

when well marked, they are strong presumptive signs of pregnancy, especially when coming in connection with other evidences. It must be remembered, however, that hysteria, and some other uterine diseases, are often accompanied by similar changes.

Alteration in the Appearance of the Breast.—The direct and sympathetic connection between the womb and the breast is so great that pregnancy usually causes corresponding changes in both, though not always. In most cases, however, the breasts swell and become painful. The nipple becomes elevated, and the circle around it assumes a dark brown color, and is dotted with small tubercles, from which a thin watery liquor may often be pressed. The nipple will also enlarge, or become erect on being rubbed, and as gestation advances milk may be forced from it. Most of these signs, however, may be wanting in pregnancy, and may arise independent of it. Chronic inflammation and other diseases of the womb, or deranged menstruation, will frequently produce them, or marriage alone, particularly in certain temperaments.

The alteration in the color of the areola, or circle around the nipple, is a sign much relied upon by some, but is frequently a deceptive one, merely from want of close observation. I have known many females, though frequently mothers, whose breasts always retained the bright rosy color they had previous to marriage; and I have known young unmarried females with breasts quite dark. The peculiar hue that arises from pregnancy, however, is different from anything I ever saw in non-pregnant females; and though not always to be met with, is, in my opinion, an infallible sign when present. The celebrated John Hunter regarded the sign as an unmistakable one, and he gave a remarkable instance of it in his lectures. In making a *post mortem* examination of the body of a young female, he observed this peculiar color, and at once proclaimed her pregnant, though the hymen was unbroken. On dissection, he was found to be correct; she was four months advanced. If this sign were constant,



FIGURE 147.—View of the Breast about the Fourth Month.

a a, the breast; *b*, the nipple; *c*, the areola, or part which becomes brown; it is elevated above the rest of the breast, as may be seen; *d d*, the little tubercles.

pregnancy could nearly always be ascertained, but frequently it does not appear. The peculiar color must be seen to be recognized, as it cannot be accurately described; perhaps the nearest approach to it is the shell of a fresh ripe chestnut, but it is much darker in some than in others. The dark circle is nearly always more elevated than the rest of the breast, as may be seen by taking a profile view.

Most frequently the breasts do not swell, nor the areola change color, nor the tubercles appear, till about the fourth month, and frequently much later.

All these changes in the breast are also liable to become more or less permanent, after the first pregnancy, so that they are of much less service, and less to be depended upon, in all succeeding ones. They also remain, with most females, during nursing, and are therefore not available in those who conceive while they are nursing. On the whole, however, these signs, especially in those not previously pregnant, may be pretty confidently relied upon, and will seldom deceive an experienced observer.

The secretion of milk is, by most persons, considered a positive sign of pregnancy, but it is not so, for it sometimes takes place in young girls merely from the establishment of puberty, and in some females it always occurs at each monthly period,

though they have never been pregnant. Instances have been known of women nursing other people's children though they had never conceived themselves.

Miscellaneous Signs.—There are a few other presumptive signs, not easily classified, some of which are of value, while others are so uncertain, or so little available, as to be almost worthless. All these, however, it is necessary to point out, because some of them may be made use of in cases where the more ordinary signs are absent.

In the unimpregnated state, the mucous membrane which lines the vagina is of a bright rose color, but in nearly every case of pregnancy it changes to a bluish, or purplish hue. I do not recollect a single instance, in the course of my own observation, in which this change has not occurred, and the same statement is made by several eminent authors. It is true that in some young females the mucous lining is naturally darker than it is in others, but, like the areola round the nipple, this natural tinge is not like that produced by pregnancy. It is of course impossible to say whether this blue tinge is *always* produced, though I am inclined to think it is, and I should certainly consider it an almost infallible sign when present. Parent Duchatelet states that he was present when M. Jacquemin proved this, without a single failure, in four thousand five hundred cases.

Many females are also warned of their condition by pains in various parts of their bodies, the most frequent of which is one felt at the top of the head. Some always have palpitation at the heart, and others experience a singular kind of fluttering in the womb.

Many medical men rely altogether on certain peculiarities in the urine, and, as this sign is really a valuable one in some cases, I will describe the mode of examination fully: The urine is put in a clean vessel, and allowed to stand perfectly still. In a short time, varying from two to six days, a number of little opaque bodies begin to rise from the bottom, like flocks of cotton, which unite together at the top into a thin but firm layer, or pellicle, like cream on the top of milk. This layer is frequently so consistent that it can almost be raised out of the vessel by taking hold of one edge, and may be easily drawn out by passing the finger under it. This substance is called *kyestein*. It is of a whitish color, semi-transparent, and looks as if it were partly crystallized. After a few days, if left undisturbed, the urine becomes thick and muddy, and the pellicle of *kyestein* breaks up and falls to the bottom. According to the experience of many medical men, and so far as I have seen myself, this peculiar substance is *always* to be found in the urine of pregnant females, after the first month, and frequently even earlier. Sometimes a substance similar to it is observed in the urine of those not pregnant, but there is, in most of these cases, sufficient difference between them to enable any one, who has seen both, to distinguish one from the other. The only time, except during gestation, when real *kyestein* appears to be formed, is while the milk is being secreted and not freely discharged. Thus it may often be found when the female is weaning, and, some writers assure us, in some cases during the whole period of nursing. On the whole, this sign is a very valuable one, and may be much relied upon.

The changes in the pulse, on which some persons rely, are of no value whatever as a sign of pregnancy, since they are no more frequent, and not at all different, so far as I have seen, from what ordinarily occur from other causes.

The development of the abdomen, though an invariable accompaniment of pregnancy, is by no means a certain sign of it, since it may be produced by other causes; and besides, it is sometimes but little to be observed till a late period. The peculiar

manner of the development, however, is usually somewhat different from that produced by tumors, and other diseases. Very often the abdomen will be tolerably large by the second month, and then again become so much smaller that the female will think she is certainly not pregnant. This is owing chiefly to flatulence, produced by digestive disturbance during the early periods, but which afterward subsides. In a short time, however, the uterus not only enlarges more, but rises, and the development becomes permanent. This circumstance of there being often *two* developments has deceived many, and I have known females declared to be not pregnant, simply because the development of the abdomen went down, who, in a short time after, exhibited unequivocal evidences of being in that condition. The first development, or swelling, is merely similar to what often arises from indigestion, and other causes, and is therefore no sign of pregnancy; but the second development is accompanied by other changes, besides being more permanent.

The linea alba, or white line, which may be seen extending from the navel to the pubis, in the ordinary state, becomes much darker, the skin of the abdomen wrinkles, and the umbilicus, or navel, becomes prominent.

Swelling of the eyelids, and puffing of the face, are experienced by some females, but are not very general, and so frequently result from other causes that they are of little value as evidences in this case.

This, I believe, comprises all the presumptive signs of pregnancy that are worthy of notice. Some of them are valuable and may be depended upon, particularly the presence of kystein in the urine, which may almost be called a *certain* sign. Others of them are of little value alone, but are useful in the way of corroboration. The more there are of them observed together, in any case, of course the more grounds there are for the *presumption* that pregnancy exists, and the reverse.

It must be carefully remembered, however, that these presumptive signs are precisely those most likely to be produced by other causes, particularly by *marriage only*; they must therefore be well weighed, and, unless very numerous, or very distinctly marked, must not be regarded as conclusive. As already remarked, it is only during the *first three months* that most of these presumptive signs are taken much notice of; after that we have others that can be more depended upon, and which will be described in the succeeding articles.

PROBABLE AND CERTAIN SIGNS.

End of the third month.—The probable signs now to be described are seldom recognized before this time, and not generally with distinctness till a still later period. They chiefly consist of certain changes in the form, development, and position of different parts of the uterus, to ascertain which requires an internal examination. These changes are not observable till the end of the third month, previous to which time we cannot be certain that the womb has really increased beyond its normal size. And even then, when the increase is obvious, we cannot tell how it has been produced; it is not till a much later period, till five or six or even seven months have elapsed, that pregnancy can be ascertained with anything like certainty.

The changes to be noticed are in the form and size of the neck and body of the womb, and in its mouth, and also in the weight of the whole organ. No one, of course, can expect to recognize these changes who is not acquainted with the parts in the unimpregnated state, both in the virgin and in those who have borne children.

The mode of conducting the requisite examination is by introducing the index finger of the right hand, covered with oil or mucilage, into the vagina, and then carrying it upward till it reaches the os tinca. By means of this finger the position and length of the neck of the womb are ascertained, and also the state of its mouth, whether it is opened or closed, and to what extent. If it be then placed at the top of the neck, on the under side, and the other hand upon the fundus of the womb externally, and pressing firmly upon it, the organ is inclosed, as it were, between the two hands, so that its size and form may be pretty accurately ascertained, and also its degree of firmness, by which a judgment may be formed as to whether it is occupied by any solid body, or fluid, or whether it is empty. In addition to this, a tolerably

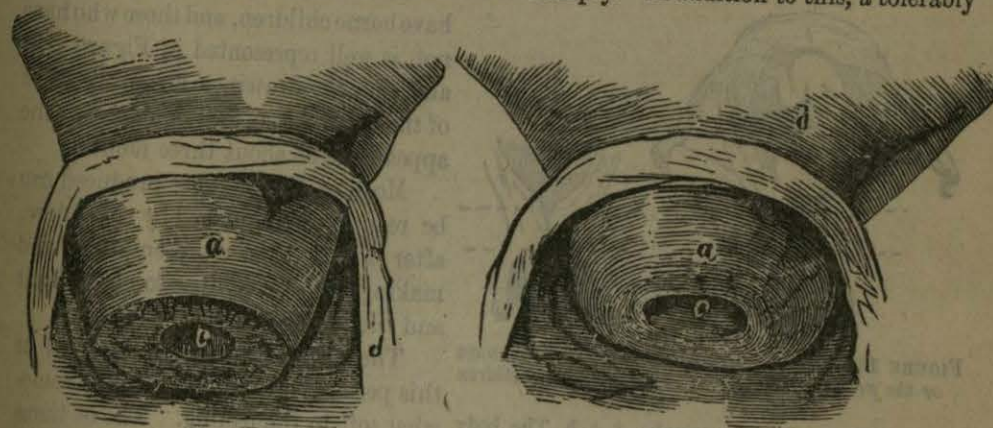


FIGURE 148.

FIGURE 149.

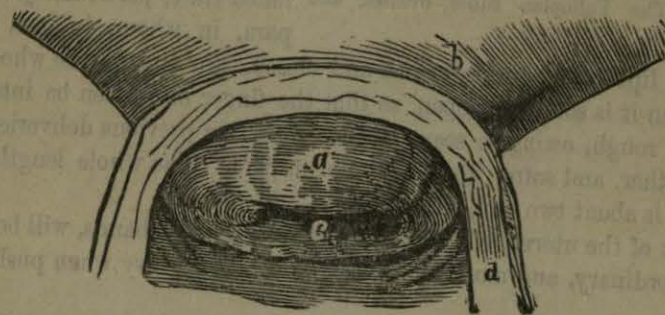


FIGURE 150.

The form and size of the body, neck, and mouth of the womb, at about the third, seventh, and ninth months.

Figure 148 represents the form and size of the body, neck, and mouth of the womb, at about the third month.

Figure 149, the same at about the seventh month.

Figure 150, the same at the ninth month.

The references are the same in all. *a.* The neck of the womb.—*b. b.* The body of the womb.—*c.* The os tinca, or mouth of the womb.—*d. d.* The cut edges of the vagina.

accurate estimate may be made of its comparative weight, by balancing and raising it up on the finger. This is called by the French *ballotment*, and, as will be shown further on, is a valuable means, at certain stages, of ascertaining pregnancy.

The female may be examined either standing or lying down, though the recumbent position is best, except in certain displacements of the womb, when it is most likely to be thrown into a position in which the neck can easily be reached by the female standing. The position of the neck is very different in many of these dis-

placements, and during pregnancy, to what it is in the ordinary state, and a person not acquainted with these changes might frequently be much puzzled to find it. As we have already remarked, also, there are certain differences between those who have had children and those who have not. The foregoing three diagrams represent the changes just spoken of at different periods.

It will readily be seen by these diagrams that the alterations in the neck and mouth of the womb are very marked, and of a character easily to be ascertained by the touch. These three should be compared with the section of the womb in the unimpregnated state.

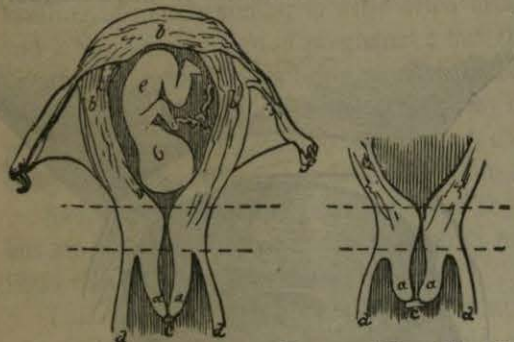


FIGURE 151.—Primipara, or the first pregnancy. FIGURE 152.—Woman who has borne children before.

a. a. The neck of the womb.—b. b. b. The body of the womb.—c. The os tincæ, or mouth of the womb.—d. d. The cut edges of the vagina.—e. The fetus.—f. f. The Fallopian tubes, ovaries, and round ligaments.

circular, the lips being quite smooth and closed. In the female who has already borne children it is somewhat open, so that the finger may often be introduced, and the lips feel rough, owing to scars and laceration in previous deliveries. It is also larger altogether, and softer, than in the primipara. The whole length of the neck at this stage is about two inches.

The body of the uterus, when pressed between the two hands, will be found much larger than ordinary, and more round, and it will feel heavy when pushed up by the finger.

In regard to the precise value of these probable signs, it can only be said, when they are observed, that it is certain that the womb is enlarged, and most probably from pregnancy. But at the same time it must be remembered that several diseases, and particularly suppressed and irregular menstruation, or the development of tumors and polypi, will effect very similar changes, and that it is not always possible to say whether they arise from these abnormal growths or from pregnancy, though it can generally be done. But though we cannot, in every case, say when these signs exist, that the female must be pregnant, we can nearly always say, when they do not exist, that she cannot be so, particularly if the other usual signs are absent.

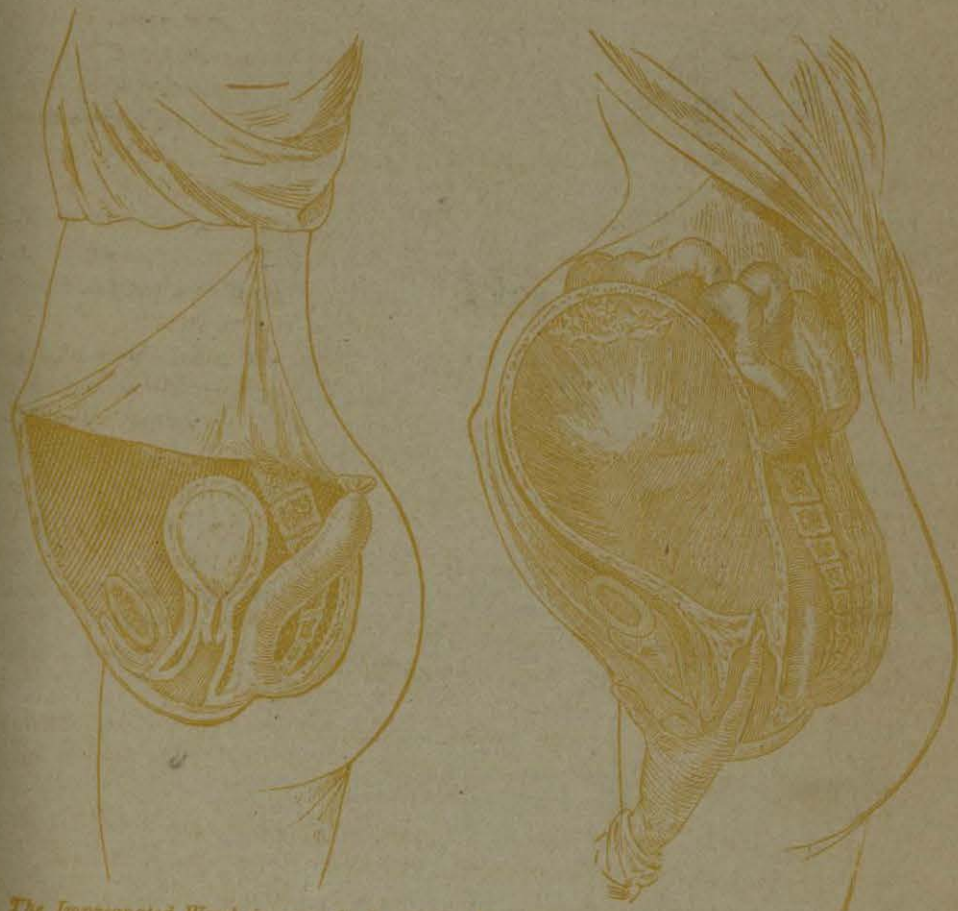
End of the fourth month.—By this time the neck has become a little shorter still, and the mouth more open, but on the whole there is not much change to be felt internally. The body of the womb, however, has now ascended above the superior strait of the pelvis, and begins permanently to enlarge the abdomen. It may be distinctly felt between the two hands, like a firm round ball, somewhat elastic, and

The difference between those who have borne children, and those who have not, is well represented in Figures 151 and 152, the drawings being one-third of the natural size, and representing the appearance at about three months.

Most of the changes produced can be readily distinguished by the finger, after seeing this representation, and making a proper comparison between it and the natural state.

The neck is not much enlarged at this period, but its lower part is somewhat soft to the feeling. The os tincæ is more rounded than in the unimpregnated state, particularly in the primipara, in whom, in fact, it is nearly

PLATE XXXVII.



The Impregnated Womb in one who has borne Children before at 3 Months, and at 6 Months.

resisting when pressed. This is the period when the motions of the fœtus are usually felt first, and these motions, with the ascension of the womb, are sometimes experienced very suddenly, so as to alarm the female, and produce certain curious sensations, with much nervous derangement. This is called *quickenings*, and with some persons, is always so well marked as to indicate not only their condition, but the very period, with great precision. Many, however, never experience anything at all peculiar at this time.

It is customary for the medical attendant, as a means of making the child move, to put his hand first in cold water, and then over the fundus of the uterus; the sensation of cold thus conveyed usually causing it to move immediately. Great care must be taken, however, that other motions be not mistaken for those of the child, an error not at all uncommon. Many a female, and many a medical man also, has been deceived in this way, particularly in cases of uterine or ovarian dropsy and tumor, and even in ordinary flatulence and hysteria. Females who much desire offspring frequently deceive themselves in this way, and it is sometimes next to impossible to convince them of their error. Some women possess the power of *imitating* the movements of the child, with great exactness; and instances have been known where they have successfully imposed, both on their friends and medical attendants, for a long time in this way.

Mr. Dubois mentions instances of females who possessed this extraordinary power, and who, though not pregnant, used to present themselves to his class for the pupils to *ascertain the motions of the child*. In short, this sign must not be too much relied upon, nor too confidently expected, for many females observe no foetal motions at all till the sixth or seventh month, and even then very indistinctly. Sometimes, also, after having been distinctly felt, these motions will altogether stop for a long time, and then appear again.

At this time, however, *ballotment* can begin to be practiced, though it is not quite so certain as at a month later. The manner of performing this important manipulation has already been partly described, and by examining Figure 153, and attending to the following remarks, it may be readily understood and practiced.

When the right hand finger (3, Figure 153) is carried to the top of the



FIGURE 153.

This figure represents the mode of performing the ballotment to detect pregnancy.

The index finger of the right hand is passed into the vagina till it touches the body of the womb, the neck being thrown back, owing to the tilting of the fundus forward. The left hand is pressed firmly upon the abdomen, just over the pubic bone.

1, is the fœtus; 2, the placenta, connected with the fœtus by the cord; 3, is the index finger of the right hand, within the vagina; 4, is the left hand.

The development of the womb, and the change in its position, are very well represented in the figure, and so are the alterations in some of the other organs. The manner in which the bladder, A, is pressed out of its usual shape and size, may be seen by comparing this with previous figures of the unimpregnated state. The shortening of the vagina, and the expansion of its upper part, are also equally obvious, and the manner in which the mouth of the womb is thrown back against the rectum.

vagina, it meets with a round soft tumor, which is the head of the child felt through the walls of the womb. As soon as this is distinctly felt, the finger must be withdrawn a little, and then pushed suddenly against the tumor with a jerk; this will displace the fœtus, and cause it to rise in the liquor amnii toward the fundus, so that the round tumor will have disappeared. In a few moments it will sink down and may be again felt, and again displaced in the same manner. This is called the *ballotment*, or balancing it on the end of the finger. The sensations conveyed on touching the fœtus, and when it rises after being pushed, are so peculiar that they are not likely to be overlooked, or mistaken for anything else, after being once experienced. The jerk is not required to be at all violent, and had better be made at first very slight, as it can easily be repeated a little more forcibly if the tumor does not rise at first. Some practitioners practice the ballotment in this way, using the one hand only; but others place the left hand also on the abdomen (4, Figure 153) at the same time, and immediately after jerking *upward* with the right hand, they suddenly depress the abdomen, just over the pubes, with the fingers of the left, so as to send the fœtus down again more quickly and more forcibly. This is seldom needed, but if the first way does not succeed the two hands may be tried.

A species of ballotment may even be practiced externally, in the following way: The fingers of the right hand are placed on the abdomen, just over the fundus of the womb, like the left hand in Figure 153, and a smart jerk is given downwards and backwards, several times in quick succession. This also displaces the fœtus, which may be distinctly felt to float away, each time the percussion is made. No one can mistake this peculiar motion who has once felt it.

Sometimes one of these manœuvres will succeed when the other fails, so that it is well to practice them all. They may be performed with the female either standing or lying down, and will sometimes succeed one way when they will not the other.

It is requisite to remember that in presentations of the breech, or trunk, the ballotment may not succeed as well as when the head presents; or it may even fail altogether, so that when it is unsuccessful we must not immediately conclude there is no pregnancy. Tumors in the womb, stone in the bladder, and various uterine displacements, may also create uncertainty, or cause failure, but these accidents are rarely met with, and only interfere materially at an early stage; afterwards ballotment can be practiced notwithstanding them, or auscultation may be resorted to.

In short, this mode of detecting pregnancy is one of the most certain, and the most generally applicable, that we possess.

End of the fifth month.—At this time the uterus has increased considerably in size, and has ascended so high in the abdomen that the fundus is level with the umbilicus, or navel, in a first pregnancy, though somewhat lower in those who have borne children before. This rising of the womb makes the vagina longer, and brings the neck of the womb nearer to its center. In the previous stage the neck was thrown so far back that it was difficult to reach, but now it is much more favorably situated, though much higher. Its substance is softer than before, and the two lips are nearly on a level, and somewhat opened, particularly in those who have borne children before. Indeed, in them the point of the finger may be introduced, as seen in Figure 154.

Ballotment is now much more easily practiced and is more conclusive. A new sign is also to be distinguished, by which we are furnished with another valuable

means of detecting pregnancy. The child's heart begins to beat so strongly, and its circulation is so vigorous, that the *sound* of it can be *heard* externally. The same means are taken to ascertain this that are used in sounding the chest of an adult. If the ear be placed on the abdomen over the womb, the beating of the fœtal heart may be heard quite plainly; and if the stethoscope be used it will be still more distinct. This practice is called *auscultation*. The signs furnished by it are certainly of the greatest value, and frequently enable us to detect pregnancy with unerring certainty. Indeed, not only can we tell by them that a child is in the womb,

but often even *the very position in which it lies*, and whether there be *twins, or more*. This is done by noting where the heart is situated, by the sound, and whether the beating is single or double.

The nature of these sounds, and the manner of detecting them, require to be carefully explained.

If the person wishing to notice this sign is not already familiar with the beating of the adult heart, he had better become so first. The ear should be placed on the left side of a grown-up person, on the skin, just beneath the breast, and held very still. The heart will then be heard to beat very distinctly, there being two sounds, a long one and a short one, alternating with each other. When this has been listened to for some time, the ear will be able to catch any similar sound, and the auscultation may then be practiced to detect pregnancy.

The ear must be placed on the abdomen, about midway between the pubes and the umbilicus, and towards the left side. No weight should be borne on the body, but the ear must be laid sufficiently close to exclude all external sounds, and no motion should take place, particularly with the clothes. If the sound be not heard in the position first assumed, move a little, in different directions, till that point is attained where it is most distinct. It can scarcely fail to be heard, with ordinary care. A practiced ear will sometimes distinguish the sound as early as the fourth month, but generally it cannot be heard before the end of the fifth, or even till the sixth month. There are several sounds that may either be mistaken for it, or that may confuse the ear. The beating of the mother's heart will sometimes be very distinct, as far as the lower part of the abdomen, but it is much slower; the child's heart throbbing nearly twice as fast. The movements of the fœtus, and the rumbling of the intestines, will also interfere; but when once the proper sound has been caught it may be kept distinct from all these.

The manner in which the child lies in the womb will determine where the heart shall be opposite, and as its position frequently varies, both in different individuals, and at different periods, in the same person, the sound must be sought for at several points, till the right one is found. The most usual position will be seen in several of our figures, and they will give sufficient indication to enable almost any one to practice this mode of detection with success. During the early months the child moves about a good deal, so that the sound may be heard one day in one place, and

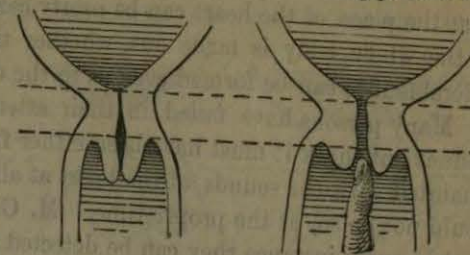


FIGURE 154.

Neck of the womb in a first pregnancy, very slightly opened. Neck of the womb in a female who has borne children before, showing how it admits of the introduction of the finger.

This is at the end of the fifth month, and the drawings are about one-third of the natural size.

the next in another. About the seventh month, however, it becomes more fixed, so that the place of the heart can be pretty certainly ascertained, and thus the *position* of the whole body is made out, whether the head is downward or upward, and a tolerable idea can be formed even as to the direction of each part.

Many persons have failed in their attempts to hear the foetal pulsation, but I cannot but think it must have been either from inattention, or from not being acquainted with the sounds of the heart at all. I never recollect an instance when I could not do so, at the proper time. M. Chailly says he does not hesitate to affirm that in every instance they can be detected; and M. P. Dubois distinctly heard them in one hundred and eighty-five females, out of one hundred and ninety-five, in the other ten the child being probably dead. Indeed, the absence of this sound is the most certain sign of the death of the foetus, as its existence is of its being alive; and medical men now tell whether the child is dead or not by these very means.

In conducting the auscultation, the female must recline, and keep as still as possible, breathing low. The abdomen may be covered with a single thin garment, if absolutely insisted upon; but the judgment will be so much the more uncertain, owing both to the deadening of the sound and to the friction of the material. The experimenter must also recollect that if the head be held down too long, the blood will rush to it, and cause a humming in the ears, which will confuse him; it will therefore be better if the bed be high.

It is always best to use the *stethoscope*, as it covers only a small space, conveys the sound more directly, and shuts out external noises more effectually. This instrument is extremely simple, consisting merely of a tube of wood, glass, metal, gum elastic, or almost any other material. One end should be expanded a little, like a bell, and the other made small, so as to fit close in the ear—the large end being placed on the abdomen. It may be about a foot in length, though a little shorter or longer will not make much difference. I once used a child's *tin trumpet*, having no regular stethoscope with me, and succeeded with it perfectly. The large end should be pressed on the abdomen, and the smaller one into the ear, sufficiently close to shut out all other sounds but those coming from the body. This is the same instrument that the lungs are sounded with, when we want to judge of their action and condition.

This is an invaluable means of detecting pregnancy; in fact, at the proper time, and with due care, it may be said to be *certain*.

End of the sixth month.—This is the period when, according to the law, the child can live. There are no new signs at this time, but those previously noticed are now more distinct. The neck of the womb is still softer and shorter, and the finger can penetrate further in the passage than before. The fundus of the womb is now above the umbilicus, in primipara, though not so high in those who have borne children; and the bladder is above the superior strait.

Ballotment can now be practiced with certainty, the falling and rising of the foetus being very distinct.

Auscultation also becomes more positive, the sounds being louder and more easily ascertained.

End of the seventh month.—The fundus of the womb has now risen still higher, and the bladder is pushed completely above the upper strait, so that the whole length of the urethra lies behind the pubic bone. It is therefore much pressed upon and swollen, and being much longer, and bent out of its usual course, the urine is often

passed with difficulty, and the catheter can scarcely be introduced. The upper part of the womb now lies over toward the *right side* of the body, very evidently. This direction is nearly constant in all females, but the reason for it is not known. There have been many theories to account for the peculiarity, but none of them are either so plausible, or so well supported by facts, as to be generally adopted.

The upper part of the womb being tilted to the right side, the neck of course points to the left, and backward. It is now very short, even in primipara, but in those who have borne children it is scarcely to be distinguished at all. The finger may now be introduced, even in primipara, half way up the neck; and in others it will reach even into the uterine cavity.

The part below the lower line here, shows that part of the neck which is contained in the vagina. It will easily be seen how much shorter this part is, and how much more open the passage is, in the female who has borne children, than in a first pregnancy.

Ballotment and auscultation both now afford unmistakable evidences as to the condition of the patient.

End of the eighth month.—By referring to the preceding Figures, it will be seen that the part of the neck of the womb *above* the vagina, which is placed between the two dotted cross lines, remains almost unchanged, while the part *within* the vagina, or that below the lowest line, becomes less and less, till at this time, in those who have borne children, it can scarcely be felt at all; and even in a primipara it is merely like a small tubercle. About this time, however, the upper part of the neck begins to shorten also, though that is not so obvious, and therefore not so useful for our present purpose.

On making an examination, the mouth of the womb itself may now be felt, at the upper part of the vagina, and far back. It is, however, very difficult to reach, on account of its position. The finger will now pass, in those who have previously borne children, into the cavity of the womb itself, but in others it will scarcely reach so far.

The linea alba becomes darker at this period, and so does the areola around the nipple. Certain peculiar marks also appear on the abdomen and upper part of the thighs, almost like the *pits* from small-pox. They are usually diamond-shaped, slightly depressed, and dark in color. They appear to be owing to the over-stretching of some of the parts under the cuticle, which give way in consequence. In first pregnancies, and in those who enlarge very much, these marks are sometimes very numerous, and remain for a long time after delivery; occasionally even they never disappear. As signs of pregnancy, however, they are but of little value, because they are often produced by other causes that distend the womb. None of these presumptive signs are now needed, and therefore they are of little consequence, because there are others more certain.

The motions of the child itself can now be generally both felt and seen, and an experienced observer may even predicate from them, with tolerable certainty, the

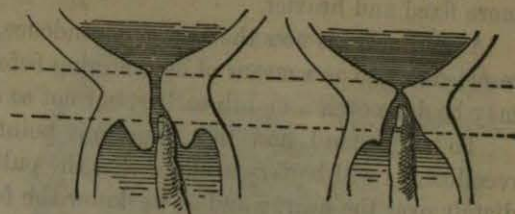


FIG. 155.—First child. Woman who has borne children.

The neck of the womb in a first pregnancy, and in a female who has borne children before, at the end of the seventh month.

position in which it lies. Ballotment, by one hand on the abdomen, may still be practiced with success; but in the vagina it is difficult, because the fœtus is both more fixed and heavier.

Auscultation is now the surest dependence, however, and may be advantageously resorted to also as a means of determining beforehand the position of the child. This may be done even a month earlier, but not so certainly as now.

To understand how this important point is determined, it is only necessary to recollect, as will be very evident, that the pulsation will be heard the loudest immediately over the heart; and as we know the form and general size of the fœtus, and the manner in which it usually lies, it becomes possible, when the position of its

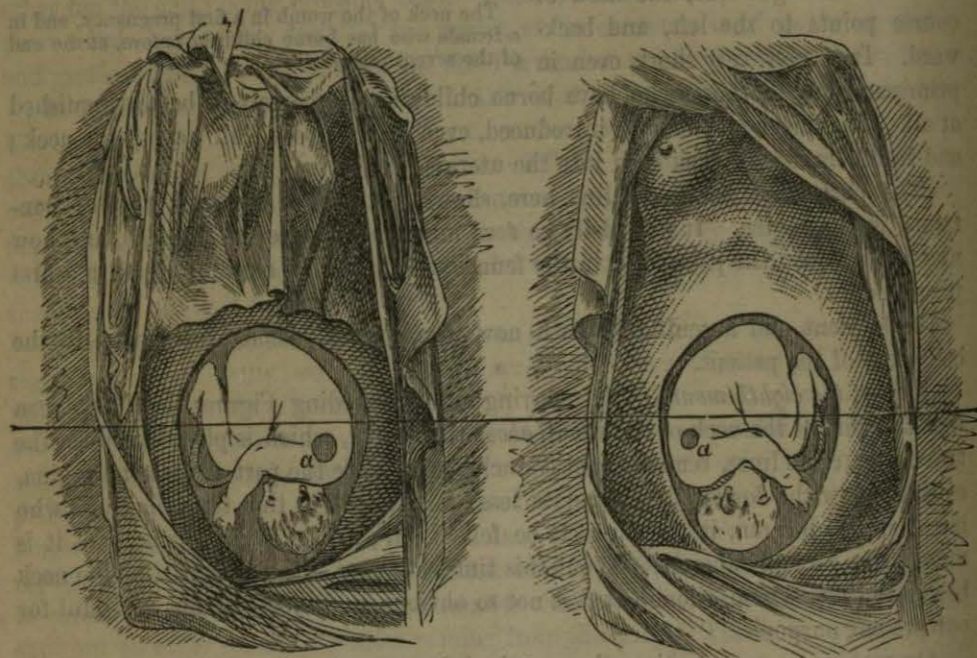


FIGURE 156.—This plate represents the fetus in the most usual position, the head downwards, and the back of it presenting to the left side.

The black spot, *a*, shows the situation of the heart; usually immediately under that part where the sound is heard the strongest. It is below the line.

FIGURE 157.—This plate represents the fetus in the next most frequent position, the head downwards, but the back of it presenting to the right side.

The black spot, *a*, shows the situation of the heart, as in the previous plate. It is now below the line, as before, but on the opposite side.

heart is discovered, to trace out from that the position of every other part. This will be evident by referring to Figures 156, 157, and 158. It will then be seen that, if a line be drawn across the middle of the abdomen, the heart will be *above* that line when the breech presents, and *below* it when the head presents, and on the right or left side, as the case may be, in each position.

In case of twins there will be two pulsations, and they so much interfere with each other that it is difficult to distinguish either. The two children being generally disposed with the head of one to the heels of the other, one heart will be *above* the line, and the other *below*, on opposite sides, as shown in Figure 159.

At this period the signs previously observed become more distinct, but there are few new ones. The external lips sometimes swell, and the breathing becomes more difficult, owing to pressure on the diaphragm. The trouble with the urine is also

apt to increase, and little mucous tubercles, like pimples, occasionally form around the os tinæ, and on the upper part of the vagina.

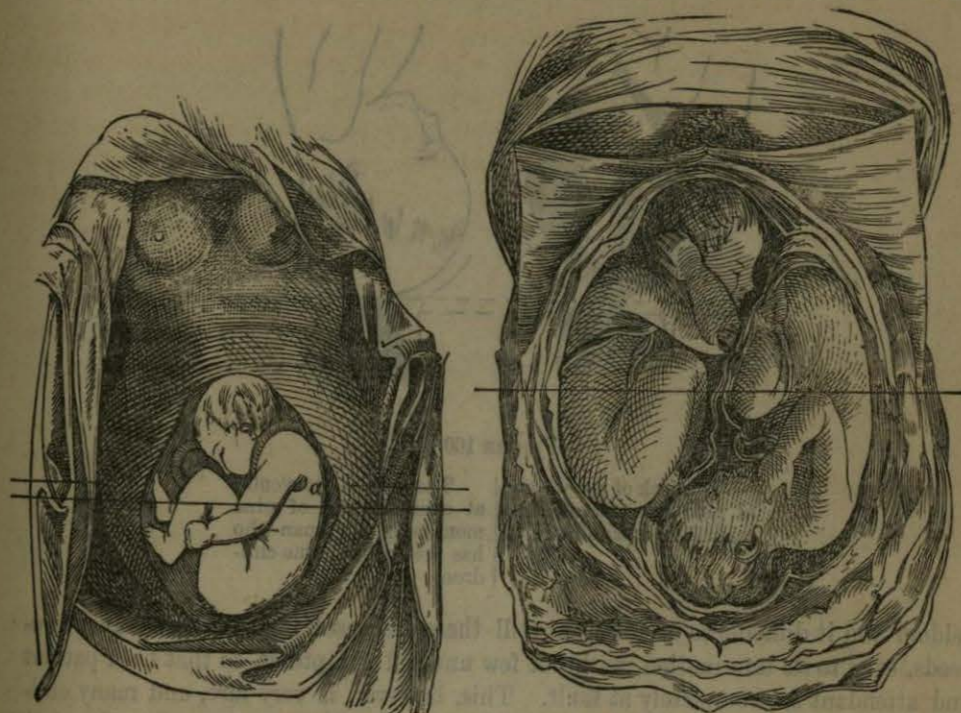


FIGURE 158.—This plate shows the position of the fetus in a presentation of the pelvis, or breech, which happens, comparatively, but seldom.

FIGURE 159.—This represents the position of twins as most usually observed, one having a head presentation, and the other a breech.

The heart, is here *above* the line, instead of below.

The heart in one case is above the line, and in the other below.

In this case, as in the others, the heart may be on either side of the body, according as the child faces, but always above the line.

The head, however, may be on the right side instead of the left, and so reverse the position of the two hearts, but this is very seldom the case.

When there are more than two, the confusion and uncertainty become still greater.

End of the ninth month.—There is but little difference between this and the previous period. The mouth of the uterus is more open, and, in those who have had children, the finger will pass directly into the womb, and feel the child, but in primipara there is still a small portion of the neck left.

Ballotment is now more obscure than before, as the fœtus is very heavy, and quite low down, and pretty firmly fixed. Auscultation is distinct enough, but not more so than at the previous period. The swelling of the lips, and of the veins of the legs, may increase, and so may the difficulty with the urine; but the breathing generally becomes easier, owing to the womb having descended a little, and so pressing the diaphragm less.

These comprise all the signs and indications of pregnancy that possess any real value. Some of them, at certain times, and under particular circumstances, may be called *positive*; such as those discovered by ballotment and auscultation, and also the presence of kystein in the urine. Most of the others merely make it *probable* that pregnancy exists, or warrant us in presuming as much. They are not to be depended on implicitly alone, but when many of them are observed together, and no other cause