

ascribed to putrefaction, but which produce appearances different from those of decomposition in animal textures exposed to the atmosphere. There is no offensive smell, as in ordinary decay. The tissues are all softened and flaccid. The more manifest changes are in the skin, the epidermis of which is separated from the cutis vera, which has a deep reddish color. This is especially apparent on the abdomen, which is flaccid, and hollow in the centre. The internal organs are much altered. The brain is diffuent and pulpy, and the cranial bones loose within the scalp. The structures of the muscles and viscera are in various stages of transformation, many having undergone fatty changes, and contain crystals of margaric and cholesterin. The extent to which these changes occur depends, in a great measure, on the length of time the fetus has been dead, but they do not admit of our estimating with any degree of accuracy what that time has been.

The symptoms and diagnosis of the death of the fetus may here be considered. They are, unfortunately, not very reliable. The cessation of the fetal movements cannot be depended on, as they are frequently unfelt for days or weeks, when the child is alive and well. Sometimes the death of the fetus is preceded by its irregular and tumultuous movements, and, in women who have been delivered of several dead children in succession, this sensation may guide us in our diagnosis. This suspicion may be confirmed by auscultation. The mere fact that we are unable, at any given time, to hear the fetal heart will not justify an opinion that the fetus is dead. If, however, the fetal heart has been distinctly heard, and after one or two careful examinations, repeated at separate times, it cannot again be made out, the probability of the child being dead may be assumed. Certain changes in the mother's health have been noted in connection with the death of the fetus, such as depression and lowness of spirits, a feeling of coldness and weight about the lower parts of the abdomen, paleness of the face, a livid circle round the eyes, irregular shiverings and feverishness, shrinking of the breasts, and diminution in the size of the abdominal tumor. All these, however, are too indefinite to justify a positive diagnosis, and they are not infrequently altogether absent. At most they can do no more than cause a suspicion as to what has happened.

CHAPTER X.

ABORTION AND PREMATURE LABOR.

Importance and Frequency of Abortion.—The premature expulsion of the fetus is an event of great frequency. The number of fetal lives thus lost is enormous. There are few multiparæ who have not aborted at one time or other of their lives. Hegar estimates that

about one abortion occurs to every eight or ten deliveries at term. Whitehead has calculated that at least 90 per cent. of married women who lived to the change of life had aborted. The influence of this incident on the future health of the mother is also of great importance. It rarely, indeed, proves directly fatal, but it often produces great debility from the profuse loss of blood accompanying it; and it is one of the most prolific causes of uterine disease in after-life, possibly because women are apt to be more careless during convalescence than after delivery, and the proper involution of the uterus is thus more frequently interfered with.

Definition.—A not uncommon division of the subject is into *abortion*, *miscarriage*, and *premature labor*, the first name being applied to expulsion of the ovum before the end of the fourth month of utero-gestation; *miscarriage*, to expulsion from the end of the fourth to the end of the sixth month; and *premature labor*, to expulsion from the end of the sixth month to the term of pregnancy. This is, however, a needless and confusing subdivision, which leads to no practical result. It suffices to apply the term *abortion* or *miscarriage* indiscriminately to all cases in which pregnancy is terminated before the fetus has arrived at a viable age, and *premature labor* to those in which there is a possibility of its survival. There is little or no hope of a fetus living before the twenty-eighth week or seventh lunar month, and this period is therefore generally fixed on as the limit between premature labor and abortion. The rule is, however, not without an occasional, although very rare, exception. Dr. Keiller, of Edinburgh, has recorded an instance in which a fetus was born alive at the fourth month, nine days after the mother had experienced the sensation of quickening. I myself recently attended a lady who miscarried in the fifth month of pregnancy, the child being born alive, and living for three hours. Several cases are on record in which after delivery in the sixth month the child survived and was reared. The possibility of the birth of a living child under such circumstances should be recognized, as it may give rise to legal questions of importance; but the exceptions to the ordinary rule are so rare that they need not interfere with the division of the subject usually made.

Abortion is Most Common in Multiparæ.—Multiparæ abort far more frequently than primiparæ. This is contrary to the statement in many obstetrical works. Thus, Tyler Smith says, "there seems to be a greater danger of this accident in the first pregnancy." Schroeder,¹ however, states that twenty-three multiparæ abort to three primiparæ; and Dr. Whitehead, of Manchester, who has particularly studied the subject, believes that abortion is more apt to occur after the third and fourth pregnancies, especially when these take place toward the time for the cessation of menstruation.

There can be no doubt that women who have aborted more than once are peculiarly liable to a recurrence of the accident. This can generally be traced to the existence of some predisposing cause which persists through several pregnancies, as, for example, a syphilitic taint, a

¹ Schroeder: Manual of Midwifery, p. 149.

uterine flexion, or a morbid state of the lining membrane of the uterus. It is probable that in many women a recurrence of the accident induces a habit of abortion, or perhaps it might be more accurate to say, a peculiar irritable condition of the uterus, which renders the continuance of pregnancy a matter of difficulty, independently of any recognizable organic cause.

The frequency of abortion varies much at different periods of pregnancy; and it occurs much more often in the early months, because of the comparatively slight connection then existing between the chorion and the decidua. At a very early period of pregnancy the ovum is cast off with such facility, and is of such minute size, that the fact of abortion having occurred passes unrecognized. Very many cases, in which the patient goes one or two weeks over her time, and then has what is supposed to be merely a more than usually profuse period, are probably instances of such early miscarriages. Velpeau detected an ovum, of about fourteen days, which was not larger than an ordinary pea, and it is easy to understand how so small a body should pass unnoticed in the blood which escapes along with it.

Up to the end of the third month, when miscarriage occurs, the ovum is generally cast off *en masse*, the decidua subsequently coming away in shreds or as an entire membrane. The abortion is then comparatively easy. From the third to the sixth month, after the placenta is formed, the amnion is, as a rule, first ruptured by the uterine contractions, and the fetus is expelled by itself. The placenta and membranes may then be shed as in ordinary labor. It often happens, however, that on account of the firmness of the placental adhesion at this period the secundines are retained for a greater or less length of time. This subjects the patient to many risks, especially to those of profuse hemorrhage, and of septicaemia. For this reason, premature termination of the pregnancy is attended by much greater danger to the mother between the third and sixth months than at an earlier or later date. After the sixth month the course of events is not different from that attending ordinary labor. The prognosis to the child is more unfavorable in proportion to the distance from the full period of gestation at which premature labor takes place.

Causes.—The causes of abortion may conveniently be subdivided into the *predisposing* and *exciting*, the latter being often slight, and such as would have no effect in inducing uterine contractions in women unless associated with one or more of the former class of causes. The predisposition to abortion may depend on some condition interfering with the vitality of the ovum, or its relation to the maternal structures, or on certain conditions directly affecting the mother's health.

One of the most common antecedents of abortion is the death of the fetus, which leads to secondary changes, and ultimately produces the uterine contractions which end in its expulsion. The precise causes of death in any given case cannot always be accurately ascertained, as they sometimes depend on conditions which are traceable to the maternal structures, at others to the ovular, or, it may be, to a combination of the two. Nor does it by any means follow that the death of the ovum immediately results in its expulsion. The mode in which death

of the ovum produces abortion is not difficult to understand, for it necessarily leads to changes in the relations between the ovular and maternal structures; these changes cause hemorrhages—partly external and partly into the membranes—which, in their turn, excite uterine contraction. Extravasations of blood may take place in various positions. One of the most common is into the decidual cavity, between the decidua vera and the decidua reflexa, or between the decidua vera and the uterine walls. If the hemorrhage is only slight, and especially if it comes from that portion of the decidua near the internal os, and at a distance from the ovum, there need be no material separation, and pregnancy may continue. This explains the cases occasionally met with in which there is more or less hemorrhage, without subsequent abortion. When the amount of extravasated blood is at all great,

FIG. 98.

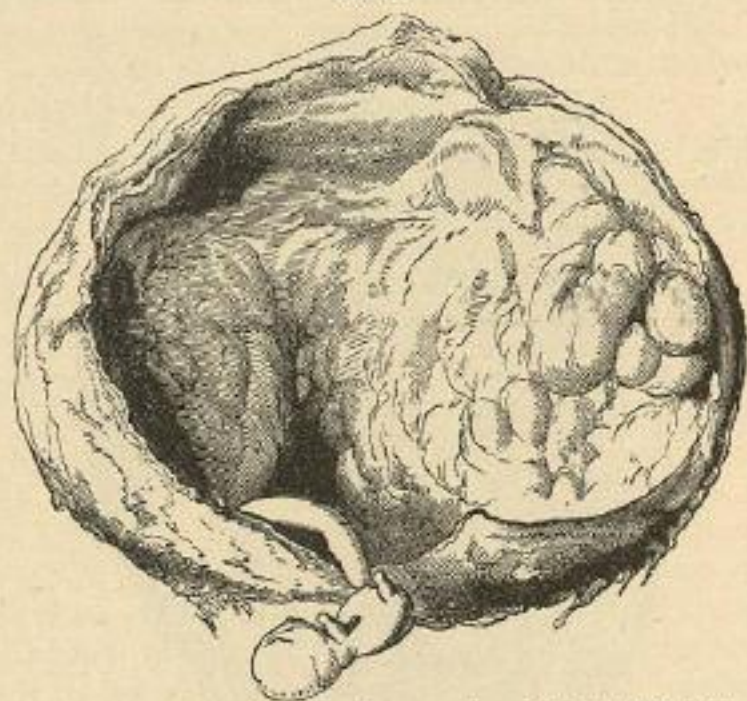


An apoplectic ovum, with blood effused in masses under the fetal surface of the membranes.

separation and abortion necessarily result, and the decidua will be found on expulsion to have coagula on its surface, and between its various layers which are found to project into the cavity of the amnion (Fig. 98). In other cases hemorrhage is still more extensive, and, after breaking through the decidua reflexa, it forms clots between it and the chorion, and even in the cavity of the amnion. Supposing expulsion to take place shortly after coagula are deposited among the membranes, the blood is little altered, and we have an ordinary abortion. If, however, the ovum is retained, the coagulated fibrin and the placenta or membranes undergo secondary changes which lead to the formation of moles. The so-called *fleshy mole* (Fig. 99) is often retained for many weeks or months after the death of the fetus, and during this time there may be but little modification of the usual symptoms of preg-

nancy; or, as is frequently the case, it gives rise to occasional hemorrhage, until at last uterine contractions come on, and it is cast off in the form of a thick fleshy mass having but little resemblance to the ordinary products of conception. The most probable explanation of its formation is that when hemorrhage originally took place the effusion of blood was not sufficient to effect the entire separation and expulsion of the ovum. Part of the membranes or of the placenta—if that organ had commenced to form—retained its organic connection with the uterus, while the fetus perished. The attached portion of the placenta or membranes continues to be nourished, although abnormally. The fetus generally entirely disappears, especially if it has perished at an early period of utero-gestation, when it becomes dissolved in the liquor amnii; or it may become macerated, shrivelled, and

FIG. 90.



Blighted ovum, with fleshy degeneration of the membranes.

greatly altered in appearance. The effused blood becomes decolorized from the absorption of the corpuscles; and, according to Scanzoni, fresh vessels are developed in the fibrin, which increase the vascular attachment of the mole to the uterine walls. The placenta and membranes may go on increasing in thickness until they form a mass of considerable size. Careful microscopic examination will almost always enable us to discover the villi of the chorion, altered in appearance, often loaded with granular fatty molecules, but sufficiently distinct to be readily recognizable.

Important as are the causes of abortion arising from some morbid condition of the ovum, they are not more so than those which depend on the maternal state; and it is to be observed that the former are often indirect causes produced by primary maternal changes. Many of these maternal causes act by producing hyperæmia of the uterus, which leads to extravasation of blood. Thus abortion is apt to occur in women who

lead unhealthy lives, such as those who occupy overheated and ill-ventilated rooms, or indulge to excess in the fatigues and pleasures of society, in the use of alcoholic drinks, and the like. Over-frequent coitus has been, for the same reason, observed to produce a remarkable tendency to abortion, and Parent-Duchatelet has noted that it is of very frequent occurrence amongst women of loose life. Many diseases strongly predispose to it, such as fevers, zymotic diseases of all kinds, measles, scarlet fever, smallpox, and diseases of the respiratory organs, such as bronchitis and pneumonia. *Syphilis* is well known to be one of the most frequent causes, and one that is likely to act in successive pregnancies. It may act so that the pregnancy is brought to a premature termination, time after time, until the constitutional disease is eradicated by appropriate treatment. It acts in some cases through the influence of the father in producing a diseased ovum; and it is the only cause which can with certainty be traced to the state of the father's health. Many other morbid conditions of the blood also dispose to abortion. It has been observed to be a frequent result of lead-poisoning, also of the presence of noxious gases in the atmosphere, such as an excess of carbonic acid.

Many causes act through the nervous system, such as fright, anxiety, sudden shock, and the like. Thus there are numerous instances on record in which women aborted suddenly after the receipt of some bad news, and it is said to have been of frequent occurrence in women immediately before execution. The influence of irritation propagated through the nervous system from a distance, tending to produce uterine contraction and abortion through the agency of reflex action, has been specially dwelt upon by Tyler Smith. Thus he points out that abortion not unfrequently occurs from the irritation of constant suckling in women who become pregnant during lactation. The effect of suckling in producing uterine contraction is, indeed, well known, and the application of the child to the breast for this purpose has long been recognized as a method of treatment in post-partum hemorrhage. The irritation of the trifacial in severe toothache; of the renal nerves in cases of gravel, in albuminuria, etc.; of the intestinal nerves in excessive vomiting, in diarrhoea, obstinate constipation, ascariæ, etc., all act in the same way. We may, perhaps, also explain by this hypothesis the fact that women are more apt to abort at what would have been the menstrual epoch than at other times, as the ovarian nerves may then be subject to undue excitement. It is probable, however, that there may be also at these times more or less active congestion of the decidua, which may predispose to laceration of its capillaries and blood extravasation. Such congestion exists in those exceptional cases in which menstruation continues for one or more periods after conception, the blood probably escaping from the space between the decidua vera and reflexa; and, therefore, there is no reason to question its also happening even when such abnormal menstruation is not present.

Certain physical causes may produce abortion by separating the ovum. Thus it may follow a fall, a blow, or other accidents of a trivial character. On the other hand, women may be subjected to injuries of the severest kind without aborting. The probability, there-

fore, is that these apparently trivial causes only operate in women who, for some other reason, are predisposed to the accident. This is borne out by the fact—which is well known in these days, when the artificial production of abortion is, unhappily, far from a very rare event—that it is by no means easy to destroy the vitality of the fœtus. I myself know of a case in which the uterine sound was passed several times into a pregnant uterus without producing abortion, the pregnancy proceeding to term. Oldham has related a similar case in which he in vain attempted to induce abortion by the sound in a case of contracted pelvis; and Duncan has mentioned an instance in which an intra-uterine stem pessary was unwittingly introduced and worn for some time by a pregnant woman without any bad effect. The fact that pregnancy is with difficulty interfered with when there is a healthy relation between the ovum and the uterus, no doubt explains the disastrous effects of criminal abortion, which have been especially insisted on by many of our American brethren.

Morbid states of the uterus have an important influence in the production of abortion. Any condition which mechanically interferes with the proper development of the uterus is apt to operate in this way. Amongst these may be mentioned fibroid tumors; the presence of old peritoneal adhesions, rendering the womb a more or less fixed organ; but, above all, flexion and displacement of the uterus. Retroflexion of the uterus is, unquestionably, one of the most frequent factors in its production, not only on account of the irritation which the abnormal position sets up, but from interference with the uterine circulation, which leads to the effusion of blood and the death of the ovum. An inflamed condition of the cervical and uterine mucous membranes will act in the same way should pregnancy have occurred, although such a condition more often prevents conception taking place.

Symptoms.—One of the earliest indications of impending abortion is more or less hemorrhage. This may at first be slight, and may last for a short time only, recurring after an interval of time, or it may commence with a sudden and profuse discharge. Occasionally it is very abundant, and its continuance and amount form one of the gravest symptoms of the accident. After the loss of blood has continued for a greater or less length of time—it may be even for some days—uterine contractions come on, recurring at regular intervals, and eventually lead to the expulsion of the ovum. More rarely the impending miscarriage commences with pains, which lead to laceration of vessels and hemorrhage.

As long as one or other of these symptoms exist alone, we may hope to avert the threatened miscarriage; but when both occur together there is little or no chance of its being arrested. Certain premonitory symptoms are described by authors as common in abortion, such as feverishness, shivering, a sensation of coldness; all of which are obscure and unreliable, and are certainly much more frequently absent than present.

If the pregnancy be early it is probable that the entire ovum will be shed with little trouble, and it often passes unperceived in the clots which surround it. It is, therefore, of importance that all the dis-

charges should be very carefully examined. After the second month the rigid and undilated cervix presents a formidable obstacle to the escape of the ovum, and it may be a considerable time before there is sufficient dilatation to admit of its passage. This is gradually effected by the continuance of pains, but not without a severe loss of blood. It may be that the amnion is ruptured and the fœtus expelled first. After a lapse of time the secundines are also shed, but there may be a considerable delay, amounting even to days, before this is effected. As long as any portions of the membranes are retained in utero, the patient is necessarily subjected to considerable risk, not only from the continuance of hemorrhage, but also from septicæmia. Hence it may be laid down as a rule that we can never consider our patient out of danger until we have satisfied ourselves that the whole of the uterine contents have been expelled.

Treatment.—Our first endeavor in any case of impending miscarriage will be, of course, to avert the threatened accident. If hemorrhage has not been excessive, and if, on vaginal examination—which should always be practised—we find no dilatation of the os, we may entertain a reasonable hope of success. If, on the contrary, we find the os beginning to open, if we are able to insert the finger through it so as to touch the ovum, especially if pains also exist, we are justified in considering abortion to be inevitable, and the indication will then be to have the ovum expelled, and the case terminated as soon as possible. In the former case the most absolute rest is the first thing to insist on. The patient should be placed in bed, not overburdened with clothes, in a cool temperature, and she should have a light and easily assimilated diet. All movements, even rising out of bed to empty the bladder or bowels, should be absolutely prohibited. To avert the tendency to the commencement of uterine contraction there is no remedy so useful as opium, which must be given freely and frequently repeated. It may be administered either in the form of laudanum or of Battley's sedative solution, which has the advantage of producing less general disturbance. It may be advantageously exhibited in doses of from twenty to thirty minims, and repeated after a few hours. A still better preparation is chlorodyne, which I have found of extreme value in arresting impending miscarriage, in doses of ten minims, repeated every third or fourth hour. If from any other cause it is considered inadvisable to give the sedative by the mouth, it may be administered in a small starch enema *per rectum*. In all cases it will be necessary to keep the patient more or less under the influence of the drug for several days, and until all symptoms of miscarriage have passed away. Care should be taken that the bowels do not become locked up by the action of the opiates—as this might of itself be a cause of irritation—and their constipating effects ought to be obviated by small doses of castor oil, or other gentle aperient. Various subsidiary methods of treatment have been recommended, such as bleeding from the arm, or the local application of leeches in supposed plethoric states of the system; revulsives, such as dry cupping to the loins; the application of ice, to check hemorrhage; astringents, such as acetate of lead or gallic acid, for the same purpose. Most of these,

if not hurtful, will be at least useless. The cases in which venesection would be beneficial are extremely rare, and the local applications, especially cold, are much more apt to favor than to prevent uterine action.

In cases of repeated miscarriage in successive pregnancies, a special course of prophylactic treatment is indicated, and is often attended with much success. In cases of this kind the first indication, and one which ought to be carefully attended to, is to seek for, and, if possible, to remove or mitigate the cause which has given rise to the former abortions. Those causes which depend on constitutional states must first be carefully investigated, and treated according to the indications present. These may be obscure and not easily discovered; but it is certainly unwise to assume too readily the existence of what has been called "a habit of abortion," which further inquiry may prove to be only an indication of constitutional debility, degeneracy of the placental structures, or a latent and unsuspected syphilitic taint. If constitutional debility be present to a marked extent, a generous diet and a restorative course of treatment (preparations of iron, quinine, and other suitable tonics) may effect the desired object.

Local congestion of the uterus or a general plethoric state of the patient have often been supposed to be efficient causes of recurring abortion. Dr. Henry Bennet has especially dwelt on the influence of congestion and abrasions of the cervix in causing premature expulsion of the fetus,¹ and recommends the topical application of nitrate of silver or other caustics to the inflammatory abrasions existing on the neck of the womb. Formerly venesection was a favorite remedy; and many authors have recommended the local abstraction of blood by leeches applied to the groin, or around the anus, or even to the cervix. The influence of general plethora is more than doubtful; and although local congestions are, probably, much more effective causes, still it would seem more judicious to treat them by rest and local sedatives rather than by topical applications, which, injudiciously applied, might produce the very accident they were intended to prevent.

The position of the uterus should be carefully investigated. If it be found to be retroflexed, a well-fitting Hodge's pessary should be applied, so as to support it until it has completely risen out of the pelvis.

The possibility of syphilitic infection should always be inquired into, for this poison may act on the product of conception long after all appreciable traces of it have disappeared from the infected parent. Should there be recurrent abortions in a patient who had formerly suffered from syphilis, or whose husband had at any time contracted the disease, no time should be lost in using appropriate anti-syphilitic remedies, which should invariably be administered both to the husband and wife. Diday especially insists that in such cases it is not sufficient to submit the father and mother to a mercurial course in the absence of pregnancy, but that, as each successive impregnation occurs, the mother should again commence anti-syphilitic treatment, even though she has no visible traces of the disease.² In this way there is reason-

¹ On Inflammation of the Uterus, p. 432.

² Diday, Infantile Syphilis, Syd. Soc. Trans., p. 207.

able ground for hoping that infection of the ovum may be prevented. I think, too, that we may be the more encouraged to persevere in the treatment of these unfortunate cases, from the fact that the syphilitic poison tends to wear itself out. I have seen several cases in which this taint at first produced early abortion, then each successive pregnancy was of longer duration, until eventually a living child was born.

In fatty degeneration of the chorion villi, and in other morbid states of the placenta, which act by preventing the proper nutrition of the fetus and the due aëration of its blood, there is no reliable means of treatment except the general improvement of the mother's health. Simpson strongly recommended the administration of chlorate of potash in cases in which the child habitually dies in the later months of pregnancy, on the supposition that it supplied to the blood a large amount of oxygen, and thus made up for any deficiency in the supply of that element through the placental tufts. The theory is, at best, a doubtful one, although I believe the drug to be unquestionably beneficial in cases of the kind. It probably acts by its tonic properties rather than in the manner Simpson supposed. It may be given in doses of fifteen to twenty grains three times a day, and may be advantageously combined with small doses of dilute hydrochloric acid. In frequently recurring premature labors with dead children, Simpson strongly recommended the induction of premature labor a little before the time at which we had reason to believe that the fetus had usually perished; or, in other words, before the placental disease had advanced sufficiently far to interfere with its nutrition. The practice has constantly been adopted with success, and is perfectly legitimate, but the difficulty, of course, is to fix on the right time. Careful auscultation of the foetal heart may be of some use in guiding us to a decision, as the death of the fetus is generally preceded for some days by irregular, tumultuous, and intermittent action of the heart.

There will always remain a certain number of cases in which no appreciable cause can be discovered. Under such circumstances prolonged rest, at least until the time has passed at which abortion formerly took place, will afford the best chance of avoiding a recurrence of the accident. There must always be some difficulty in carrying out this indication, inasmuch as the patient's health is apt to suffer in other ways from the confinement, and the want of fresh air and exercise which it entails. The strictness with which rest should be insisted on must vary in different cases, but it should be specially attended to at what would have been the menstrual periods. At these times the patient should remain in bed altogether; at others she may lie on a sofa, and, if circumstances permit, spend part of the day at least in the open air. Sexual intercourse should be prohibited. Should actual symptoms of abortion come on, the preventive treatment, already indicated, may be resorted to. Great care, however, should be used in prescribing opiates as preventives, and they should be given for a specified time only. I have seen, more than once, an incurable habit of opium-eating originate from the incautious and too long-continued exhibition of the drug in such cases.

When we have satisfied ourselves that abortion is inevitable, we

must proceed to employ treatment that favors the expulsion of the ovum.

If the os be sufficiently dilated, and the pains strong, we may find the ovum separated and protruding from the os. We may then be able to detach it by the finger. For this purpose the uterus is depressed from without by the left hand, while an endeavor is made to scoop out the ovum with the examining finger. If it be out of reach and yet appear detached, chloroform should be administered, the whole hand introduced into the vagina, and the finger into the uterine cavity. The complete detachment of the ovum can, in this way, be far more readily and safely effected than by using any of the many ovum forceps which have been invented for the purpose.

If the ovum be not sufficiently separated or the os be undilated, means must be taken to control the hemorrhage until the former can be removed or expelled. It is here that plugging of the vagina finds its most useful application. This may be done in various ways. That most usually employed is filling the vagina with a tolerably large sponge, in the interstices of which the blood coagulates. A better plan is to soak a number of pledgets of cotton-wool in carbolyzed water and tie a string around each. The vagina can be completely and effectively packed with these; and this is best done through a speculum, or, better still, with the aid of a duck-bill speculum, the patient being placed on her left side. Each pledget should be covered with glycerin, which completely prevents the offensive odor which otherwise always arises. The pledgets can be removed by traction on the strings, but if these are not used much pain is caused in getting them out of the vagina. The plug should never be left in for more than six or eight hours, after which a fresh one may be inserted if necessary. Two or three full doses of the liquid extract of ergot, of half an ounce to an ounce each, or a subcutaneous injection of ergotine, may be given while the plug is in position. The plug itself is a strong excitant of uterine action, and the two combined often effect complete detachment, so that, on the removal of the tampon, the ovum may be found lying loose in the os uteri. If the os be undilated and the ovum entirely out of reach, the former may be opened by means of sponge or laminaria tents, or by Hegar's dilators. I think a well-prepared sponge tent the most effectual, and it can be maintained *in situ* by a vaginal plug below it. It also acts as a most efficient plug, effectually controlling all hemorrhage. In a few hours it opens up the os sufficiently to admit the finger.

The most troublesome cases are those in which the fœtus is first expelled, and the placenta and membranes remain in utero. As long as this is the case the patient can never be considered safe from the occurrence of septicæmia. Dr. Priestley has strongly insisted on the importance of removing the secundines as soon as possible. There can be no doubt that this should be done whenever it is feasible. Cases, however, are frequently met with in which any forcible attempt at removal would be likely to prove very hurtful, and in which it is better practice to control hemorrhage by the plug or sponge tent, and wait until the placenta is detached, which it will generally be in a

day or two at most. Under such circumstances fœtor and decomposition of the secundines may be prevented by intra-uterine antiseptic injections. Provided the os be sufficiently patulous to prevent the collection of the fluid in the uterine cavity, and not more than a drachm or two of fluid be injected at a time, so as simply to wash away and disinfect decomposing detritus, they can be used with perfect safety. Sometimes cases are met with in which the os has entirely closed, and in which we can only suspect the retention of the placenta by the history of the case, the continuance of hemorrhage, or the presence of a fetid discharge. Should we see reason to suspect this, the os must be dilated and the uterine cavity thoroughly explored under chloroform. This condition of things is far from uncommon in women who have not had medical assistance from the first, and it often gives rise to very troublesome and anxious symptoms. It has been said that placentæ thus retained have been completely absorbed, and cases of the kind have been related by Nægele and Oslander. The spontaneous absorption, however, of so highly organized a body as the placenta would be a phenomenon of the most remarkable character; and it seems more natural to suppose that, in most cases of the kind, the placenta has been cast off without the knowledge of the patient. Sometimes the placenta never becomes entirely detached, and, retaining organic connection with the uterine walls, forms what has been called a "*placental polypus*." This may produce secondary hemorrhages, in the same way as an ordinary fibroid polypus. Barnes recommends the removal of these masses by means of the wire *écraseur*. Before their detection the os uteri must be opened up.

Retention in Utero of a Blighted Ovum.—The cases previously alluded to, in which an ovum has perished in early pregnancy and is retained in utero, are often puzzling and may give rise to serious moral and medico-legal questions. The blighted ovum may be retained for many months, the outside limit, according to McClintock,¹ by whom the subject has been ably discussed, being nine months. The appearance of the ovum when thrown off will give no reliable clue to the length of time which has elapsed since it perished. The symptoms are often very obscure. Generally there have been the usual indications of pregnancy which, with or without signs of impending miscarriage, disappear or are modified, and then follows a period of ill-health, with pelvic uneasiness, and irregular metrorrhagia, which may be mistaken for menstruation. Occasionally, but by no means necessarily, there is a fetid discharge, and this probably exists only when the membranes have broken, and air has access to the ovum. In some cases obscure septicæmic symptoms have been observed. Such symptoms are obviously too indefinite to lead to an accurate diagnosis. In the course of time the ovum is generally thrown off, with more or less hemorrhage. If the nature of the case is detected, ergot may be given to promote the expulsion of the uterine contents, and it may even be advisable to dilate the cervix with sponge or laminaria tents and remove them artificially.

¹ Sydenham Society's edition of Smellie's Midwifery, vol. 1. p. 169.

Subsequent Management of Abortion.—The frequency with which abortion leads to chronic uterine disease should lead us to attach much more importance to the subsequent management of the patient than has been customary. The usual practice is to confine the patient to bed for two or three days only, and then to allow her to resume her ordinary avocations, on the supposition that a miscarriage requires less subsequent care than a confinement. The contrary of this is, however, most probably the case; for the uterus has been emptied when it is unprepared for involution, and that process is often very imperfectly performed. We should, therefore, insist on at least as much attention being paid to rest as after labor at term.

PART III.

LABOR.

CHAPTER I.

THE PHENOMENA OF LABOR.

Delivery at Term.—In considering delivery at term we have to discuss two distinct classes of events.

One of these is the series of vital actions brought into play in order to effect the expulsion of the child; and the other consists of the movements imparted to the child—the body to be expelled—in other words, the mechanism of delivery.

Causes of Labor.—Before proceeding to the consideration of these important topics, a few words may be said as to the determining causes of labor. This subject has been from the earliest times a *questio vexata* among physiologists; and many and various are the theories which have been broached to explain the curious fact that labor spontaneously commences, if not at a fixed epoch, at any rate approximately so. It must be admitted that even yet there is no explanation which can be implicitly accepted.

The explanations which have been given may be divided into two classes—those which attribute the advent of labor to the fœtus, and those which refer it to some change connected with the maternal generative organs.

The former is the opinion which was held by the older accoucheurs, who assigned to the fœtus some active influence in effecting its own expulsion. It need hardly be said that such fanciful views have no kind of physiological basis. Others have supposed that there might be some change in the placental circulation, or in the vascular system of the fœtus, which might solve the mystery.

The majority of obstetricians, however, refer the advent of labor to purely maternal causes. Among the more favorite theories is one, which was originally started in this country [*i. e.*, England] by Dr. Power, and adopted and illustrated by Depaul, Dubois, and other writers. It is based on the assumption that there is a sphincter action of the fibres of the cervix, analogous to that of the sphincters of the bladder and rectum, and that when the cervix is taken up into the general uterine cavity as pregnancy advances, the ovum presses upon it, irritates its nerves, and so sets up reflex action, which ends in the establishment of uterine contraction. This theory was founded on erroneous conceptions of the changes that occurred in the neck of the