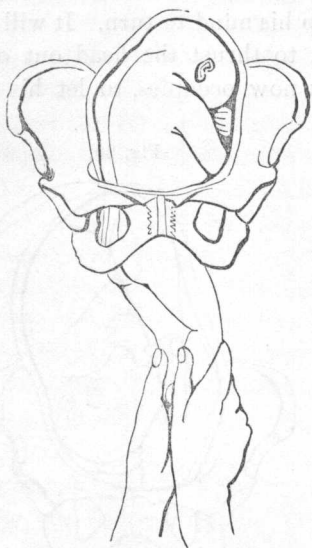
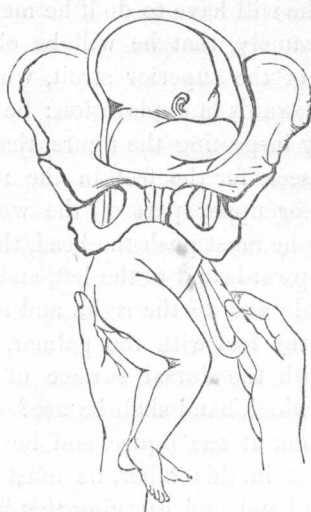


Fig. 102.



hand the form of the abdomen, and by perceiving that the hips of the child are engaging in the excavation, he should, if he draws at all by the limbs, make his chief effort of traction by means of the right leg, as in Fig. 101. By acting in this way he will cause the child's face to turn towards the left sacro-iliac junction. Before the turning, it looked towards the right sacro-iliac junction. Let him look again at Fig. 101, to see how he would make the face of the child come to the front of the pelvis if he should incautiously make tractions upon the left foot only.

When he has extracted the child as far as the navel, let him do what is represented in Fig. 102, that is to say, let him carefully draw down a considerable loop of the umbilical cord, so that no danger may be incurred of breaking it or tearing it out by its roots at the umbilical ring.

The patient should now be turned upon her back, and the child's legs should be wrapped in a napkin, to hold them securely. As soon as a good part of the thorax is expelled, let him pass two fingers upwards to the top of the shoulder that is most within reach, raising the body of the child upwards towards the woman's abdomen if he desires to get at the posterior shoulder, or depressing it towards the sacrum if he wishes to act on the anterior shoulder. Sliding his

fingers from the acromion as far as he can towards the bend of the elbow, let him force the elbow downwards, causing it to sweep along the breast of the child. As soon as the elbow is withdrawn, the hand will come forth and the shoulder be extricated, after which let him proceed in like manner with the remaining shoulder, using the fingers of the other hand as in Fig. 103.

Both shoulders being delivered, let the Student next raise the trunk of the child upwards towards the mother's abdomen, much higher than is represented in the annexed design, Fig. 104. It is extremely important not to forget this rule. What the Student wants at this point, is a great flexion of the head; let him, therefore, carry the breast far away from the chin by turning the child's trunk upwards towards, or even on the mother's abdomen, as above directed, and then introducing one or two fingers into the child's mouth, let him pull the chin towards the uplifted breast of the child—thus restoring the chin to the breast. As a general rule, this manœuvre will effect the desired flexion; not always so, however, for the mouth sometimes may be opened very wide, yet the upper maxilla not descend to close upon the lower. Let the Student, in this case, push the vertex upwards by means of two fingers inserted behind the symphysis, and then, with a finger on each side of the nose, pull the superior maxilla downwards, to make it shut the mouth. The occipito-mental diameter, see-sawed in this manner, will be made to coincide with the axis of the inferior strait, whereupon, pulling by the shoulders with one hand, and by a finger in the mouth with the other, the head may be withdrawn in a direction coinciding with the curve of Professor Carus.

Should the resistance to the escape of the head be too considerable,

Fig. 103.

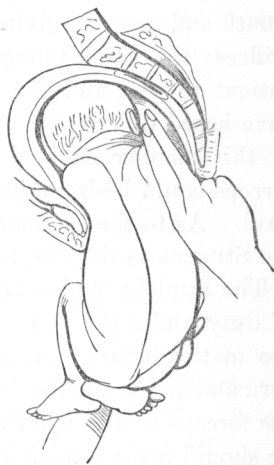
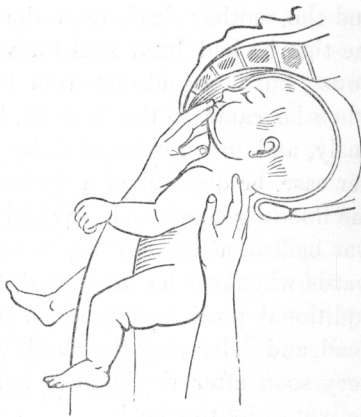


Fig. 104.



and the child's life in danger from the delay, two fingers of the left hand may be passed into the vagina as high as the malar bones, one finger on each side of the nose. The fingers being now somewhat flexed, will thrust the posterior wall of the vagina away from the mouth and nostrils, giving free access of the atmospheric air to those orifices; the child, though unborn, will cry, and allow time for the patient to rest, and for the accoucheur to consider of his duty. I have heard this *vagitus vaginalis* for many minutes, and, indeed, have in this manner enabled the child to continue breathing until my forceps could be brought, from a considerable distance, to deliver the head. As to the manner of applying the forceps in this case, I refer the Student to the chapter describing the uses of that instrument.

The Student ought carefully, yet promptly, to decide upon the line of duty under the sudden emergencies of this sort of labor. To set the matter before him in a clear light, let me reiterate the precept, to turn and deliver if the head be not in the vagina, and to deliver by the forceps if it is wholly expelled from the mouth of the womb. If he should make a mistake as to these points of duty, he might inflict serious injury upon his patient, by passing the blades of his instrument within the contracting bands of the cervix uteri; or, on the other hand, he might allow her to bleed to death from hemorrhage, while expecting the return of the messenger sent to bring his forceps from the distance of half a mile.

I was sent for to assist a gentleman waiting upon a woman in labor, and arriving at the spot in a very few minutes, found both the child and the mother dead upon the bed: my friend, the accoucheur, told me that he had been sent for with an urgent request to hasten to the house, but being absent from his office, considerable delay occurred; when he came to the bedside, he found the woman flooding dangerously, and much exhausted by the loss. Perceiving the exigency of her case, he dispatched a messenger for his forceps; in the mean time the flooding continued. When the forceps were put in his hands, he was baffled, as he told me, in adjusting them—the head retreating upwards whenever he attempted to apply them. After the loss of an additional portion of time—a fatal loss—he succeeded in seizing the head, and delivering the child, which was dead. The mother expired very soon after the birth of her infant. Suppose he had turned and delivered by the feet!

CASE.—Some years ago, I was engaged by a tailor to take care of his wife in her approaching confinement: he was an avaricious fellow, who disliked nothing more than the paying of a fee. In the middle

of the night, his wife was seized with the pains of labor, which immediately became violent and expulsive. He ran for an old woman in the neighborhood, who arrived just in time to receive the child, which she severed, and immediately proceeded to wash and dress it, leaving the woman lying upon the bed. "Ah-ha!" said the tailor, "this is a very good thing; we'll cheat the doctor out of his fee." And so he rejoiced and was very glad; but in a short time the poor woman fainted, and remained a long time insensible; whereupon, he came for me in furious haste, telling me that his wife was either dead or dying, and begging me, for God's sake, to give her speedy assistance. I soon reached the apartment, and found her speechless and pulseless, and pale, and lying in a puddle of coagula and fluid blood. Placing my hand upon her abdomen, I found there was another child there. I now took away all her pillows; opened the windows; dashed water freely upon her face and neck; and with difficulty succeeded in getting down a few swallows of strong brandy and water. The head presented; I ruptured the membranes, and passing my hand upwards to the feet, seized them, turned and delivered the child, and immediately afterwards removed the placentas. I was for some time doubtful whether she would live or die, but she finally rallied under stimulation, and got quite well.

I think that four minutes had not elapsed from the time that I reached her apartment until the child was delivered. Suppose that, like my friend mentioned in the former case, I had sent to my house for the forceps, would my patient have survived? Suppose he, instead of sending for his instruments had immediately delivered her by turning, would he have lost both the mother and her child? It is said, that it is the last straw that breaketh the mule's back. It might as truly be said, that it is the last ounce that kills in the uterine hemorrhage.

Having now described the operation for delivery in preternatural labors, the head presenting in the first vertex position, I have to indicate the method of proceeding in the other positions of the vertex. In all important particulars of the management, the former directions may be regarded as sufficiently full. But, as in the second position, the face of the child looks towards the left sacro-iliac symphysis, it is necessary, on that account, to employ in the turning the **RIGHT HAND**, and not the left hand, as before.

By introducing the right hand for the operation, the head will be pushed out of the plane of the strait to the right upwards, and made to lodge in part upon the brim, and in part upon the wrist and inner face

of the forearm, while the fingers, going up along the breast and belly of the child, seek for, and at length find, the feet.

When caught, one or both the feet are brought out of the os uteri into the vagina, and so through the ostium vaginæ. Due care should always be used not to force the version while the uterus is contracting. It may be expected to contract several times during the act of turning.

Inasmuch as the face looked to the left sacro-iliac junction at the beginning, it might be expected, when completely turned, to look towards the right acetabulum, and it would probably do so, if care were not taken to draw chiefly upon the left foot: by doing which, the left trochanter will be brought to the arch, and then it may, as soon as it has completely come forth, be forced over towards the right ischial ramus, which will serve to bring the left shoulder also to the right acetabulum when it begins to engage. The face of the child will of course, under these circumstances, be turned to the right sacro-iliac junction, and finally sink into the hollow of the sacrum. I need not here reiterate directions, already sufficiently explained and insisted on in the former article.

The operator may find the child that he is about to turn, presenting in the fourth position of the vertex, in which case the forehead will look to the left acetabulum, and the vertex to the right sacro-iliac junction. To turn in this position of the child, he should employ the right hand, which passing up on the left side of the pelvis, between the face and the brim, thrusts the head above the right anterior semi-circumference of the strait, where it must be resisted by the wrist or arm, while the fingers explore the cavity in search of the feet. If the child were turned without being rotated upon its axis, its face, after the version, would be at the right sacro-iliac junction, and this would be well; but still, in order to insure an occipito-anterior position of the vertex after turning, it would be safest to act chiefly upon the left foot in making the tractions. I shall not repeat the directions for the other parts of the process.

In the fifth position, the fontanelle is found at the left sacro-iliac junction, and the top of the forehead at the right acetabulum. If the woman were lying on her left side and the accoucheur seated with his face turned in the opposite direction he might, conveniently, employ his right hand in the version, for the palm of the hand slightly pronated would glide along the right side of the breast and abdomen of the child in search of the feet. The child, having been completely turned, would have its face addressed toward the left posterior part of the womb; in making the last tractions, therefore, the Student ought

to be advised to draw chiefly upon the right foot in order to bring the right trochanter to the pubic arch, and, as soon as it shall have been fairly expelled, turn the trochanter towards the left ischial ramus, which will secure the descent of the shoulder in the neighborhood of the left acetabulum, and the subsequent engagement of the head in an occipito-anterior position. There is no necessity for repeating the minute directions as to the conduct of this version.

In cases of version in the third and sixth positions, cases never likely to occur, the accoucheur could use either the right or the left hand, as he might deem most convenient to himself; the choice being indifferent, the occipito-frontal diameter of the child coinciding with the antero-posterior diameter of the pelvis.

Turning in Shoulder Presentations.—The turning and delivery of the child in head presentations are less difficult than in the operation for version in shoulder cases.

In a former part of this volume, I have stated that there are two shoulder positions for each shoulder, making four in all. There are two positions for the right shoulder. In the first, the head of the child is on the left side of the pelvis, as in the annexed figure 105. This

figure represents a shoulder presentation with the right hand prolapsed; the palm of the hand must look towards the mother's back, and its dorsum towards the pubis; the face looks backwards, and the feet of the child are in the back part of the womb, so that, in seeking for them, the accoucheur should pass his hand along the breast of the child, and expect to find its feet not far from its sternum. To pass the hand between the child and the pubes would be to make a distressing mistake,

for it would be impossible to turn the child in that way, and it would be wrong to expect to find its feet lying on its back. To perform version the woman should lie upon her back, the hips being near to the edge of the bed, the thighs abducted, and strongly flexed: the right hand should be chosen (to look at Fig. 105 is enough to show that the right hand is the preferable one), for the points of the fingers easily direct themselves towards the pelvic extremity of the fœtus; and a moderate supination of the arm applies the hand to the breast and abdomen of the child; the fingers could scarcely close between

Fig. 105.

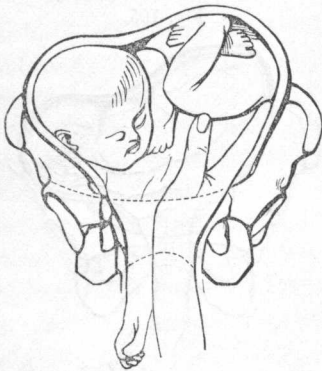


the abdomen of the child and the posterior aspect of the womb without grasping the feet or knees, whereas, to use the left hand would be to point the fingers towards the cephalic extremity of the fœtus, and if the feet should be caught in that way, it would be necessary to let them go again. Therefore, in the first position of the right shoulder presentation, the Student will be careful to employ his right hand for the version.

Suppose the Student, in performing this version, should take hold of the left foot of the child, he would (let him look at Fig. 105) cause it to revolve upon its axis and bring its face towards the mother's abdomen. This is what he desires not to do, for the chief intention which he should set before him is that of bringing the vertex to the symphysis, and the face to the sacrum. He ought to get both feet, if possible: having both feet in his hand, it will be in his power to draw the child by the right foot, which will bring the right trochanter to the pubic arch, and the right shoulder to the left acetabulum, which will let the face come into the pelvis looking backwards towards the left.

The second position of the right shoulder presentation is neatly

Fig. 106.



figured in the accompanying drawing, Fig. 106. It represents the body of the child very much compressed by the contracted womb from which the waters have been expelled, and the hand of the accoucheur, which is here the right hand, partially engaged in the cervix uteri, seeking for the feet. It would be as well, in this particular labor, provided the patient were lying on the back, to use the left hand in version; but, if she were lying on her left side, the right hand would be far more convenient than the left, since, introduced between

pronation and supination, it would apply itself to the breast and abdomen of the child.

Fig. 107 shows the process of operation, which is here being properly conducted, for the tractions are being made upon the left limb, which would serve to roll the child upon its axis so as to turn its face towards the posterior semi-circumference of the pelvis.

The left shoulder presentation has, likewise, two positions. In the first of them, the head is found on the left side of the pelvis, and the face of the child looks front. In the second, it is placed toward the

right side of the pelvis, the face looking backwards. In the first position, the left arm being down, the feet should be found between the belly of the child and the anterior wall of the womb; the rule obtains, therefore, in this as in all cases, of passing the exploring hand upwards along the front of the child's body. If the woman were lying upon her left side, with her knees drawn up with a pillow between them, the palm of the right hand would readily apply itself to the anterior aspect of the foetus: the left hand would be highly inconvenient for this operation; it might be used in the dorsal decubitus, but not so conveniently as the right.

Fig. 107.

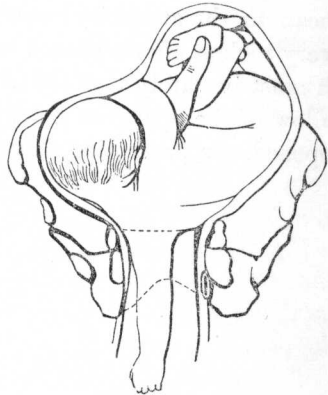


The child's face is looking to the front; it ought to be rolled upon its axis so that the face may look backwards, giving it at last an occipito-anterior position; therefore let the operator direct his chief efforts upon the right inferior extremity, which alone can roll it upon its axis and turn the face backwards.

In the second position of the left shoulder presentation, the head is on the right side of the pelvis, looking backwards, the left shoulder is down, and the hand or elbow prolapsed or not; it is indifferent whether they be or be not prolapsed.

Figure 108 explains the operation; the left hand is employed, for its fingers go out towards the pelvic extremity of the child, and its palm, in easy pronation, adapts itself to its anterior aspect. If the Student should draw the child down by the right inferior extremity, he would roll it on its axis. This would be wrong, since the child's face is already backwards; let him, therefore, make his chief tractions by the left limb, in order to bring the left hip to the symphysis, which, after it is born, should be rotated towards the right ischium, to bring the face into the hollow of the sacrum at last.

Fig. 108.



I ought not to omit some advertence to an accident that occasionally happens, whether in version or in

original pelvic presentations. I allude to the locking of the head above the brim of the pelvis, which becomes keyed there by the forearm; the elbow being elevated, and the hand projecting backwards behind the nucha, it serves as a key to prevent the head from sinking into the excavation. When the pressure, in consequence of aggravated contractions of the womb, becomes very great, it is nearly impossible to disengage the hand from behind the neck, by depressing the elbow by means of the fingers in the way formerly pointed out;—it is easier to break the delicate bone of the humerus than to bring the elbow down. Dr. Dewees's method, one upon which he strongly insisted in his lectures, was to pass two fingers upwards in front of the shoulder-joint, and two fingers up against the opposite scapula. By means of the pressure in contrary directions of these two opposite hands, the thorax of the child is made to revolve upon its axis one quarter of a circle; the hand is disengaged from behind the throat by this rotation, and immediately afterwards brought down by pulling at the bend of the elbow.

It has been proposed to bring the head back to the brim of the pelvis. I have attempted to succeed in this version by the head, but have always signally failed, with the exception of a case related in a former page of this work. In that instance, I succeeded by means of pressure made upon the external surface of the abdomen. The attempt might always be made with propriety in those cases in which the contractions of the womb have not as yet driven the presenting parts firmly into the opening. With a loose and flaccid uterus, the Student might have the good fortune, after lifting the shoulder out of the way, to lodge the head fairly in his palm, and pushing the fundus uteri in an opposite direction so as to raise the breech of the child, draw the head to the abdominal strait and let it engage therein. I think no very violent efforts should be made to effect this kind of version; and it must be rarely that the os uteri will be found sufficiently dilated to allow of the operation being even attempted—for, when the os is well opened, the presenting part is already far down in the excavation.