Thesis
on the
Signs of
Pregnancy

William Allison
Edinburgh
1856
Signs of Pregnancy.

In choosing this subject for my thesis, I have been guided in its selection and interested in the subject from the importance and value of determining sometimes accurately the signs that Pregnancy gives rise to and the means that are often made use of to conceal that condition. We have ever and anon cases occurring in our public courts where the Medical Practitioner is called upon to give his evidence as to the opinion he has formed whether Pregnancy or not is present; and not only concerning the Signs of Impregnation having taken place but also the Signs by which we may derive information as to pregnancy having been concealed in a criminal point of view. I shall treat of more particularly the signs by which we are to detect the existence of pregnancy and I trust that my indulgence shall be granted me, and the consideration taken into account that the attempt is that of one whose
opinion is not ripened yet into maturity. What I shall attempt will not be to give any opinion of my own, but to give a concise account of the opinions that have been given by different authors and the signs that have in general guided practitioners for some time back (or late) and then in a brief summary wind up the whole and come to some conclusion as to the most important diagnostic marks that will especially prove of use and help to unravel the mysteries that at present seem to surround the subject and which, in truth, is what at present clouds the medical art in general.

I shall treat only of the signs of pregnancy as observed in the living body and shall notice them in the following order—

I Suppression of the Menstrues. This is one of the symptoms of pregnancy in which our investigations must always be carried on with this difficulty, namely, that our knowledge must always be derived from the female herself and in general we have no means of either disproving or confirming her statements. We are indeed quite
justified in saying as a general rule that in healthy women, in whom menstruation has been fully established and continued regular for some time, that conception is followed in the majority of cases by a suppression of the menses at the next return of their period. Yet we ought not to forget that a variety of causes independent of pregnancy may operate in causing a suppression of them, as for instance—exposure to cold and damp at the time they are about to appear, or immediately after they have shown themselves—some chronic affections as Pulmonary Consumption, diseased Liver or other internal obstructions—the operation of powerfully depressing passions or emotions of the mind—& for these reasons we should, whenever we consider this sign, weigh fully the circumstances of the case and view it in relation to the many exceptions which experience has shown us to exist. We must recollect that there are cases recorded where conception took place prior to menstruation commencing—Magagna mentions the case of one who married previous to menstruation and nevertheless she became pregnant—Frank also mentions a case where a female gave
birth to three children without ever having menstruated. Some women are very irregular in the returns of their menstrual periods, having them very much prolonged as for instance a case is mentioned by Montgomery of a female who never conceived until the catamenia had been arrested for some months previously. On the other hand, cases frequently occur where women have conceived after menstruation had apparently ceased, such instances are however rare. There is another variety where suppression may arise from circumstances apparently depending upon change of habit unconnected with any marked or appreciable cause—as for example young married females who have ceased to menstruate for several months and yet not being pregnant—such cases are liable to great doubt and extremely embarrassing to the Practitioner who must always act with great caution and give a very guarded opinion. There is reason to believe that in some cases conception really does take place and gives rise to altered conditions of the system, but the proof perishing, no proof is furnished of its existence. Harvey says 'for although the female sometimes conceiving after operation doth not produce a Fetus, yet we know that these symptoms did ensue which gave clear testimony
of a conception set on foot, though it came to nothing.

Let us now enquire how far the presence of the catamenia can be considered as evidence that the female is not with child. Denman deems suppression of the menses to be a never-failing consequence of conception. Davis is of opinion that genuine menstruation has never existed during pregnancy. It will be seen, says Davis, that the fine organic structure which Nature employs to effect the elimination of the catamenial secretion during the unimpregnated state of the uterus, is employed by her during the earlier part of gestation, to secrete a fabric essential to the new function in which she has become engaged, and that the vessels so concerned become so intimately connected with the fabric in question as not to be at liberty to furnish the material of the menstrual discharge, which nevertheless it is their peculiar office to secrete and supply to the unimpregnated state of the organ. It is moreover known that the orifice of the uterus is hermetically sealed during gestation; in consequence of which no description of fluid, whether the produce of the menstrual function or any other, can by any possibility escape out of its cavity, without the previous disturbance of the strongly adhering plug by means of which Nature has closed it.
its orifice. So persons who are acquainted with the nature of the secretion, which is thus given to the contents of that organ it is scarcely to insist on the incompatibility of such a state of things, with the probability or even possibility of the performance in any form of the natural and proper function of menstruation during pregnancy. Chemistry not having yet satisfactorily determined the elementary constitution of the menstrual secretion, it may not at present be easy to demonstrate analytically that the sanguineous discharges which it is allowed do sometimes escape from the genital passages during gestation are not identical with the produce of the catamennial function. There are some well-authenticated cases where menstruation occurred once after conception, and again there are females who menstruate with regularity more than once after conception. It is well known that there is in experience that the menstrual discharge sometimes continues in its usual regularity for two or three months after conception, without any dangerous consequences. It has been alleged as an objection that these discharges are not truly menstruous, but we have only to consider whether there does not frequently during pregnancy take place a colored discharge from the genital passages so much resem-
Slight menstruation in its quantity, quality, and periods at which it occurs, that neither the female nor Medical Practitioner shall be able to detect any difference between them: and as to this I think most observers declare there can be no doubt. It is not unreasonable to suppose as some authors have observed, that such discharges do not proceed from the same source as the ordinary catamenia, but from the vessels distributed about the vagina and cervix of the uterus from which latter situation Van Leeuwen has described the ordinary catamenia sometimes to flow from. If this be so the Oeum would appear to be safe, even if there should be these profuse and repeated discharges which some women do say takes place during pregnancy without causing Abortion. It would thus appear from the examples which I have above given, that as a general rule conception is followed by a suppression of the menses. But we must always keep in mind that many exceptions to this rule do occur and have been proved to exist and should always be taken into consideration in order to guard us against error. Neither should we forget that there are cases of frequent occurrence met with, where suspicion may arise from a non-appearance of the menses, the elimination of which being prevented by some structure, such as imperfect hymen. In such cases the conception takes place.
but is prevented from being eliminated, accumulates within
the uterus, distending that organ, and so giving rise to
several of the symptoms which usually accompany pregnancy.
So infrequently we have to combat and guard ourselves
against an evil which the female sex sometimes practice
in order to conceal their pregnancy, both from their friends
and medical attendant, viz. that of staining their linen
at the periods at which their catamenia are about to occur
with blood; and such cases we find do occur, for Montgomery
relates a case of this kind which happened in his own practice,
but on examining the state of the areola of the breasts felt
persuaded that she was not only pregnant but had been so
before and in due time she was delivered of a full-grown
child. A similar case is related by Belli.

II. Nausea and Vomiting. A sympathetic connection is here
seen between organs quite different in function yet connected
together by a chain of symptoms which Nature has set up
in order to show more clearly how an altered state of one
organ can cause a deranged condition of another, and such
we find in connection with Pregnancy. Most women in
general suffer more or less from nausea and vomiting, and
that especially when getting up in the morning. The sickness
does not last long and generally the patient recovers compli-
The period of utero-gestation at which it most frequently attacks females is indeed very irregular. Montgomery mentions two cases where it commenced two days after conception: but more generally it sets in about the sixth week and continues more or less until the third month. Rambetham remarks that when vomiting is entirely absent utero-gestation does not proceed so well, nor with its usual regularity, and in this Churchill agrees with him. Montgomery says that vomiting is a useful concomitant in pregnancy, and that its sudden cessation is very often indicative of an unfavourable change in the contents of the uterus and of approaching Abortion. On the other hand this irritability of the stomach, causing nausea and vomiting, may arise from a variety of causes independently of pregnancy, so that we must be guarded in drawing an inference from it as a mere sign but when it is accompanied with others it indicates an evidence of great value.

III. Salivation. This sympathetic connection is still more clearly seen by the irritation which in the stomach caused nausea and vomiting, affecting also the salivary glands, producing that condition known as Salivation. Hippocrates and the earlier writers enumerated this fact as one of the symptoms that accompany pregnancy and ever since has been observed by others. Although recent authorities
consider it of less value. Cases of this kind are related by Churchill, Montgomery, and others as having occurred in their own practice. This state during uterine retention is quite different from that produced by medicinal preparations, by the absence of sponginess and looseness of the gums, and of the peculiar feeling and presence of pregnancy. Salvation is a symptom of other diseases unconnected with pregnancy.

IV. Enlargement of the Mammea and state of the Anus. The breasts are said to grow larger and firmer while the ancles round; the nipples become of a brown colour. The enlargement of the breasts may be accounted for on this principle, viz. that the blood after the cessation of the menses may be determined upwards in consequence of the connection that subsists between the uterus and breasts through the anastomosis of the hypogastric and internal mammary arteries, and just as to the enlargement of the breasts. On account of the large amount of blood sent to the part from the sympathising action of the uterus, the breasts naturally enlarge and have a peculiar gritty and glandulous feel: besides the patient generally feels throbbing and tingling pains in them. Enlargement of the breasts may arise from a mere accumulation of fat. They may also enlarge from accidental suppression of the menses or their retention by an imperfect hymen, or other causes capable of distending the uterus, under which circumstances, especially in women of a
sanguine temperament, the breasts often become both hard and painful. In some women, especially those of a nervous temperament, the breasts become swollen and painful at every return of the Catamenia, but in such the uneasiness subsides in a few days, whereas that connected with pregnancy increases. Some French authors as Gardien and Maleh have observed that when menstruation takes place during the early months of intra-gestation, the swelling and pain of the breasts are absent. Montgomery mentions a case where no alteration took place until after delivery, in consequence of the delicate health of the patient.

Appearance of the Areola. The changes that take place in the areola are considered by Montgomery and some other eminent authorities to afford very valuable evidence of pregnancy. The areola in the virgin differs comparatively little from that of the surrounding skin, sometimes however a little darker. But after conception a change is observed in most women, but more especially marked in those of dark complexion. It becomes darker in colour and wider as pregnancy advances: the skin over it becomes moist, appears raised and in a state of turgescence, almost emphysematous looking. The changes observed in the areola do not take place immediately after conception, but occur in different females at different periods and it would be well to consider at what period of pregnancy we might expect to gain any information from the condition of the areola. Montgomery has observed it so early as the
end of the second month, but in general the alteration in it at that time is not sufficiently marked as to give us any sure evidence but during the progress of the next two months the changes are in most cases characteristic, so that it then presents a circle around the nipple, its colour varying according to the complexion of the individual, its diameter from one to one and a half inches increasing as pregnancy advances. After the sixth month a number of silver streaks may be observed, the result of over-distension. Such would appear to be the characters generally belonging to or connected with the true areola as the result of pregnancy, and these phenomena in a woman not previously pregnant, when found in connection with other signs may confirm the inference drawn from them: but on the other hand if viewed singly, the changes in the areola will be found far from constant in their appearance. The areola in some pregnant women does not always present its characteristic appearance as for instance in women who have borne many children or who are nursing. We must also recollect that in the breasts of females who have recently miscarried the areola may present all the appearance accompanied by other signs really indicating pregnancy, such a case might be presented us for examination and here we might have great difficulty in deciding and in giving an accurate opinion. We are to remember that pregnancy may be present and the colour of the areola wanting: the cases are mentioned by Montgomery where the areola could scarcely be
distinguished from the surrounding skin; yet many other symptoms were present to confirm his opinion.

Milk in the breasts although a popular evidence, much relied upon, can scarcely be considered of any value at all: for this fluid has been known to be secreted even when the female was not pregnant. In many instances, milk, or a fluid resembling that, has been secreted by the mammae even in women who have ceased to bear children, and also in young females who never have borne any. Instances are also on record where milk has been secreted by the mammae of the male.

VII. Quickening. The undue weight attached to quickening from early times arose from the idea that at a certain period of utero-gestation, life was suddenly infused into the foetus. According to Hippocrates the male foetus became animated in thirty days after conception; while the female required forty-two. In another part of his work he asserts that this does not take place until the perfect organization of the foetus. The Stoics believed that the soul was not united to the body before the act of respiration, and consequently that the foetus was inanimate during the whole period of utero-gestation. The Canons of the Church of Rome also distinguished between the animate and inanimate foetus and punished the destruction of the former with the same severity as homicide. The popular notion held at
The present day appears not to be much more physiological than formerly, for the English law adopts the distinction and considers the fetus before quickening as inanimate but afterwards endowed with life. In Scotland the law is more consistent with Nature, for if a woman condemned to die, states that she is pregnant, and if Medical witness proves her to be so, her punishment shall then be delayed until after her delivery.

Quickening may be defined to be "a sense by the Mother of the first perceptible motion of the Fetus in Utero." First of all we shall consider at what period of pregnancy we may in general expect that this phenomenon shall have manifested itself. Montgomery states "Experience has shown that it happens from the tenth to the twenty-fifth week; but according to his own experience the greatest number of instances will be found to occur between the end of the twelfth and sixteenth weeks after conception: or adopting another mode of calculation between the fourteenth and eighteenth week after the last menstruation. Hamilton says that quickening takes place at the end of the fourth calendar month after conception. Out of one hundred cases recorded by Roderus, he found that eighty quickened at the fourth month and of the remaining twenty, some at the third and others at the fifth month. Denes and Blendell agree that it most generally occurs nearer the fourth than the third month. It would appear then that quickening takes place at no fixed period in the course
of gestation but usually is perceived by the mother about the fourth month, sometimes earlier, at other times later. The sensation of quickening is not always equally marked in its character. Sometimes it is attended with fainting, weakness, and a general commotion of the system, while at other times it resolves itself into an indistinct perception of the first feeble movements of the child. Davis attributes the sensation of quickening to the sudden intrusion of the uterus among the abdominal viscera, organs of high sensibility, accompanied by a sudden removal of pressure from the blood vessels. This he considers to be quite equal to the production of the sensation. So what cause it is really due I think is not yet decidedly settled. The most probable explanation of it is perhaps best illustrated in the words of the late Dr. Fletcher: "The movements of the fetus, while the uterus is in the cavity of the pelvis, are not perceived, because the uterus is not supplied with nerves of sensation and it is surrounded by parts similarly deficient; but when it emerges from the cavity of the pelvis, it comes in contact anteriously with the abdominal viscera, which are liberally supplied with sensitive nerves, and which by contiguity of substance feel the movements and thus the woman becomes conscious of them." The sensation communicated to the hand of the examiner amounts to little more than a slight nervous tautling which is gone almost as soon as we become aware of its occurrence. But we may in general succeed in causing
movements of the foetus by first rendering the hand cold by the
immersion of it in cold water and then the sudden application
of it over the abdomen. Nothing is more common than for women
"to suppose that they have questioned when they are not even pregnant"
Kempe remarks "I have known women to insist upon their having
felt the child, moving or kicking within them, not only in cases
where there was indubitable proof of the child's death at the time
but also when there was no child in the uterus." When pregnancy
happens to be complicated with ascites, the motions of the foetus
are not in general felt by the mother till a later period than
usual and are then less distinctly perceived than in other cases
where there is no such complication. Beech says there are
instances met with though they are rare, in which the child has
not moved during the whole period of pregnancy although it has
been born alive and vigorous. Montgomery also mentions a case when
the mother perceived no motion but when he applied his hand over
the abdomen he distinctly felt the movements of a foetus in utero.
Another case of a similar kind is related by Campbell of a lady
who had nine children and with the exception of the first, she
ever perceived any movements of the foetus after quickening although
they were all born alive. Dewees mentions another circumstance which
is very apt to lead to a false diagnosis and an instance of it happened
under his own observation! "Examining the abdomen carefully says Dewees
I found it considerable distended: there was a circumscribed tumour within
it, which I was very certain was an enlarged uterus. While conducting this examination I thought I distinctly perceived the motion of a fetus. The case eventually proved to be one of accumulation of menstrual fluid in the uterus.

In attempting to make this phenomenon available in an inquiry as to the existence of pregnancy, even when there cannot be supposed any intention or motive on the part of the female to deceive us, labour under this disadvantage. That except we are able at the time to feel the movements of the child, we have no evidence, except that of the female and she also may be mistaken as to her own perceptions. In legal medicine however, the medical examiner should first convince himself by a direct examination of the palpable evidence of pregnancy before questioning the female, since it is evident her assertions may be influenced by various considerations of interest and advantage. The examination will enable him to determine whether there is a fetus in utero and whether it be living or dead as well as to fix the probable period of pregnancy. Unless her statements corroborate the results of the examination, they may, if these results are positive, be entirely disregarded. Should we be able to feel the movements of the fetus, of course we could have no doubt on the subject: but it must not be forgotten that such an examination is liable to be unsatisfactory or even lead us into error if great caution be not observed.

VII. Enlargement of the Abdomen. The development of the uterus after conception necessarily concedes to the enlargement of the abdomen; but in the early months of pregnancy this is not observed, for as already stated, the
uterus remains situated in the cavity of the pelvis until about the fourth month; yet the abdomen increases in size before this by the displacement of the intestines from the pelvic cavity by the enlarging uterus. During the fourth month the uterus ascends above the symphysis pubis and may be felt as a tumour which grows on enlarging until it occupies the greater part of the abdomen. When it reaches the umbilicus it pushes it forward so that about the fifth or sixth month it is on a level with the surrounding skin and in some women even projects beyond it. Nothing however can be more erroneous than to consider a prominent abdomen a sign of pregnancy; so far from being so, it should not be taken into consideration until a fair presumption is first established by other means. It may be due to marked conditions not affecting the uterus - as disease of the Liver - Splen - Ovarian Droopy - Acute Retention of the Menses from inappetance - Pyrexia - Syphilis &c. When there is disease of the Liver or Spleen we generally can detect the difference by percussion and the health of the patient also by the way in which the disease commenced. But when Ovarian Droopy is present, the diagnosis comes to be of more importance. Pregnancy is not infrequently confounded with Ovarian Droopy and that this should happen is not surprising when it is remembered that the commencement of this disease, sometimes simulates many of the earlier symptoms of pregnancy. Although the history of the case, its duration and course, and a careful examination of the uterus will dispel the error. Ovarian Droopy may be distinguished also from pregnancy by the disease commencing on one side - but this cannot be relied on entirely.
Because the disease is frequently not perceived until it occupies the middle part of the abdomen. Fluctuation in the tumour will generally be an indication of Ovarian Dropsy but at the same time, owing to dropsy of the uterus, sometimes taking place - fluctuation may be perceptible in the enlargement of pregnancy. The danger of confounding Ovarian Dropsy with pregnancy cannot exist in cases of a standing much beyond the usual period of gestation; except in those rare instances of extra-uterine foetation when the embryo has become encysted. We must recollect however that pregnancy and Ovarian Dropsy may conceal and materially obscure our diagnosis: in such cases we must look to the other signs indicating pregnancy such as the state of the utero, nipple and the changes which have taken place in the ov and cervix uteri. The stethoscope is of use in assisting in our diagnosis, but be it recollected that a sound similar to that of the placental soufflet has been heard in the enlarged vessels of Ovarian tumours. Stethoscopic signs will not be available when the child is dead and then even may lead us into error: for says Churchill in an ovarian tumour besides pains, meandering, voices, if arteries may also be felt pulsating sometimes and in one case he detected a distinct "soufflet" like the placental soufflet. When the fetal heart is heard all doubt will be dispelled. Manual examination will detect the well known state of the ov and cervix uteri of these be pregnancy and by Paltotement we may assure ourselves of the presence of a fetus, while externally the movements of the child may be felt.
When pregnancy and ovarian disease exist together at the same time it requires even greater caution in forming our diagnosis but by the usual methods of examination we may detect pregnancy and overlook the disease unless it has been discovered prior to conception.

Enlargement of the abdomen may also depend upon an accumulation of serous fluid in the peritoneal sac of the abdomen giving rise to that disease commonly known as ascites. In ascites the fluid always occupies the most dependent part of the abdomen following the usual laws of gravitation; we generally have distinct fluctuation, the absence of any solid tumour and the peculiar form of the abdomen of the patient when in the upright position as compared with her in the horizontal posture, the latter is particularly characteristic of this disease as distinguished from pregnancy. In ascites the constitution suffers more or less from the disease and these increase with the general disturbance of the system whereas in pregnancy they diminish or cease. In ascites the first symptoms are infiltration of the feet and ankles which appear most obvious when the patient is in the seated posture, gradually extending up the legs; the abdomen becoming enlarged subsequently which in many cases causes difficulty of breathing and many other troublesome symptoms which it is not our place at present to consider—suffice it to say that pregnancy may in most cases be distinguished from ascites by the symptoms above stated; but when both are present together they constitute a combination of the most embarrassing kind which can only carefully be distinguished.
by an examination per vaginam and other valuable signs. When these two conditions are present together, the sensation of quickening is not so readily perceived by the mother until pregnancy is far advanced, and the foetal sounds are with great difficulty heard. In cases of pregnancy complicated with ascites great errors have been committed in practice and, as an instance of this kind I might mention the case related by Forbes. Two women, who were pregnant, were tapped under the idea that they were suffering from ascites; fortunately the uterus was not wounded in those cases, but in another case related by the same author, where a distended bladder was mistaken for ascites, the practitioner tapped the patient and with that result that death was the consequence.

On examination afterwards it was found that the foetus had not only passed through both sides of the bladder and through the uterus but even into the very head of the child. Such an occurrence must necessarily impress upon us the necessity of strictly adopting as a rule of practice, that whenever a woman is so circumstanced that she may possibly be pregnant, she should by no means be tapped for ascites until a careful examination has been made to ascertain her condition, whether she be pregnant or not, or whether the uterus is distended; but if her state be at all doubtful, no operation should be performed until time shall have satisfied us that there is really a necessity requiring it.

It is scarcely necessary to mention that, enlargement of the abdomen
may also depend upon an imperforate hymen, preventing the natural exit of the menstrual fluid: an examination per vaginam will detect the obstruction and when the membrane is punctured the fluid will escape of a dark brown colour. In a case of obstruction of this kind, mentioned by Deuces, he mentions that he was fully impressed with the belief that pregnancy existed as he could distinctly feel the enlarged uterus and even thought he felt the motions of a foetus. There is another condition which causes enlargement of the abdomen, but is easily detected from that cause by an enlarged uterus: the result of pregnancy: viz. distension of the intestines by air. In order to make a sure diagnosis we should follow that injunction which Professor Simpson so urgently impresses upon his pupils - to anaesthetise the patient and then press the hand over the abdomen, when the status will pass away from the intestines or shift from one portion to another. It may also be distinguished from pregnancy by the resonance on percussion, by the absence of foetal movements and the sounds afforded by auscultation.

VIII. State of Ovar and Cervix Uteri. Before proceeding to state the different conditions of the ovar and cervix uteri during gestation, it would perhaps be better in the first place to give a short description of them as we generally find them in the virgin or unparous state. The ov and lower part of the cervix when examined with the finger can be felt projecting into the cavity of the vagina; of course the examination must be made per vaginam.
The part projecting is of a conical form, having a transverse opening whose margin is felt firm and well defined: between the lips of this transverse opening (or osleti externum) the little finger might in some cases be introducible, but for a very short space; or a mere sensation of a depression might be communicated to the finger. Sometimes the osleti differs very much from this, as being very small; in other cases we do not find that projection of the cervix into the vagina which under ordinary circumstances we can do with the finger.

On the other hand, when conception has taken place, the normal characters begin to alter: the cervix, which was previously hard and resisting, now becomes swollen, rounded, and more spongy to the feel; and the line of the os feels tauter, softer, and much less distinct, having lost thus well defined character which is so well perceived by the sense of touch in the non pregnant state. During the first three months of pregnancy, the osleti is lower than usual, in the cavity of the vagina, owing to the increased weight of the utérus, at the same time that it is directed a little more forwards. As the utérus rises above the brim of the pelvis, it is directed backwards; by this time its margins are very soft and relaxed, and within its orifice may be felt the glandula of the cervix slightly projecting. During the fifth month these become very distinct, and the cervix is drawn out by the expanding utérus. From this period the osleti is dragged up as it were out of the pelvis, and is removed further from the external parts, so that in the latter months of pregnancy we can reach
great difficulty reach it as it lies in the direction of the upper part of the
vagina. When however, the uterine walls are distended, the orifice will, scarcely
be distinguishable for it is now flattened out without any elevated
processes (at least very little) and feels like a fold of mucous membrane
at the upper part of the vagina. As much for the changes that are
observed in the os and cervix uteri during the progress of uterine gestation,
and now let us enquire if there are any other conditions affecting the
uterus than pregnancy by which these states can be simulated or to
assume nearly these characters. Hydatids give rise to symptoms equally
resembling those of pregnancy, but there are certain discrepancies which
will aid in our diagnosis; such as the duration of the abdominal swelling
beyond the term of gestation - the disproportion between the size of the
fetus and the period since it was first observed, as compared with the
gradual increase in size of the uterus during gestation - the absence of
quickening and the auscultatory phenomena will in most cases enable
us to decide as to the nature of the enlargement. Manning says that
the health of the female is liable to greater disorder than in pregnancy;
Nevus says that the occasional hemorrhage which takes place
is an important diagnostic sign. In so much then as hydatids cause
these symptoms of a general kind it is also known that they produce
the same influence on the os and cervix uteri as pregnancy would — therefore
in the early months of gestation it becomes a subject of serious consideration
to ascertain positively whether the substance in utero is a fetus or hydatid.
In fact it is almost impossible before the fourth month to decide
which it is unless uterine contractions have come on and expelled the
included substance. But if such has not taken place, we can almost
always satisfy ourselves by the use of the stethoscope and the application
of the hand to the abdomen, when, if it be a fetus, we hear the well-known
sounds and also feel its movements by manual examination. The
origins of these so-called Hydatids have given rise to great discussion in this
relation tolegal Medicine, in connection with abortion and I need scarcely
say that there are various opinions held as to their formation and pathology.
If Prolapse of the uterus may also cause the same condition of the cervix uteri,
but a careful examination, not only with the finger but also the speculum, will
in general enable us to attain an accurate diagnosis. When there is a polypus of
the uterus there is frequently repeated hemorrhages. An approach of the menstrual
period and the irritation of the uterus, which accompanies such conditions, may
affect such changes in the form and texture of the parts. In some women who
have borne many children, the condition of the parts is at all times left
and undefined, so that these circumstances may in some cases embarrass
our diagnosis: but the state of the cervix is the most important and of all
the least liable to error in any of the signs available to us at it not only
enable us to form an opinion as to the existence of pregnancy but also to
determine, in most instances, with considerable accuracy the period of gestation.

IX. Size and situation of the uterus, will also be of use in determining the
existence of pregnancy. During at least the first three months of pregnancy
this organ is contained in the cavity of the pelvis although it is considerably
enlarged beyond its usual volume by this time. As pregnancy proceeds the
uterus enlarges and in the fourth or fifth month, it may be felt above the symphysis pubis, now becoming an abdominal organ. In the sixth month, it rises as high as the umbilicus, which is raised on this account and by the end of the eighth month, the uterus has risen as high as the cartilage. It is during this month that the abdomen is most prominent, for during the last month of gestation, the uterus gradually falls, so that for a week or two before labour, the woman will appear smaller than during the eighth month. It would be quite unnecessary for me to recapitulate the many pointed conditions which would simulate this as they have been noticed in a former part of this essay.

Perhaps this would be the most suitable place to make a few observations relative to the application of auscultation in the detection of pregnancy. The application of the stethoscope was first made use of in reference to the diagnosis of pregnancy in 1718 by Magan of Cassone, who was soon afterwards followed by the illustrious Laennec, who has done much in furthering our knowledge of diseases by means of auscultation. Since then the investigation has been followed by many, with results highly important to the interests of modern science. Magan only described the sounds of the foetal heart, they consist of a rapid succession of short, regular, double pulsations, very much resembling the ticking of a watch, and can be heard at different parts of the uterine parietes according to the period of pregnancy at which the observation is made. The most frequent situation however is on the inferior abdominal side, more frequently on the left than the right side. The frequency of the pulsation is about double that of the adult or 140 per minute, that is only counting one of the sounds, for it is
almost impossible to count both as they succeed each other so rapidly. The rhythm of these sounds in utero is quite different from what it is in the adult, that is, the first sound is quick and the second prolonged, then two follow each other very rapidly, there is an interval nearly equal in length of time to that occupied by the two sounds. The period at which these pulsations can be recognised is about the fifth month at least the majority of writers agree as to this; but they have been heard much earlier than this by Kennedy, who in some few instances heard them during the fourth month. The earliest period mentioned by Nägele is the eighteenth week. As pregnancy advances the sounds become more distinct. Various circumstances may modify or impede the transmission of the sounds and alter the time at which they would otherwise be first heard: as for example, thickness of the abdominal parieties, excess of liquor amnii or feebleness of the fœtus. This mode of ascertaining the presence of pregnancy has great advantages over every other one, that it detects the presence of a fœtus and proves whether it be alive or no. There is no other condition yet known which can by any means simulate the sounds of the fœtal heart: it is said that the sounds of the maternal heart may be transmitted downwards and so embarrass the unacquainted ear to such sounds but one who is perfectly acquainted with the fœtal pulsation can not possibly mistake any other sound for it. After the publication of Mayer relative to the application of auscultation
to the diagnosis of pregnancy, he was followed in 1821 by Pyramus who investigated the subject with equal success and he has described another sound which he called the "Bruit Placentaire," because he believed that it originated in the placenta; but more recent observations have pointed out that it originates in the uterus but is heard in the position occupied by the placenta. Kennedy attributes the sound to result from the difference between the calibre of the arteries supplying the uterus and the uterine veins, that the expanding current of blood rushing from an artery into a larger sinus gives rise to the sound—just as the passage of blood through a constricted valve of the heart or aorta does to the Bruit de soufflet. The Bruit Placentaire consists of a peculiar blowing or roaring sound audible over a greater or less extent of the uterine tumours. This sound becomes audible about the fourth month, or about the period when the uterus has become an abdominal organ. Kennedy states that he has detected this sound as early as the tenth week, while Montgomery denies that it can be heard so soon although he has twice carefully examined patients but perhaps on the whole about the fourth month is the more general opinion. The sound is strictly synchronous with the maternal pulse. The value of this sound as a sign of pregnancy is not so much as that of the Fetal Heart, inasmuch as the Fetus may be dead and yet the sound heard and it is also heard in some dilated states of the uterus. If the placenta be attached to the posterior wall of the uterus we may not be able to hear it although the female may be pregnant.

There is another sound which was first discovered and described by Kennedy and called by him the umbilical soufflet, this of very little importance in assisting
our diagnosis and cannot always be heard. If, however, the cord by some chance is thus placed between the fovea and anterior wall of the uterus and the patient a little excited, an experienced auscultator might be able to hear it: it corresponds to the action of the foetal heart. Kennedy attributes the sound to be produced by the tortuosity of the arteries, and he says that it may be initiated by pressing slightly upon the cord, with the edge of the stethoscope.

there has been another test brought forward as an evidence of pregnancy by Kluge of Berlin andJacquemin of Paris. This consists of a white or yellow colour of the mucous membrane of the vagina and labia. This statement has been corroborated by many writers since, but like some of the other signs, it is liable to be caused by other conditions than pregnancy. Duchatel mentions that this colour was never absent in a large number of cases which he examined. This state of the mucous membrane is said to be produced by an increased vascular condition of the vagina, and if so it must be more or less present during the catamenial period. Should this test prove by future research to be invariably accompanied by healthy pregnancy, it would add greatly to our means of diagnosis in the earlier months of gestation; for a period when we have, in other satisfactory means of discovering the existence of that condition, and which might be resorted to with advantage.

XI. Repercuision, as it is termed by the French Balllement, is often made use of in the detection of pregnancy. I have occasionally hinted at this in former parts of this essay but I consider it necessary to state more fully the mode of carrying on such an examination. It may be performed
with the female in different positions, but of all I think the upright is the most favorable, inasmuch as the contents of the uterus, when pushed upwards, falls with greater force and so gives a more distinct sensation to the finger of the examiner: but this position is not at all agreeable to the feelings of the female, and hence we must adopt in most all cases another in order to avoid hurting her sensitive feelings and to accede to her wishes. And then we may place her in the horizontal posture, with her shoulders as much elevated as possible. This position has one advantage over the former, inasmuch as it allows us to examine at the same time the supra-pubic region, which cannot satisfactorily be done when in the erect position. Having her placed on bed with her shoulders elevated, the examiner introduces one finger or more into the vagina and places it accurately in contact with the uterine extremity, whilst the other hand is employed to keep the uterine tumour steady; then suddenly but slightly jerking upwards the point of the finger, he will feel a sensation of something having receded from it, and which will be felt in a very few seconds to drop down again to its former situation. This manipulation may often be repeated in order to corroborate a former trial. This of course proves nothing as to the life of the child; it may be dead yet cause the same sensation as if it were alive. Montgomery remarks that "should this be distinctly felt, it is a proof positive of a foetus in utero, there being no other condition or disease of the organ in which a solid body can be felt in this way floating in its cavity." This feels like many others cannot be of much
use, in assisting our diagnosis in the earlier months of pregnancy, as
the fetus is then too light to be felt. It is only during the latter part
of the fourth month and up to the sixth that we can derive
any advantage from it.

XII. Kushtine. This is the name given to a fatty matter which
forms in the urine of pregnant women. Roche was the first
who described this substance which he found to form by allow-
ing the urine of pregnant women to stand for some time, then
a deposit took place of a white, flaky, gelatinous matter, being
the caseous or peculiar matter of the milk formed in the breasts
during lactation. Dr. Colding Bird supposes that it contains
the caseous elements of milk, mixed with the fatty phosphates,
and his experiments seem to confirm the value of the test.

This subject has however been recently investigated by Dr. Kane of
Philadelphia and his conclusions are the following. 1st. That
Kushtine is not peculiar to pregnancy but may occur whenever
the lactal elements are secreted without a free discharge of
them at the Mammea. 2nd. That though sometimes obscurely
developed and occasionally stimulated by pelllicles, it is
generally distinguishable from all others. 3rd. That when
pregnancy is possible, the exhibition of a clearly defined
Kushtine pellicle is one of the least equivocal proofs of that
condition. 4th. That when this pellicle is not found in the
more advanced stages of supposed pregnancy, the probabilities
if the female be otherwise healthy, are that the prognosis is incorrect. These statements of Dr. Lane seem to be entirely in opposition to those propounded by Dr. Bird. From the observations of Montgomery on this subject, he appears to agree with the opinion of Bird: as he has observed it in almost all cases where pregnancy existed, while in others cases no opinion could be formed from the turbidity of the urine whether the peculiar deposit was present or not.

On the whole therefore, should this peculiar principle be always found in the urine of pregnant women, it would add greatly to our present knowledge; but from the difference of opinion at present concerning its presence in pregnancy, I think we should not be justified in placing too much reliance on it as a positive proof.

Having now made these few observations on the individual signs of pregnancy, which are to assist in aiding our diagnosis in the living female, and seeing that they are, many in number (although many of them not of great value per se) yet if we observe two or more of them well marked in a female we become suspicious that she is pregnant. Let us now as concisely as possible glance at these signs which will be of use at different periods. Should we be called upon to examine a female before the end of the third month
we have in fact no one sign on which we can place perfect reliance. But having ascertained if there be suppression of the catamenia— if the breasts and areola present their characteristic appearance which Matson says is so peculiar to the pregnant state— if there be sickness during the morning or early part of the day—and besides we ought to examine the state of the bladder and cervix uteri. If we have these signs or the greater number of them developed as we find them in the true pregnant state—then there would be some reason to suspect that the female is with child: but such a conclusion would not at all times be correct, for as we have already seen there are morbid states of the uterus itself, that would give rise to those sympathetic affections without any real state of pregnancy existing. During the fourth and fifth months we may expect to find additional symptoms having become developed— the uterus has become an abdominal organ which causes enlargement of the abdomen,— the movements of the fetus become recognizable by the sense of touch and also by Balletement,— the placental blood can be heard. The changes in the os uteri are apparent, and the breasts and areola should be well formed. During the sixth and subsequent months of gestation, the Medical man can scarcely ever fail in an accurate diagnosis, on account of the signs being generally
well marked during that period—the development of the abdominal tumour, the distinct solidity of it enabling us to recognise the child's body through the abdominal parities, the prominence of the umbilicus—but above all the teleological signs afford us proof which can scarcely leave room for doubt. If, as before stated, we can distinctly hear the sounds of the foetal heart, we can have no doubt at all of the existence of pregnancy.

In order to arrive at an accurate diagnosis of the state of pregnancy, we see that it is sometimes a most difficult task, especially in the earlier months, when we have no decided symptom to guide us, and our difficulties are augmented ten-fold when the female is charged in a criminal court for some capital offence, perhaps involving property, reputation etc. Our decision ought to rest on no evidence that admits of doubt, and if we cannot have such proof as will satisfy our judgment and make us to decide without any hesitation, our uncertainty must be strongly and fearfully expressed, and our decision postponed until a further lapse of time shall remove the obscurity of the case. "Nunc quam fuit, magis periclitatus fama medici, quam ubi agitur de graviditate determinanda; undeque fraudes, undeque lapes, insidia, struentur insaniae. Omnes enim qui de graviditate signis scriptum, guarniz longa artis obstetricia, usus celebres fuerint, unanimitate.
talenter, primis praecipue medicus, signa graduitatis insignia esse, was the conclusion to which Van Swieten came to more than an hundred years ago, and his opinion I believe is yet cherished by most authors since his time and few in the present day are prepared to dissent from that opinion, who have fully considered the result of their experience. Still however many errors have been committed in practice, whether from the want of knowledge of the mode of carrying out such investigations, or from the careless manner in which they were conducted. In doubt there are many cases involved in great complications that it is scarcely possible for anyone to arrive at anything like a decisive result, and it would be well when such cases do come before the Medical examiner to postpone his opinion until a more advanced period of uterine distension, when we shall in the great majority of cases be able to disclose the real state of matters.
H. 27 - Heart sounds unmistakable.
H. 28 - Were hoarse.
Woman.