CHAPTER LXX.

THE PHYSIOLOGY OF SPONTANEOUS DELIVERY, OR CHILDBIRTH, AND THE MANNER OF CONDUCTING A NATURAL LABOR.

HAVING now completed the description of the *Mechanism of Delivery* in all the various presentations and positions, it is necessary to explain the physiological phenomena attending a natural labor, and the duties of the accoucheur when conducting it, and to show what assistance he can render, and when he should or should not interfere.

OF DELIVERY IN GENERAL.

Different Kinds of Delivery.

When the child is brought into the world by the unaided efforts of nature, and without any accident to itself or the mother, it is called a *natural delivery*. When it occurs by the efforts of nature alone, but not advantageously for both, it is not called natural, but simply *spontaneous delivery*. And when assistance is required it is called an *artificial*, or *difficult delivery*. It is also called *precocious*, or *tardy*, according as it comes before or after the full term.

CAUSES OF LABOR.

What it is that causes labor to commence, and proceed, is not fully known. At the proper time the uterus prepares to cast out the fœtus it has so long retained, in the same manner that the tree casts off its fruit, and from some efficient cause which we have not yet discovered.

It is probable that when the fœtus attains a certain size, it presses upon the nerves of the neck of the uterus and irritates them, and they react again upon the muscular fibres of the womb and cause them to contract, and so expel its contents. This is much the same action, in fact, as vomiting. When any body very repugnant to the stomach is swallowed, it irritates the nerves of that organ, and then they excite its muscular fibres, which by forcible contractions, expel the offender.

It is possible, also, that the fœtus itself may instinctively assist in bringing about its own delivery, as was supposed of old by Hippocrates, and more lately by Harvey and others. It is certain that labor is both more difficult and more dangerous when the child is dead, though it may take place as usual after the death of the mother, providing the child be still alive. Several instances of this kind have been known, where the living child was expelled from the womb by the natural process, some time after the mother had ceased to breathe.

The contraction of the muscular fibres of the womb, however, must be regarded as the immediate or efficient cause of fœtal expulsion, let them be brought on how they

may. The muscles of the abdomen and the diaphragm also assist in the last stage, but are not essential.

The young of some of the lower animals are observed to perform certain peculiar motions, during delivery, by which it is much facilitated; and this is considered a proof, by some, that voluntary movements of the fœtus assist in the process. Certainly if it be supposed, as we have shown there is good grounds for doing, that the child assists in placing itself in the best *position*, it is equally probable that it also assists in its own expulsion, in other ways.

SIGNS OF DELIVERY.

Premonitory Signs.—A few days before delivery the uterus descends much lower, so that the diaphragm and stomach are less pressed upon, and the breathing and digestion become easier in consequence. The ease which is thus experienced is sometimes so great that the female becomes unusually animated and cheerful, and cannot think she is so near her travail. This is not always the case, however, for some, on the contrary, feel very uncomfortable and melancholy. The lips of the vulva are also apt to swell and become painful, and the lower limbs numbed and cramped, owing to the child's head pressing on the large nerves. The neck of the bladder is also very liable to be compressed, so that a constant desire is felt to urinate, and a similar trouble may also be experienced in the rectum. Most of these inconveniences, but particularly the numbness and cramps in the limbs, are not likely to be experienced except when the head presents, because no other part is so formed as to be able to descend sufficiently low; when they are felt therefore, the female may console herself by the reflection that they indicate, with tolerable certainty, that the child is presenting in the best position it can for a safe and speedy delivery.

Standing and walking usually become more difficult, and swelling of the external parts, or piles, are apt to occur. With some females also a sudden diarrhœa or vomiting takes place, and troubles them up to the period when labor commences.

Finally the uterus begins to contract, though insensibly at first; the abdomen becomes unusually hard, and flying pains are experienced, particularly with first children. This continues with more or less of intermission, up to the actual period of labor, which is usually divided into *three* periods, each of which must be considered separately.

CHAPTER LXXI.

THE PROGRESS, PHENOMENA, AND DURATION OF NATURAL LABOR.

First Period.

On making an examination, the mouth of the womb will be found to be dilating, and a discharge of mucus, tinged with blood, issuing from it. The membranes may also be felt protruding into the vagina, and distended, like a bladder. The female complains of being drawn powerfully together in the inside; she trembles, and gasps for breath; her pulse sinks, and she often becomes sick and deadly faint; she complains of great thirst, and breaks out into profuse perspiration; frequently she will weep and apparently suffer from some terrible apprehension, while her strength will be completely exhausted. Occasionally, however, she will be perfectly passive, and almost immovable, appearing as if in a dream.

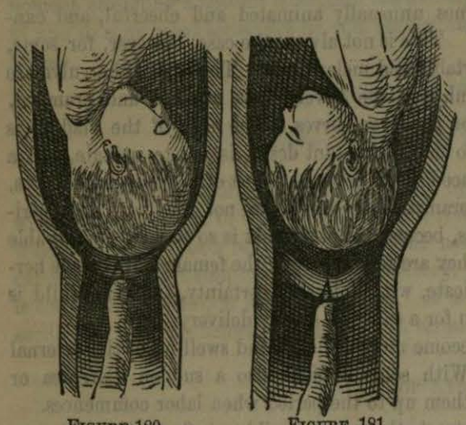

FIGURE 180. FIGURE 181.

Fig. 180 shows the state of the parts at the beginning of labor. The mouth of the womb is considerably dilated, and the membranes, A, are protruding slightly.

Fig. 181 shows the state of the parts at the end of the first period. The neck of the womb is now so fully dilated that it forms a continuous passage with the vagina, while the bag of waters, A, projects far down and occupies the whole width of the canal.

The pains, however, gradually become more and more acute, and closer together; the patient is excited and irritable; her pulse becomes quicker again, the thirst increases, and vomiting frequently ensues. Before each pain she frequently experiences a severe chill, with chattering of the teeth, and not unfrequently becomes perfectly delirious.

With each pain the mouth of the womb expands more and more, till at last it totally disappears, and the cavity of the uterus and the vagina form but one uniform passage, which is completely occupied with the distended membranes, or bag of waters, which may be felt like a soft round tumor. This is well represented in the above figure.

The first period may be much protracted, and is generally very exhausting, though not attended with any danger or special difficulty.

Second Period.

At this stage all the previous symptoms become much exaggerated. The contractions are more powerful, and the pains more acute, but with a perfect period of

repose between them, during which the female will feel quite easy, and even sometimes fall asleep, but only to be aroused by the pains coming on again. The muscles of the abdomen and the diaphragm are now called into play; the patient strains, or violently bears down, and pants with exertion, while the perspiration streams from every pore, the pulse quickens, and the expression of the countenance betrays the wildest anxiety and excitement.

The bag of waters now descends, and enlarges more and more, until at last being unable any longer to bear the strain to which it is subject, it bursts, and the waters flow away in a profuse gush. Immediately this takes place the head descends, and closes up the passage; the pains cease for a time, and the patient again has a respite, while the uterus apparently gains fresh power. Very soon the contractions recommence, more energetically even than before, the head passes the mouth of the womb and enters the vagina, which keeps enlarging as it descends, till it reaches the lower part, or floor of the pelvis. The pains now become more violent than ever, the patient screams with agony, clutches hold of any object near her, throws herself back, draws in her breath, and bears down with all the force she can command.

The fearful cries which most females emit at this time appear to assist the delivery, by the convulsive efforts at breathing which they necessitate, and the expulsive straining also does the same. These natural efforts are much assisted by providing a firm support for the patient's feet, against which she can push, which she will do with tremendous force.

The head now presses, at each pain, against the perineum, which begins to project outward, as also does the rectum. The vulva begins to dilate, the lips separate wider and wider, and part of the child's head becomes visible. Gradually the lips become thinner and thinner, and at last disappear nearly altogether, so that the mouth of the vulva is only composed of thin ring, which seems ready to give way every moment. The head, however, recedes, and the parts again assume something like their natural condition for a short time, when the same process again takes place, and the distention proceeds still further, while the head does not retire so far. This alternate action is repeated perhaps many times, so that the external mouth is opened gradually, and without the lips or perineum being torn, which they would be if the head were to pass suddenly, before they were softened and dilated.

After this has been continued for a sufficient period, a strong expulsive pain is felt, the female screams, the head passes clean through the external opening, and the lips close round the neck. This, however, is only for an instant, the rest of the body speedily following the head, in the manner hereafter to be explained. Most usually, in fact, the whole body follows the head without any stoppage at all, but sometimes there is a delay of a few seconds.

The third period of delivery comprises the delivery of the placenta, which will occupy our attention in another place.

Differences in the Process of Labor.—Although, in most cases, labor proceeds much in the way I have just explained, and is attended with similar phenomena, yet still we occasionally see marked exceptions. This is particularly the case with regard to *pain*. Most females suffer severely at this time, and some even the most torturing agony, while others again experience scarcely anything to complain of, and some even feel nothing at all. I am acquainted with a lady at the present time, the mother of several children, who assures me she never felt any pain at all in her labors, nor was she in any way exhausted by them. I have known her rise from her bed in the

night, from feeling indications of the approaching event, make all her arrangements, and send for the nurse, as if it was the most ordinary affair imaginable. On one of these occasions, before her husband returned with the assistants, she was delivered while alone, without any difficulty, and they found her sitting up in bed nursing her child. She had cut it loose, and tied up the cord herself, having heard how to do so at one of my lectures, and actually brought away the placenta with her own hand. In two days after she was about as usual. And yet this lady was by no means strong, nor remarkably healthy; and what is very singular, she suffered severe pains at most of her monthly periods; much more, as she assured me, than from all her labors pu together. M. Chailly also mentions an instance of a young girl of sixteen, with he. first pregnancy, whose vagina was also partly closed by an internal membrane, whose delivery nevertheless was almost painless. She woke up, he tells us, about four o'clock in the morning, with some very slight pains, which scarcely disturbed her, but which continued till about six, when the child was born suddenly and safely, without any assistance, and with scarcely any increase of pain to the mother. I have known many other such cases as these, and plenty of them can be found recorded; but what this fortunate exemption from suffering, in such cases, depends upon, is not known.

The nature, and the seat of the pains, are also very variable. Some only feel a dull sort of aching, with powerful contraction, or drawing together, while others call it *grinding*, *cutting*, and *burning* pain. Some feel it in the back, and some at front, while others feel it most in the groins, and others again experience it in all these parts at once. The peculiar sharp pain which results from the extreme dilatation of the external mouth, when the head passes, is perhaps the most constantly felt, and the most alike in all.

The manner in which the mouth of the womb opens, and the time required for its dilatation, differ much in different cases. In females who have previously borne children, as before explained, the mouth is always considerably opened at the full term, while in a first pregnancy it is nearly closed, even till some time after the labor actually commences. Sometimes the dilatation takes place rapidly, and at others very slowly; it is especially liable to be delayed if the membranes break too soon, because then the pressure of the bag of waters is lost, and that is an important agent in expanding the os uteri. In some cases the neck of the womb is very hard and rigid, so that a long time is required to make it give way. When any other part than the head presents also, the opening of the mouth will not take place so soon, because no other part so completely fills up the passage.

The breaking of the bag of waters will sometimes occur very early, almost as soon as it protrudes, while at other times it will be delayed till the whole vagina is filled up by it, or even till it appears externally. The quantity of the water discharged at the time of the rupture is also variable; if the presenting part of the fœtus does not completely block up the passage, the whole may pass away when the rupture takes place; but if it does, as is usually the case when the head presents, only a part flows then, and the rest comes in gushes, as the head is raised, and when the child is born. The too early escape of the waters, as already explained, may retard the delivery, by delaying the expansion of the mouth of the womb; and in this way unskillful accoucheurs have caused lingering labors, by breaking the membranes too soon.

It is important to recollect also, as I explained before, that a portion of fluid sometimes exists between the amnion and chorion, which may pass first, and induce

the belief that the true waters have escaped, when they have not. This is called the *false waters*, or *shows*, and is not connected with the true waters at all.

The *general* physiological phenomena of a natural delivery having thus been explained, we have now to state its duration, and then proceed to its conduct or management.

DURATION OF NATURAL LABOR.

The duration of natural labor is not by any means constantly the same, nor can it be predicted with anything like certainty in any case; but still by keeping careful records, and by duly observing a vast number of cases, a tolerable approximation can be made. There are various circumstances that tend to lengthen the duration of labor, some general, and others belonging to the individual. The mode of life and early habits of the female, the climate in which she lives, and the manner in which she has conducted herself during gestation, all have an important influence. As a general rule, the period becomes longer in proportion to the civilization of the community in which she lives. The first labor is generally more tedious than the succeeding ones, owing to the slower dilatation of the parts. It is also thought by some, that the labor is longer in proportion to the age of the female, particulary with the first child; but this opinion is not well founded.

The average duration of labor in our country, is *from eight to twelve hours*. In some parts it is longer than this, and in others again it is much shorter. I have good reason also to think, that it is longer in cities than in the country.

An experienced practioner can sometimes predict with tolerable certainty, when called to a labor, how long it will be before it is over; but this is seldom the case, and most frequently his success is owing more to chance than to judgment. If the mouth of the womb be well dilated, the contractions powerful, and the patient vigorous, with the presentation natural, he is of course justified in predicting a speedy delivery; or the reverse, if these favorable conditions do not exist. Many unforeseen conditions may exist, however, and many accidents arise, that may falsify an apparently safe conclusion. No judicious practitioner, except in a few rare cases, will hazard his reputation by fixing any *time*, and no well informed patient would *ask* him to do so, because she would know that it was out of his power.

CHAPTER LXXII.

THE CONDUCT OR MANAGEMENT OF A NATURAL LABOR.

Preliminary Requisites.

In most cases of natural labor there is not much assistance needed. The assistant should, however, possess a certain *tact*, or *manner*, calculated to make a favorable impression on the patient. This is especially needed *when a man officiates*. It must be recollected, that the situation of the female at such times is a very peculiar one, and that the presence of one of the other sex, however necessary, must be more or less objectionable to her. He should, therefore, carefully exhibit in his behavior the most refined delicacy, combined with a warm sympathy and kind consideration; thus soothing her scruples and enlisting her gratitude. He must also appear perfectly self-possessed under all circumstances, and then she will have full confidence in his skill and judgment. It may seem scarcely necessary to state these things, but I have often known men officiate without such qualifications, and also be perfectly unaware of their deficiencies. Such accoucheurs never officiate well; they may be skillful and attentive, but yet unsuccessful, and unappreciated. They are only *tolerated*, but not respected, and are never fully confided in.

When requested to see a woman supposed to be in labor, it is always advisable to be prompt in paying the visit, because delivery sometimes comes on suddenly and unexpectedly, and both mother and child may be in great danger if no one is near to assist.

Some time before the event is expected, it is advisable to provide certain articles, which will or may be needed at the time, and which should not have to be looked for at the last moment. A pair of sharp scissors, with a piece of strong thread or cord, are indispensable, and a female catheter may be needed. A quill with the feather part on may also be useful, and some pure lard, or sweet oil, is frequently called for. The professional accoucheur will also find it a good precaution to have his stethoscope in his pocket, and a lancet, if he ever relies upon bleeding in any contingency. A small box of belladonna ointment also may often be of great and immediate service.

PRELIMINARY PROCEEDINGS.

The first thing required when visiting the patient, is of course to ascertain positively whether she be pregnant, and whether labor is really commenced, and if so, how far it has progressed. This necessitates an examination, the proposal and making of which require the most delicate tact, particularly if it be with a comparative stranger, or in a first labor. No allusion to it should be made to the patient herself by the assistant; he should converse with *her* about indifferent matters, or merely upon her health, and state his wishes to the *nurse* or female friend, and then retire. This gives them time to inform her of what is required, and to make the necessary prepa-

ration. On entering the room again, he should not proceed abruptly, but resume the conversation, and make some of the necessary arrangements while carrying it on. He should seat himself by the side of the bed, with his right hand next her, and his face opposite hers. Then, passing his hand under the bed-clothes, after having lubricated it with lard or oil, he can proceed with the examination as if it were a simple ordinary proceeding. By exhibiting no hurry, and appearing to think it nothing unusual, or in any way strange, the female herself will cease to think it so, and will not be flurried or shocked.

The hand must be passed under the female's right thigh, her knees being elevated. She should, of course, lie on her back, and as near to the edge of the bed as convenient. Not the slightest exposure is necessary, nor allowable, under ordinary circumstances.

The forefinger being introduced, *ballotment* may be practiced, to ascertain if pregnancy really exists; and if the evidence from this source is not sufficient, auscultation must be resorted to. After being satisfied on this point, the mouth of the womb must be carefully examined, and its degree of dilatation noticed. If the female has pains their character and frequency must also be noticed, and the effects they produce on the parts. It will generally be possible by these means to discover how far the labor has progressed, and even to form an opinion how long it is likely to last. The general form of the parts and their size should also be noticed; particularly of the pelvis, so that any deformity or deficiency may be discovered; and lastly, the *presentation* should be ascertained, if possible, so that it may be known in time whether nature will be sufficient herself, or will require helping. The *position* need not be cared for at present, because it is of little consequence when the presentation is favorable.

The time required to make the examination need not be long, and should always be as short as possible.

While conversing with the patient, much useful information may be gained. The general state of her health, the nature of her pains, and the time they first commenced, should all be known; and if she has had children before, it will be highly useful to know what kind of a labor she had; whether it was long or short, easy or difficult, and particularly if attended with any accident likely to occur again.

It need scarcely be remarked that great caution is needed in these cases, many eminent men having been deceived as to the patient's condition, as already stated in our chapter on the signs of pregnancy; and many times the doctor has been summoned under the supposition that labor had begun, while it was yet far off. The pains may be false ones, such as frequently occur toward the end of pregnancy, and may all pass away. These false pains, however, can usually be distinguished, being continuous and irregular, while the true ones intermit with periods of almost perfect ease, and are tolerably regular. The false pains are also felt in various parts, while the true ones are chiefly fixed in the uterus and vagina. Sometimes, however, the difficulty in distinguishing them is very great, and the accoucheur has often waited for several hours and even days, the labor meanwhile making no progress; and eventually all has passed off, and the patient has risen again from her bed. I know one case, where a gentleman attended nearly *three days*, and at the end of which time the patient *rose and walked down stairs*. She was not put to bed till *six weeks after*. I can scarcely think, however, that these mistakes can happen very frequently, if the examination be properly conducted.

PREPARATIONS FOR THE DELIVERY.

If it appears from the examination that labor has really commenced, or is about to do so, everything should be at once prepared. All useless persons should leave the room, and also those who would be likely to alarm or grieve the patient by uttering cries, or exhibiting fear; but no objection should be made to any one being present whom she wishes to see, unless they cannot be depended upon. Thus some females always wish to have their husbands with them, but others do not, though they are averse to saying so. In these cases the accoucheur, if he be an attentive observer, will soon see what is really desired by his patient, and will manage matters accordingly.

The dress of the female should be perfectly loose, consisting chiefly of a wrapper or nightgown, but sufficiently complete and warm to allow of her getting up to walk in the chamber, if she desires it, as some do. No corsets, garters, or other tight bandages, however, should be allowed.

The bed should be prepared by placing the mattress on the top, or by removing all from it, and then placing a thick layer of blankets or quilts, with a folded sheet over them. This is to provide a firm level surface, in which the body will not sink, and also to prevent the fluids soaking through. It is an excellent plan, if the material can be obtained, to place a thin oil-skin or india-rubber cloth under the folded sheets, as this keeps all perfectly dry underneath. Some persons also place another folded sheet, or a cushion, under the pelvis, to keep it elevated, but this is not necessary, unless the bed sinks in very much. It is also advisable to have a foot-board or other firm body, against which the female can press her feet when bearing down; and a long towel, folded lengthways, should be passed under the back, so that it can be raised up by a person lifting at each end. This will often be found a better mode of *pressing the back*, which nearly all patients call for, than by merely forcing the hand against it, which is both tiresome and insufficient. Another towel may also be firmly fixed to the bottom of the bed, so that she can *pull* by it, at the same time that she pushes with her feet.

Some persons are confined on a cot, but this is not a very good arrangement, because it sinks in too much in the middle, and is not sufficiently large and firm. It is advantageous in one respect, however, as it can be placed by the side of the bed, into which the patient can be lifted when all is over, and be comparatively dry and comfortable. This is the most frequent plan in France. If the bed be properly arranged however, the under sheet can be withdrawn, and clean warm napkins then passed under the body, which will be equally as good. The covering should consist of a sheet, with blanket or coverlid, according to temperature, and should, of course, never be removed, except under peculiar circumstances.

The chamber itself should be as quiet as possible, *well ventilated*, and not too warm. Nothing distresses the patient more than a close, hot atmosphere.

The accoucheur need not, of course, be present while these arrangements are being made; and when he retires he should suggest to the nurse that the female may attend to the bowels and bladder during his absence. This precaution may both facilitate the labor, and prevent much future annoyance. It would even be advisable to administer an injection if necessary, of thin starch and a little castor oil, rather than leave the bowels unmoved.

In regard to nourishment, nothing is needed or proper in the shape of solid food, because all the energies of the system are concentrated in the uterus, and as digestion cannot therefore go on, it would only be an evil. If the labor is much protracted, however, some broth or soup may be taken, or a little milk. As a general rule, no spirituous liquors or stimulating drinks of any kind should be taken, because they impart no real strength, and may produce inflammation, or congestion of the brain. Some females always prefer tea to drink, others lemonade, toast water, gruel, or barley water, and others again simple cold water, which is perhaps the best of all. In cases of great exhaustion it is sometimes advisable, and even necessary, to give a little wine, or brandy and water, but it should always be cautiously administered.

In some parts it is customary for the female to lie on her side during delivery, with a pillow between the knees; some even choose this mode, and others will desire to stand, or place themselves on their knees. The most frequent position however, and certainly the most convenient, is on the back, though it may often be changed with advantage under peculiar circumstances. In the early stages of labor she can lie, or move about, as she chooses, or even rise if more agreeable.

ATTENDANCE AFTER THE PREPARATIONS ARE MADE, AND DURING THE DELIVERY.

When everything is arranged, the assistant should take his seat on the right hand of his patient and repeat the examination. If the head presents, he need not concern himself much further at present, but if it be any other part, he should prepare at once to change it, or assist, as the case may be. At this second examination the parties present, and the female herself, are usually anxious to know if the child is *coming right*, and how long the labor is likely to last. The answer to these inquiries should be guarded and circumspect in regard to the duration, because of its uncertainty, but if the presentation is right, it is well to say so at once, because this gives great comfort and encouragement. If it be unfortunately wrong, it is best not to say so abruptly, but remark that it is rather obscure, or cannot yet be fully distinguished, and so keep up the spirits of the female while you await the proper time, or make the necessary arrangements, to interfere; and then tell her there is a little difficulty which requires to be righted, but which will not be serious, nor cause much delay.

If the labor steadily progresses, it is necessary to remain with the female and attend to it; but if it be delayed, and everything remains natural, she may be left for a time with advantage. When the second stage is fairly commenced however, and especially after the membranes are broken, the attention should be unremitting. The state of the parts should be ascertained frequently, so that the actual progress may be known, and any necessary assistance rendered. The state of the bladder especially should be observed, and if it be full, and the female unable to urinate, the catheter should be passed. Neglect of this precaution may lead to serious accidents. While making the examinations, the hand should be introduced with great care, so as not to bruise or lacerate the parts, and it should not remain longer than absolutely necessary.

Many females exhaust themselves unnecessarily, by bearing down and straining with great force from the very commencement of labor, under the mistaken idea that it is necessary to do so, or will assist. They should be told not to do so however, till after the membranes are broken, and not even then unless the neck of the womb begins to dilate. They should also be told not to make any effort except *during a pain*, as it will not assist at any other time.

No attempt should be made, under ordinary circumstances, to rupture the membranes, or dilate the mouth of the womb, even though nature may be slow in doing so. Patience must be practiced, both by the female and by her assistant, and sometimes it is severely tried.

When the waters have escaped, and the orifice is opened, an examination must be made, to discover whether the cord has descended, or either of the arms, as is sometimes the case, and if so, they must be returned if possible.

As the head descends to the bottom of the pelvis it compresses the rectum, and produces a feeling as if the bowels must be moved, or even causes them to be so. This is apt to distress the female, and make her wish to rise, which cannot be permitted. If anything of the kind occurs, no notice should be taken of it, or she may even be assured she is mistaken, while a clean napkin may be interposed. This, as Dr. Chailly observes, will soothe her delicacy. Such an accident is very apt to occur towards the end of the labor.

When the head has rotated, and presents at the external opening, or vulva, and begins to distend it, the greatest care is required. This is a critical period, during which the accoucheur can render more real assistance than at almost any other. There is danger at this time, as formerly explained, of the head passing through too quickly, before the parts are sufficiently relaxed, and so causing them to rupture. This is particularly the case with the perineum, against which the head presses with great force. It is necessary therefore to *support the perineum*, as it is termed, to prevent this accident. This is done by passing the right arm under the patient's right thigh, and placing the palm of the hand flat against the perineum, with the thumb encircling one side of the vulva, and the forefinger the other. The hand is then gently, but firmly, pressed against the part during every pain, so as to prevent the head passing too quickly, and also to *elevate it*, and thus relieve the perineum of part of the strain, and throw the occiput under the pubes.

Some practitioners also pass the left hand over the thigh, at the same time, and grasp the back of the head with it, thus holding the head as it were between the two hands, so as to direct it at pleasure.

The manner of doing this is represented in Figure 182.

It is also necessary to request the female at this time to moderate her efforts, and not bear down too strongly. If, however, she be too excited, and eager to do so, more care must be used, and the head pressed back still more forcibly, till the parts are fully relaxed. For want of these precautions there is often serious laceration of the perineum and vulva, particularly in first labors, and when the parts are unusually rigid. If proper care be bestowed, however, these accidents ought to occur but seldom, even in the worst cases, and nothing can be more hurtful to the reputation of an accoucheur than for them to happen. Sometimes it is necessary to support the perineum for hours, and to bestow constant attention the whole time. It is often useful to keep applying a little simple ointment, or lard, in the intervals of the pains, mixed with extract of belladonna, which will soften and relax the parts. Dr. Lee also advises the application of a sponge dipped in warm water, and which would probably do much good in many cases.

It will of course be understood that the pressure only needs to be made *during the pains;* when the head draws back, the ointment or warm sponge may be applied. The knees of the female should be held up by some one, if she bears down too much, so as to prevent her from doing so too powerfully.

When it is felt that the parts are fully relaxed, and sufficiently distended, the head is left at liberty, during a strong pain, and it immediately passes the outer ring, or is born.

It should then be held up, towards the pubes, and the mucus should be cleaned from the mouth with one of the fingers, so that the child may breathe. A careful examination should also be made round the neck, to see if the umbilical cord is around it. If it be so, but is not tight, it may be left alone, or pulled a little over one shoulder, or even passed clean over the head, if it can be *easily* drawn out long

FIGURE 182.

The manner of supporting the perineum, during the passage of the head.
The right hand is placed underneath, so as to push the head gently back, when it presses on the perineum too forcibly, before it is dilated; and also to elevate it towards the pubes.
The left hand is seen above, grasping the top of the head to assist. This may be done or not, according to necessities of the case, or the custom of the assistant.

enough. When it is very tight, and cannot be eased, it must be cut through, or it will strangle the child.

In most cases the shoulders follow immediately after the head, the uterus resting only a few moments; but if they do not, the head may be *slightly* drawn upon, or the forefinger of the right hand may be linked under the arm, and a *little* force employed, though very carefully. It is better, however, to wait even two or three minutes, and only resort to these means when there is evidently a partial suspension of the natural efforts. Sometimes also the contractions may be brought on again by merely pressing the hand over the fundus of the uterus, and this should therefore be tried first in all cases, it being better to let the uterus expel the child than to bring it away by manual force.

During the passage of the shoulders, the perineum needs as much care as during the passage of the head, and must be supported in the same way. Indeed, some authors are of opinion that most cases of laceration are caused by the shoulders.

After the shoulders are expelled, the limbs and body speedily follow. The child should be received in the hands of the accoucheur, and laid on its side,

at a little distance from the vulva, so that it may not be suffocated by the discharged fluids. He should then take a strong ligature and pass it *twice* round the umbilical cord, about two inches from the navel, and also at about four inches, and then cut the cord through, between the two bands, with a pair of sharp scissors. The child may then be handed to the nurse.

The tying of the cord is by some deemed unnecessary, and in most cases probably is so, but as children have been known to bleed to death when it was not done, it should never be neglected. Some practitioners only tie it once, leaving that part open which is still attached to the placenta, and they suppose this is advantageous, inasmuch as it partly empties the placenta of its blood, and so helps to detach it. There is little or no fear, as some suppose, that this bleeding can be extensive enough to hurt the female, or second child if there be one, and even if it were likely to be so it could soon be stopped; it has the inconvenience, however, of soiling the bed more, and this is probably one great reason why the second ligature is applied, which certainly is not *necessary*.

In my directions I have said that the cord may be tied about two inches from the abdomen, and this will be sufficient if the child breathes; but if not it should be left about four inches long, so as to give room to cut it again, which is occasionally needed, as will be seen further on. The knot should be drawn very tight, and great care must be taken never to tie it so near as to pinch the skin of the abdomen, which passes a little distance up it. A small portion of the intestine will enter the cord sometimes, and swell it out for an inch or more; this must be pressed back with the thumb and finger, and carefully avoided by the ligature. Some practitioners cut the cord first and tie it after, but I think the other plan is decidedly the safest and the best.

After this is accomplished, the accoucheur should place his hand again over the fundus of the uterus, to discover whether it contracts, and also to judge whether there be another fœtus. If the womb is felt drawn up into *a hard round ball* in the middle of the abdomen, all is right, and no apprehension need be felt; but if it remains unaltered in size, and is soft, *flooding* is to be feared, and the hand should be firmly pressed or kneaded over the fundus, to bring on contraction.

If there be another fœtus, the womb will remain much the same as before labor, and the child may also be felt. It is better, however, to make an examination internally, and then, in most cases, the membranes and presenting part of the second fœtus will be found at the upper strait. If there be any doubt after this, it is even better to carry the hand a little way into the womb than to remain in ignorance on such an important point. The delivery of the second fœtus usually follows close upon the first, though sometimes there will be a delay of some hours, or even days. And in general there is little or no difficulty with the second, owing to the parts having been already prepared; but the longer it is delayed the less easy it becomes.

Immediately the birth is fully effected, the female feels, as most of them express it, *in heaven;* there is an almost instantaneous change, from the most agonizing pain to a state of perfect ease. She ceases her cries, and falls into a quiet and pleasing languor, strikingly at variance with the state of intense excitement she was in but a few moments before. This repose, however, does not last long; the placenta yet remains, and a new effort is required to expel that.

DELIVERY OF THE AFTER-BIRTH, OR PLACENTA AND MEMBRANES.

Unlike the fœtus, the placenta is fast to the walls of the womb, and can only become separated from them by the contraction of their substance, which usually commences soon after the birth of the child, and is indicated by new pains, and a slight discharge of blood. In about a quarter of an hour, or twenty minutes, the accoucheur should inquire of the patient whether she has felt any of these pains, and he should also examine whether the placenta has reached the mouth of the womb, or vagina, so that he may remove it. If the pains have not yet come on, and the placenta is not in the passage, he should press one hand on the fundus of the womb to promote its contraction still further, and then gently draw upon the cord with the other, holding it as high up as possible, either by a piece of linen around it, or by looping it around the finger. It should be pulled very gently, but steadily, downwards and backwards. If it be snatched, or drawn too hard, it may break, and cause great trouble; or it may *pull down the womb*, and either invert it or bring on falling of the womb afterward. The hand placed over the fundus can detect this accident, and if the uterus be felt to *sink down*, the cord must not be drawn upon any longer. Pulling away the placenta too soon, and with rudeness, has often led to deplorable accidents. In nearly every case it will gradually separate itself, and be delivered in about half an hour, and should only be assisted by *slight* drawing on the cord, and by pressing the fundus.

When the placenta is completely detached, there is seldom any difficulty in its passing the neck of the womb, and down the vagina, but it usually requires to be drawn through the external opening by the hand. In doing this the membranes may be twisted round the cord, so as to wind them altogether, and strengthen the cord.

In case the separation does not take place, we must wait, and continue the slight strain on the cord and the friction over the fundus. It is not reckoned safe, however, by most authors, to wait more than an hour; and if there are no signs of its coming by that time, artificial delivery is resorted to. This is accomplished by carrying the hand carefully up into the womb, and separating the placenta from its walls with the fingers, and then bringing it down at once.

When the after-birth has passed the vulva, a careful examination should be made of it to see that no part is left behind; and for still greater security it is advisable to explore the vagina thoroughly, so that any detached portion may be removed. The membranes are very apt to become broken, and fragments of them left, which, though ever so small, may cause trouble. The finger should also be passed into the mouth of the womb, so as to clear it; for sometimes a large clot of blood, or a piece of the membranes, will remain and keep it open, and thus cause severe flooding.

It is generally considered, by those who have bestowed attention on the subject, that assistance should always be rendered, if the after-birth does not come very soon. There is danger, if it be left too long, of the mouth of the womb contracting and retaining it, in which case it becomes absolutely necessary to abstract it, but exceedingly difficult, and even dangerous to do so. Dr. Lee says it should never be left more than *an hour*, at most, and that it is best never to delay removing it even so long as that.

When left purposely, for observation, it is found to be expelled spontaneously, and soon, only in a few cases; usually it remains several hours, and most frequently it requires to be removed by hand. No doubt it is *natural* for it to be expelled