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LECTURES
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BIRMINGHAM :

THE "JOURNAL" PRINTING WORKS, NEW STREET.

1888.

YASSEMİ İMAJ

LECTURES ON ECTOPIC PREGNANCY
AND PELVIC HÆMATOCELE.

AFTER much consideration I have adopted the phrase *ectopic pregnancy*, designed originally by Dr. Robert Barnes, as by far the best which can be applied to the curious and most interesting displacement which we have first to consider, for it gives a convenient and very complete definition without expressing any theoretical explanation of the condition. The cavity of the uterus is the proper *place* for any gestation, but a gestation may be *Ectopic* without being *extra-uterine* as in what has been called the interstitial or tubo-uterine variety. I believe we might call all ectopic gestations "tubular pregnancies," but that would be hardly fair to those who still cling to the belief in the occurrence of the ovarian kind. "Ectopic" includes them all and therefore I adopt it.

The literature of this subject is very extensive and the confusion which exists in it is almost as great, but there are two works which stand prominent for different reasons, and to these I propose to make some extended allusions, for I am greatly indebted to both of them for valuable information. The first is that of Dr. William Campbell, a teacher of midwifery in Edinburgh, who published in 1842 a work in which its industrious author has collected in all probability all the material up to his time, thus forming a mine from which many a quotation has been made by subsequent writers without any kind of acknowledgement. Campbell seems to have had no great critical acumen, however, and his material is confusing alike in its abundance and its utter want of arrangement. His notions of pathology were of the vaguest kind and his capacity for believing all that was told him must have been extensive. His work, however, stands as a landmark in the literature of the subject as the first real effort to place into its appropriate position of importance a subject which, up to that time, seems to have been regarded more as a curiosity than as one of the most dreadful calamities to which women can be subjected. He also exhaustively investigated the literary history of the subject, and his book is of great interest in showing how often discoveries have been made and how easily they are forgotten.

A book of a very different order is that of Dr. John S. Parry, of Philadelphia, published in 1876. It is at once remarkable for

its scholarly research and fine critical sagacity. Most unfortunately this promising author died in the same year, and I never look at the finely cut handsome young face which looks out upon me from the book as its frontispiece, faced by a pathetic letter from his mourning widow, but I become persuaded that in Parry's death one of the greatest lights in gynaecology of my time was lost to us. Had he lived to give us a second edition of his book, its few incompletenesses would have been filled up and its few errors rectified. Where he has got astray has chiefly been by the delusive use of statistics, a point which I shall deal with by-and-bye.

I have already discussed at length my view upon the physiological process of impregnation and the machinery concerned in it, so that I need not do more here than repeat that the uterus alone is the seat of normal conception, that as soon as the ovum is affected by the spermatozoa it adheres to the mucous surface of the uterus; that the function of the ciliated lining of the Fallopian tubes is to prevent spermatozoa entering them and to facilitate the progress of the ovum into the proper nest; further, that the plications and crypts of the uterine mucous membrane lodge and retain the ovum either till it is impregnated or till it dies or is discharged.

With such views it is easy to understand the cause of tubal pregnancy, for we have only to turn to the papers of Arthur Johnstone and Bland Sutton, to see that desquamative salpingitis could at once put the mucous lining of the tube into a condition exactly similar to that of the uterus, and in that condition access of spermatozoa would be possible, retardation of the ovum in the tube would be inevitable, and its immediate adhesion to the tube-wall after impregnation would be as easy and as likely as its occurrence in the uterus. The cause, therefore, of ectopic gestation or tubal pregnancy will be any process or accident which has reduced the Fallopian tube, so far as concerns its internal lining surface, to the same condition as the uterus.

Virchow long ago drew attention to the fact, that at post-mortem examination of cases of ectopic gestation ending fatally at the period of primary rupture, traces of previous pelvic peritonitis were often found and nothing is more common than to find a record of such attacks in the history of cases that come under clinical investigation. Indeed there is one fact about these cases which is very notable in the relation, that a very large proportion of them have a history of prolonged sterility and menstrual suffering, showing that their procreative machinery was out of gear. Thus we often have the history common to tubal mischief that after a first labour there was an illness with marked symptoms of pelvic trouble, then a long period of sterility, then the ectopic gestation ending in rupture. In my clinical records of

such cases I have laid special stress on this feature of their history as a guide to diagnosis. Parry impresses this by saying that "women who have become pregnant with a child outside the uterine cavity frequently show a previous inaptitude for conception. The interval between marriage and the first impregnation is frequently long. If the woman has borne children a period of sterility frequently precedes the extra-uterine pregnancy," and he gives a long list of authorities from whom he elicits confirmatory statements. This is eminently suggestive of the view I have advanced that ectopic gestation is caused by destruction of the proper ciliated epithelium of the tubes, and there are many other points to be successively discussed, which all point in the same direction. Indeed there is no argument against this save the belief that impregnation takes place usually in the tube. For this belief there is no foundation in fact, nothing at all except the misinterpreted facts obtained by experiment in the lower mammals. In these, spermatozoa have been found high up in the cornua of the bipartite uteri and these cornua have been erroneously supposed to be Fallopian tubes, whilst they are nothing of the kind. The Fallopian tubes do not really exist save in the higher order of animals who have assumed the upright position. If we accept this view the physiology of the process of reproduction is immensely simplified and the pathology of ectopic gestation becomes intelligible. I cannot see that any other views than these are consistent with the recent discovery of Arthur Johnstone and Bland Sutton, nor indeed can any others be reconciled with the facts of ectopic gestation as unravelled by modern surgery.



FIG. 1.—Section of normal Fallopian tube (after Bland Sutton).

We have now to deal with the varieties of ectopic gestation and I propose at once to dismiss all previous classifications as inconsistent with the facts as they have occurred in my own experience and incompatible alike with the view of the explanation of the cause of ectopic gestation which I have offered and with the physiology of impregnation. The uterus being regarded as the

only site possible for normal pregnancy and the tract through which the ovum passes and in which it may be impregnated in the abnormal process, it follows as a matter of course that all ectopic gestations must, in their origin, be tubal. A possible exception to this may be the impregnation of an ovum in its vesicle before it leaves the ovary—a matter I shall discuss immediately.

A clinical distinction of two kinds of tubal pregnancy must be made, though pathologically they must be regarded as quite similar. This division occurs between the cases in which the fertilised ovum becomes attached to the inner wall of the tube where it is free from uterine tissue, and those cases where the ovum cavity is formed by the distension of the tube at that part imbedded in the structure of the uterine wall. These cases have been called "interstitial" and I propose to retain this term.

The process of development of an ovum in the tube at any part of it, inevitably results in rupture of the tube. In the "interstitial" cases, the rupture, so far as is known, always takes place into the peritoneal cavity, and I cannot imagine any other way in which it might go, though we have assertions that a diagnosis has been made of tubal pregnancy which has ended by the ovum being discharged through the uterus. Such cases are easily dismissed from serious discussion, for I have never seen a preparation of interstitial pregnancy which could, by any possibility, have been diagnosed from normal pregnancy before the period of rupture. It is easier to believe, therefore, that such cases as I speak of have been errors of diagnosis than that the uterine tissue has been ruptured and the pregnancy has become intra-uterine. And here let me state that about this subject, as indeed about nearly everything else in this book, I do not give as a fact anything which has not been verified, either by post-mortem or ante-mortem examination. Any man who gives an opinion that he diagnosed a tubal pregnancy, or any other lesion, and that its course was this, that, or the other, merely upon the unaided discrimination of symptoms or the dim light of a pelvic examination, I regard with so much suspicion that I do not accept his evidence for argument save under exceptional circumstances. Post-mortem records, museum specimens, and the facts observed at operations yield evidence which is usually incontrovertible, and such as these only do I care to use. The interstitial ectopic gestation ruptures uniformly as I have said, and so far as we know, into the peritoneal cavity. The period of its rupture seems to be variable from three to twenty weeks, a fact which I derive from post-mortem record and museum specimens solely, for I have had no operative experience of this disaster and have had only one case within my own associations.

Ectopic gestation in the free portion of the tube infallibly involves rupture at some part of its progress before the fourteenth

week, in fact I think I might say the twelfth week, for out of an enormous number of specimens I have examined I have entirely failed to satisfy myself that rupture had been delayed later than the twelfth week, and I have seen it as early as the fourth week of gestation. This rupture I propose to term "primary rupture," and it constitutes in one direction, the most disastrous accident known amongst women.

This tubal rupture takes two directions (*a*) into the peritoneum which is the fatal form; and (*b*) into the cavity of the broad ligament, a form which yields the variety of ectopic gestation which I propose to call extra-peritoneal which was called the "sous-peritoneo-pelvienné" variety by Dezeimeris, and which alone yields all the cases which go on to the period of viability, all the lithopœdia, all the suppurating cysts discharging into bladder, rectum, &c., and also the cases which by *secondary rupture* of the *ovum cyst*, get called "abdominal pregnancy."



FIG. 2.



FIG. 3.

FIGS. 2 and 3.—Diagrammatic section of Fallopian tube representing the two directions of rupture, 2, into the peritoneal cavity; 3, into cavity of broad ligament; *a*, clot at point of rupture; *b*, wall of Fallopian tube; *c*, cavity of broad ligament with (3) folds separated by hæmic effusion *a*.

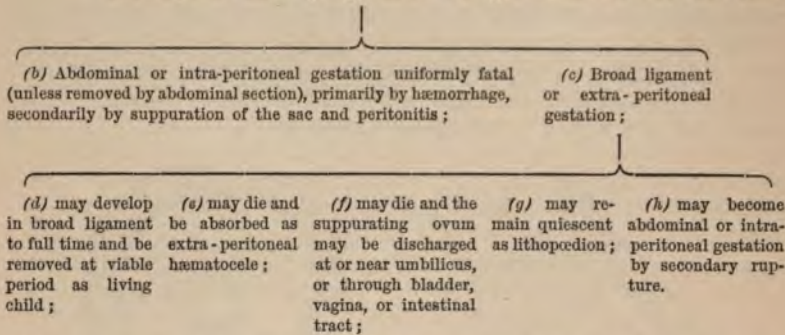
This is the view of ectopic gestations I first propounded in 1873, and Parry commended it with the expression that it at least had the merit of simplicity. I have, during the fifteen years which have elapsed, missed no possible opportunity of examining preparations of ectopic gestations, and nearly a hundred cases have passed under my own observation, directly or indirectly, for post-mortem investigation or surgical interference, and I have not found a single fact inconsistent with the views just briefly announced and now to be discussed at length. On the contrary,

these views of ectopic gestation bring harmony where formerly all was discord, make orderly what has hitherto been nothing but confusion. We may, therefore, construct a genealogical table of Ectopic Gestation, which gives the history at a glance as follows:—

SCHEME OF ECTOPIC GESTATIONS (in tubo-ovarian tract).

I.—Ovarian, possible but not yet proved.

II.—Tubal, in free part of tube, is (*a*) contained in tube up to fourteenth week, at or before which time primary rupture occurs, and then progress of the gestation is directed into



III.—Tubo-uterine or interstitial is contained in part of tube embraced by uterine tissue, and, so far as is known, is uniformly fatal by primary intra-peritoneal rupture (as *b*) before fifth month.

A few cases of pregnancy in hernial sacs have been unearthed by Campbell and Parry, but these, so far as can be judged by the somewhat meagre details and unsatisfactory accounts of most of them, can hardly be regarded as instances of ectopic gestations. They are rather instances of a hernial uterus in which impregnation has been accomplished.

The first division of our subject in natural order is the much discussed "ovarian" gestation. Concerning this I may well quote a sentence from Parry, for though it is not directly applied to this point it most truly may be: "Special treatises on obstetrics, as well as periodical medical literature, teem with statements which are utterly unreliable, and which are calculated to mislead investigators of this subject."

The beliefs prevalent on the subject of impregnation naturally enough have always influenced the theories of writers on ectopic gestations, it is so now in my own instance, and therefore we find writers of the time of Haller believing that ovulation was excited by coitus, expressing many strange notions about abnormal pregnancies. The belief that the spermatozoa reached the ovum

in the ovary and that impregnation was affected there, brought about the notion at the end of last century and the beginning of this, that most ectopic pregnancies were ovarian. Hausman made a series of observations which were regarded as final and therefore the belief not only became universal but it infects our text books to this day, for authors of text-books copy one another with scrupulous fidelity and unblushing absence of acknowledgment. But if Hausman's observations on animals are carefully perused, and of course no writer of a text book would ever think of going to the original authority for information, it will be found that the observations on different animals give results so inconsistent with one another that it becomes absolute simplicity of intellect to attempt to apply them to the human being. Finally, Sir Everard Home published a paper in the *Transactions of the Royal Society* (before his audacious inventions were made manifest), and the belief in ovarian pregnancy became a creed, and it remained so till Velpeau raised the cry of unbelief. Even Campbell (1842) says that he believes cases of ovarian pregnancy are not so rare as his predecessors had asserted. Yet he quotes Velpeau as having examined four such cases, aided by two competent assessors, and as having easily determined that the ovary was not involved in three of them: "but in the fourth they experienced not a little difficulty in determining the product of conception, *which did not exceed in size that of a flea*, to be placed, not in the substance, but in the cyst between the peritoneal and proper tunic of the ovary." At another place (p. 29) he describes the occluded and distended tubes of a prostitute from one of which a white oval body the size of a garden pea with some white viscid matter (doubtless an old pyosalpinx) was forced out by pressure, as an ovarian pregnancy. Again he quotes the dissection of a child aged thirteen, a confirmed masturbator, in whom was a dermoid cyst of the left ovary, as confirmation of his view. So credulous is Campbell that on a point like this his book is absolutely foolish. He has, however, discovered a number of descriptions which might be accepted as authentic but from their extreme antiquity (1682, 1697, 1735, and 1767). Unfortunately the preparations of none of these cases can be traced, even the instance said to be visible in the museum at Wurzburg seems to have disappeared, and certainly in modern times there has not been exhibited any preparation which can bear the test of critical investigation.

Of course it is impossible to admit any case as one of ovarian pregnancy in which no post-mortem examination had been made, indeed even when such an examination is made it would have to be at the hands of a competent observer only that an assertion of an ovarian pregnancy could be accepted. The uterus and both tubes would have to be recorded as intact and we should have one ovary present and the other not to be accounted for save by

its existence on the cyst of the ovum; and in the cyst wall of such a case microscopic evidence of the presence of the ovarian tissues would be required.

In several cases of tubal pregnancy which I have dissected it was a matter of the utmost difficulty to find the corresponding ovary, even when it was perfectly clear that the seat of the pregnancy was one of the Fallopian tubes. In one of my dissections I could not find the ovary, and yet that case was, with perfect certainty, one of tubal pregnancy. In Spiegelberg's paper there is only one case cited to which these tests apply with any degree of satisfaction, and therefore I give the details in full.

An abdominal section was performed under circumstances of great difficulty, and after peritonitis had been some time in existence, the sac had become closely adherent to the great intestine and to the right wall of the pelvis. On both sides the tubes were normally distributed, but the left one, after a course of 7 ctm., disappeared on the walls of its broad ligament. The right tube extended 10 ctm. along the upper edge of the thickened broad ligament toward a sac which was united by the *ligamentum ovarii* to the *ala vespertilionis* of the uterus; it had a diameter of 10 ctm. and was in a collapsed condition. After the tube had reached the sac it could be traced along its surface for a distance of 22 ctm. and was permeable for a distance of 12 ctm., and in the remaining 10 ctm. of its length it disappeared as a narrow, smooth band on the outer surface of the sac. There was in this neighbourhood a small dermoid cyst in the wall of the sac without any distinct boundary. The sac itself had two layers, the outer of which was thick and firm, and the inner one fine and delicate, these two being capable of separation. The inner layer was clearly the chorion, for over its greater part it had the structure of placenta, which was thickest at the bottom of the sac and thin at the upper part.

Spiegelberg therefore concludes that the right ovary was the bag containing the child. He could find no ovary on the right side, but he found distinct ovarian elements in the outer wall of the sac. It must be pointed out that, in the first place, the post-mortem examination is admitted to have been not very efficiently performed, and the description given of the tube makes it, I think, quite as likely that it was a case of pregnancy in the broad ligament which resulted from the rupture of the tube on its lower aspect—that being the most common variety of the tubal pregnancies which are not fatal in their early rupture—as that it was a case of ovarian pregnancy. The fact that there was present an ovarian tumour is proved by the existence of a dermoid cyst. This would account for the somewhat wide distribution of ovarian elements in the wall of the sac, and as Spiegelberg does not claim to have found ovarian elements all over the wall of the sac, I think

we may be quite justified in being somewhat sceptical even about this case; though I frankly admit that the eminence of the observer and the manifest care with which all his records are given make it quite possible that his conclusions are correct.

In a paper published by M. Puech upon this subject he describes a case in which the left Fallopian tube, like the right, was fixed behind the ovary by adhesion, but had remained permeable. Its pavilion was closed in a great measure, but not completely, and admitted a probe. The left ovary measured 46 mms. long, 26 mms. broad, and 18 mms. thick. It contained Graafian follicles of various degrees of development, the largest being 8 mms. in diameter. On its outer extremity was a rounded body about the size of a large cherry, its largest diameter being 20 mms., while its smallest was 12 mms. Its envelope was transparent and furnished with well-marked reticulated vessels. At one spot a deep violet colouration was seen over a space about the size of a lentil, and around this the envelope was thickened. Over most of the rest of the surface a yellowish substance could be seen through the translucent envelope. On opening the cyst with scissors a prominence with a villous surface was found attached at the area of colouration, while over the rest of the surface a layer $\frac{1}{2}$ mm. thick could be easily separated from the cyst wall. The villous prominence was furnished with large vessels, and formed a semi-ellipsoid measuring 11 mms. by 10 mms. On incising this with cataract scissors it was found to contain a cavity distended by a clear fluid, and in the fluid floated an embryo in the form of a vermiform body 1 mm. long, curved in the middle and swollen at one extremity. It was enveloped in an excessively delicate membrane by which it was fixed to the presumed chorion.

Of course the whole conclusion in this case depends upon the assumption that this vermiform body, only 1 mm. long, was an embryo. It may have been one, but certainly there is no proof advanced in favour of this view; and although I am by no means prepared to deny its accuracy, I am certainly very doubtful about it. If it was an embryo it could only have been one of a few hours' existence, and one could hardly expect to find the machinery of the whole process so defective that the pavilion of the tube—the most important part of the whole machinery—was so damaged as to be, according to M. Puech's description, almost closed and fixed behind the ovary by adhesion. One would have at least expected this adhesion to have been over the seat of the rupture, and yet it is distinctly stated not to have been so. I have seen so many queer looking things in ovarian cysts and follicles that I am not inclined to admit that this vermiform body has been shown conclusively to have been an embryo.

A very important paper was published in 1859 by Professor Arthur Willigh (*Vierteljahruch. für Pract. Heilkunde*) in which

the author suggests that critical investigation by means of the microscope is necessary to determine the reality of the so-called ovarian gestation. By this test he dismisses absolutely the evidence of a number of preparations which had been labelled in various museums as ovarian pregnancy, even one to which there was attached the great authority of the name of Kiwisch.

Such a test is wanted, for instance, in the case narrated by Dr. Walter, of Dorpat (*Monatschr. für Geburtsh.*, Ap. 1862). There the account is given merely to the effect that the right ovary had become developed into a long tumour, its long axis being in the same direction as the body of the full-grown child, and that no other trace of the right ovary could be discovered; but some evidence is needed more than is given that this tumour possessed ovarian structure. We know perfectly well that an ovary can be enlarged by cystic growth indefinitely, but we can always identify by microscopic investigation the origin of the growth.

Walter's specimen is still in the Dorpat Museum, and I would suggest a careful investigation of it.

A large number of cases have been published in modern times with the title of ovarian pregnancy and placed before us in the most reckless fashion. No less an authority than Hildebrandt, of Berlin, published a case as one of ovarian pregnancy in 1864, where a lot of old foetal debris was discharged by the rectum and the patient recovered, not a scrap of evidence being given, or being suggested as to where the pregnancy was, though the very fact that it was discharged by the rectum is conclusive that it rested in the broad ligament and originated as a pregnancy in the free part of the tube, and that it ruptured and passed into the extra-peritoneal variety. Another case to which the same criticism applies has much stress laid upon it by Dr. Parry on account of a post-mortem record which is perfectly satisfactory, except that there is no proof that a substance the "size of a honey bee which was found to escape on making the incision into the ovary, which was enlarged to the size of a very small hen's egg," was in reality a foetus of the sixth or seventh week, as Dr. Parry believed. In fact, it is an endless task to go over the numerous recorded cases of this kind. Not one of them has been subjected to the necessary condition of criticism, a satisfactory compliance with which alone can establish the occurrence of ovarian pregnancy.

Parry (p. 38) says, "whatever doubts had previously existed, they were settled by Granville's description of an example of this form of aberrant gestation." But when the original description and figure are turned up it is found that Granville figures only a small cystic ovary with a gelatinous lining to the cyst, a very frequent object. There is no foetus, not the faintest resemblance of one, but Sir Charles Clarke assured him that at one time there was an embryo hanging pendulous from the yet visible rudiment

of an umbilical cord. In fact, Granville's case is of no more value than any of the others.

Parry sums up the subject by saying that the weight of authority is in favour of the possibility of ovarian pregnancy. Its possibility I admit, because I can easily imagine a Fallopian tube glued on to the ovary and deprived of its lining epithelium, permitting the contact of the spermatozoa with a follicle burst within the area (of the ovary) of adhesion. Then the spermatozoa might infect the ovum before it escaped from the follicle, the ovum might adhere to the follicular wall and then develop. But there are so many contingencies in such a case that the doctrine of chances make it so remote that its occurrence may be regarded as likely as the birth of a blue lion or a swan with two necks, like a heraldic monstrosity—a mere pathological curiosity. Finally it would have no kind of clinical interest or importance not already decided upon in the case of pregnancies in the free part of the tube, so that we may avoid any further discussion of ovarian pregnancy as futile. If it does occur it must be rare and will be curious. If it never occurs so much the better.

I do not propose to discuss further the varieties of ectopic gestation which have been proposed by previous writers, for in doing so I should merely introduce elements of confusion which I am anxious to avoid. I shall merely say therefore that my second variety, the tubal pregnancy, arises from the attachment of the fertilised ovum to any part of the lining membrane of the tube, from the pavilion onwards. There can be no doubt that the pavilion may itself become the seat of the gestation and I am free to accept a sub-variety of the ovario-tubal as a possibility. It would occur amongst these numerous cases when the pavilion has become agglutinated to the surface of the ovary and has communicated by the bursting of a follicle under it, with the substance of the ovary itself. Tubo-ovarian cysts form in this way, and I have seen a large number of them. I have never seen anything like a pregnancy of this kind, however, and therefore whilst I admit the possibility of its occurrence I can say nothing about it. It must be clearly understood that such a variety, if accepted, would be different from the alleged ovarian form, for in this the condition would be that the ovum was developed in the ovary with the tube free and not attached to the ovary. That a fertilised ovum may drop into the cavity of the peritoneum and become developed there, is a contingency I cannot accept for a moment, for the powers of digestion of the peritoneum are so extraordinary that an ovum, even if fertilised, could have no chance of development. What have been called abdominal pregnancies are clearly exceptional cases where primary tubal rupture at the end of the third month, has not proved

fatal, where the extruded placenta has made for itself visceral attachments wherever it has touched, or where secondary rupture of a broad ligament cyst has converted an extra-peritoneal ectopic gestation into one within the peritoneal cavity. That the first of these processes is by far the most common condition has been proved to me beyond doubt in my operations, for I have seen the ruptured tube within a few days of the catastrophe containing the great bulk of the placenta, whilst the villi of the extruded portion has been engaged in making epiphytic inroads on intestine, bladder, the back of the uterus and the folds of the omentum. I have pulled these villi out of the living crypts they have made, much as one pulls a barnacle out of its bed, leaving bleeding holes behind them. But Berry Hart has proved this beyond dispute for he has been able to inject the placenta which had come out of its ruptured tube and acquired these strange and unusual associations, and I here give a drawing of one of the preparations showing the process.

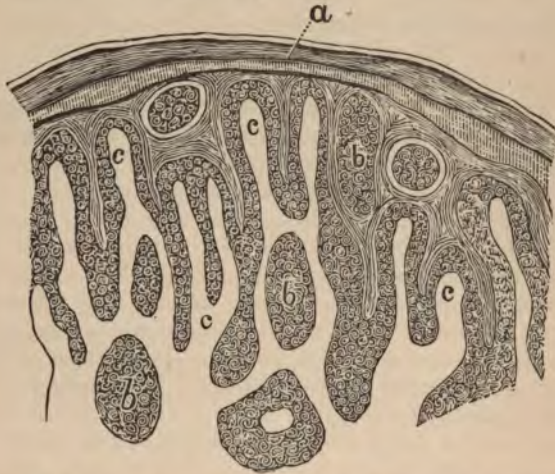


FIG. 4.—Actual view of placental villi (c) encroaching upon and causing thinning of the muscular wall (a) of the Fallopian tube; b, maternal blood sinuses. (Drawn by E. Teichelmann from section made by Berry Hart.)

From the relations of the outer extremity of the tube I should suppose that a tubo-ovarian pregnancy or one in the pavilion, must of necessity always end by rupture into the peritoneal cavity, and I think it would do so within the period which limits the existence of the purely tubal ectopic gestations, that is thirteen or fourteen weeks. Clinically therefore there would be no advantage in multiplying by further sub-divisions the varieties of tubal gestations. Whatever difference of opinion on these matters there may be, there can be but a uniform consensus

of belief to this effect, that by far the greater number of cases of ectopic gestations are tubal. I believe that they are really all tubal, and in this consists the novelty of my views on the subject. I do not see any difficulty in believing even that a pregnancy originally tubal may be completely extruded from the tube, that the tube may contract and heal, and that a secondary and wholly intra-peritoneal gestation may thus be formed (Dezeimeris) as in the remarkable case recorded by Maticcki (*Monats. für Geburtshülfe, Mai, 1860*) where the uterus and its appendages could all be traced, and where the attachment of the placenta had become almost wholly omental. Having seen all stages of such a process as this would require, I am sure that this is possible, and the very rarity of the observation, unique so far as I know, proves how exceptional the completion of such a process must be, as we would naturally expect it would be. There is indeed nothing more remarkable about it than the well established fact that by axial rotation an ovarian tumour may be twisted off its pedicle and grow entirely from the omentum or, as I have seen, from the ascending colour. Similarly I have seen this strange transplantation in all its phases and in all stages of the process. That such a hypothesis is tenable, is shown by the actual fact recorded by Lecluyse (*Bulletin d' l' Academie de Belgique, 1869*) that an intra-uterine gestation became ventral by the ovum escaping through an aperture left in the uterus by the defective healing of the wound of a previous Cæsarean section. The placenta became attached chiefly to the small intestines, and the history does not give any clue to a sudden rupture. I think it far more consistent with the facts given, that the fistulous opening was gradually dilated during the early weeks of pregnancy, before the differentiation of the placenta as a cake, and that the ovum was gradually passed through the opening, the placenta making epiphytic inroads on whatever it came in contact with.

Concerning the statistics of ectopic gestation, Parry very well says that with our present facilities for arriving at the truth in regard to the location of the ovum, it is believed that "we are not warranted, excepting in rare instances, in asserting that the ovum is developed in any particular portion of the genital canal, unless we have the opportunity of making a post-mortem examination." With this I entirely agree, and can only qualify his remarks by adding that we can accurately state the position of the ectopic gestation, when we remove the parts by abdominal section to evert the need of post-mortem examination. I have now been concerned directly and indirectly in the post-mortem examinations of twenty-six women, who have died from hæmorrhage into the peritoneum (intra-peritoneal hæmatocele) from ruptured ectopic gestation. I have had to operate forty times for the same

cause, and I have witnessed about ten similar operations by other surgeons, making in all the unique experience of seventy-six cases. In every one of these the seat of the pregnancy was ascertained to be without doubt the Fallopian tube, and in only one was the seat of pregnancy in that part of the tube embraced by the uterine tissue. Interstitial ectopic pregnancy must therefore be very rare, and that form which occupies the free part of the tube must have an over-whelming preponderance, and the other alleged forms I have yet to see. All the cases which have occurred in my experience in which the gestation has gone beyond the period of primary rupture have been in the cavity of the broad ligament, where they were lodged by that rupture. These facts are so inconsistent with the laboriously (and I think uselessly) collected statistics of Parry that further research must be made before any conclusions are accepted. I do not see how Parry's statistics can be of any value for any purpose whatever, collected as they are for the most part from imperfect records made by men who were unskilled in pathological research.

Parry says, "It is very rarely indeed that an opportunity is obtained to examine an unruptured cyst in the early stages of its development." I doubt very much if such a case has ever occurred. Certainly the instances he quotes will not bear the critical investigation. Indeed, the best of the lot (Stanley's case) is clearly not accepted by Parry, for he emphasises the fact that *no embryo was found*. I am of opinion that no authentic description exists of an unruptured tube-pregnancy. Of the frequency of ruptured tubal gestations we require no more proof than the current literature of our profession, which abounds with instances, and there are few men of experience in general practice who cannot call to mind one or more examples of this ghastly catastrophe. Parry says, that "The almost universal opinion of the profession is that this accident is uniformly fatal, and if not so, that we have no reliable means of combating its dangers." Much discussion has taken place of late years as to the possibility of diagnosing tubal pregnancy before the period of rupture, and many strangely dogmatic assertions have been made to the effect that such cases have been diagnosed and successfully treated. I am bound to say that I am exceedingly sceptical concerning the correctness of these statements, and one fact alone would justify my attitude. It is this, that of all the cases that I have operated on, and in many where I have seen the post-mortem examination and have known the history, the patients have made no complaints till the alarming symptoms of rupture have set in. I have only seen one case before the period of rupture, and there I diagnosed tubal occlusion and distension easily enough; but the question of the woman being pregnant never entered the mind of any one who saw her, and for reasons which will be plain when the story is

read. See "*The British Gynaecological Journal*," Part XIII. p. 38, from which the following is an extract:—

"The woman came to me a few weeks ago in the ordinary course of out-patient practice, with symptoms of obscure pelvic pain of *several months standing*—in short with the usual symptoms of tubal disease. She was examined and I came to the conclusion that it was a case of gonorrhœal salpingitis, and so clear were the symptoms that I used the case to demonstrate to my pupil, Dr. Ricketts, the nature of the symptoms in that disease. That was on a Monday. On the Thursday she turned up again with the most acute symptoms—she was bent double and could hardly walk. Finding that the whole floor of of the pelvis was fixed in one mass she was at once admitted. The next morning I opened the abdomen and found a ruptured tubal pregnancy, than which nothing was less suspected. I defy anybody to have diagnosed such a case before hand, for the woman had not even missed a period."

The fact is that the notions of Antoine Petit of 1710 still permeate the professional mind, and in spite of all that can be said they are handed down from text book to text book with unflinching regularity and uniform inaccuracy. Of these misleading statements Parry said, "Could they be verified the detection of extra-uterine gestation would be an easy task; but unfortunately for the comfort of the obstetric surgeon scarcely one of them contains a grain of truth; yet strange to say the opinions of Petit influenced and impeded the progress of our knowledge on this subject for more than half a century." Parry might have said for a century and three-quarters.

The curious thing is that the great bulk of my patients had no suspicion that they were pregnant at all, and therefore the first factor in a correct diagnosis was absent. Even when this leading point is present there is generally nothing unusual about the sensations of the patient till the period of danger. As Parry well says, "The patient in the first instance supposes herself to be pregnant, and during the first four or five or eight weeks nothing particular occurs to warn her of her anomalous condition. The usual signs of this early period of gestation appear successively; or, indeed, she may enjoy better health than she did during the same period of previous pregnancies, when suddenly and without any warning the unfortunate victim of this terrible accident is seized with very characteristic symptoms."

But the very fact to which I have drawn attention, that a very large proportion of these victims, a large majority in my own experience, are women who either have never been mothers or who have not been pregnant for many years, shows how misleading the whole history may be. The last thing these women would admit would be pregnancy.

I must point out here that Petit is right on one point to a very large extent, though by no means uniformly, when he says that "the menses, contrary to what is seen in normal gestation, continue to appear, but in smaller quantities throughout the pregnancy." Menstruation is sometimes suspended absolutely, as in normal pregnancy, but more usually it occurs irregularly and profusely, so that here again we are misled. In fact, the history of these cases is more usually a source of danger than a help to the diagnosis, and unless some exceptional incident occurs, or unless the patient is a good deal more anxious about the state of her pelvis and a good deal less reluctant to have it examined than Englishwomen are as a rule, no diagnosis is possible before the period of rupture, for the patients make no demand upon us. Amongst the women of other countries it may be different. I cannot improve on the words of Parry in continuing this vexed question of early diagnosis of tubal pregnancy, and therefore I quote further: "An extra-uterine gestation is frequently ushered in quietly enough, and during the first four or six weeks all may go well, but after this time symptoms supervene which in their violence are as unlike the signs of uterine pregnancy as the the surface of a stormy sea is unlike that of a dead calm. The one moves on with some sort of regularity, the discomforts of the condition appearing in a certain order, but the other follows no plan and sets all order at defiance. This is the period of rupture which is (in my own experience) limited between the fourth and the twelfth week of pregnancy." I possess, and have frequently exhibited, a preparation of a ruptured tubal pregnancy which proved fatal in a woman aged thirty-one after an illness of only seven and half hours. She was under the care of Dr. Guthrie Rankin, of Warwick, and Dr. Thursfield, of Leamington, and the following is the history of the case:—"On November 2nd, 1887, at 1.30 p.m., Mrs. ——— was seized with pain in the abdomen, followed by vomiting and faintness. Dr. Guthrie Rankin was called in, the pain was relieved by an opiate; but collapse followed, and death ensued at 9 o'clock the same evening. She was seen in consultation by Dr. Thursfield just before death. She was the mother of three children, suckling the youngest aged seven months, of good constitution, with no history of previous illness. At the post-mortem examination the abdomen was found full of clots, estimated at from seventy to eighty ounces. The left Fallopian tube presented an ovoid-swelling which had ruptured, and was full of blood clot; on examination this swelling proved to be a tubal pregnancy.

One curious point about the preparation is that the ruptured ovum in the tube, as it is seen in the preparation bottle, looks exactly like the ovary and every one who sees it at once says—"Case of ruptured ovarian pregnancy." But a little more careful

examination displays the ovary uninjured, and the further fact that what is taken at first to be the ovary really is an ovum in the Fallopian tube of certainly not more than five weeks. The rupture which caused death was not larger than a pea. I mention these facts to show how carefully records of these cases must be made.

On the other hand I have seen no case of ruptured tubal pregnancy (primary rupture) either in my own practice or in museums in which there was evidence to show that it was over the twelfth week. Of course I am not talking of cases where the pregnancy had gone on in the broad ligament after primary rupture into that cavity, but purely of those of fatal primary rupture requiring operation for the arrest of hæmorrhage.

The cause of the primary rupture of the tube is chiefly in its thinning at the site of the placenta. When distended either by pregnancy or otherwise, the walls of the tube never thicken materially. Certainly in tubal pregnancy there is no imitation of the thickening of the muscular coats of the uterus. The villi of the placenta permeate the walls, seem even completely to penetrate them, and the blood-vessels increase enormously in size, especially the veins. Some slight exertion occurs, such as stooping at some household work, a violent attack of pain comes on, the patient becomes faint, collapsed, cold, pulseless, and anemic, and dies almost uniformly if unaided. This is the story of a great number of these cases, for quite a number of cases in which I have seen post-mortem examinations, the women have been found dead or dying, and suspicions of foul play have not unfrequently been aroused. Sometimes the symptoms abate, the patient recovers for a few days and even gets about, then a recurrence of the peritoneal hæmorrhage occasions a revival of the serious symptoms, and this may be repeated at intervals several times before the fatal issue is arrived at. A most notable example it was of this which drove me to attempt to save these cases by prompt surgical interference, it was indeed an epoch-making case for it has revolutionised our practice in these cases.

In the summer of 1881, I was asked by Mr. Hallwright to see with him in consultation a patient who had arrived by train from London in a condition of serious illness, that illness having been diagnosed by Mr. Hallwright as probably hæmorrhage into the peritoneal cavity from a ruptured tubal pregnancy. The patient was blanched and collapsed, the uterus was fixed by a doughy mass in the pelvis, and there was clearly a considerable amount of effusion in the peritoneum but no distinct tumour could be felt above, and I agreed with Mr. Hallwright as to the nature of the lesion. This gentleman made the bold suggestion that I should open the abdomen and remove the ruptured tube. The suggestion staggered me, and I am ashamed to have to say I did not receive

it favourably. I saw the patient again in consultation with Mr. Hallwright and Dr. James Johnson and again I declined to act upon Mr. Hallwright's request, and a further hæmorrhage killed the patient. A post-mortem examination revealed the perfect accuracy of the diagnosis. I carefully injected the specimen which was removed, and I found that if I had tied the broad ligament and removed the ruptured tube I should have completely arrested the hæmorrhage, and I now believe that had I done this the patient's life would have been saved. The appearances in this case are precisely given in the annexed illustrations from Duguet:—

FATAL CASE OF FALLOPIAN PREGNANCY AT EIGHTH WEEK (AFTER DUGUET).



FIG. 5.—*A*, Uterus laid open on the anterior surface; *B*, part of the decidua still adherent to the right uterine cornu; *C*, decidua, nearly entire, expelled before death; *D*, right tube and ovary, normal; *E, E*, margins of artificial opening in the left tube; *F*, umbilical cord; *G*, placenta; *H*, pavilion of the left tube; *I*, vascular plexus, ramifying over the tubal covering of cyst, from which the hæmorrhage occurs on its rupture; *J*, vagina.



FIG. 6.—*A*, View of the posterior surface of the uterus; *B*, fimbriae of left tube; *C, C, C*, rents in tubal covering of cyst, corresponding to site of placenta, from which the fetus escaped and hæmorrhage came; *D*, ovary attached to lower surface of cyst, and increased in size; *E*, right tube.

A most striking contrast to this terrible incident will be found in the following case, when, thanks to the ability and firmness of Dr. Dolan of Halifax, I was able to save a valuable life:—

Late on the evening of February 16th I received a telegram

from Dr. Dolan, of Halifax, to proceed at once to that town to operate upon a case which he believed to be one of ruptured tubal pregnancy. The following is the account which Dr. Dolan has given me:—"P. W., aged twenty-nine, married, four children living, youngest two years old, had a miscarriage nine months ago, has always been regular but missed the last period. Felt uneasy for the last few weeks; felt, she said, as if there was a weight and as if the womb were coming down the passage, enjoyed good health up to this time. About 9.30 a.m., February 11th, I was called to see her and found her in a state of collapse. She revived and then complained of pain in her abdomen. Symptoms like those of colic, vomiting, abdomen distended, great deal of flatus. This continued for some hours; was relieved by ether and champagne. She had several attacks during the day, and I saw her altogether seven times. At 10 p.m. same night she begged for something to give her sleep, and I gave her a dose of chloral, bromide of potash, and camphor water. She slept the whole night. A nurse had been obtained immediately after the first attack. On the morning of February 12th she was, to all appearances, perfectly well, was free from pain, and, as she said, she felt as if there was nothing the matter with her. There was, however, a good deal of flatus, and the abdomen was distended. She told me she had gone to bed on the Tuesday night perfectly well, but on rising in the morning about 7 a.m. she felt a sudden pain about the umbilicus. When she got up she tried to work it off. I told her husband I feared there was some internal hæmorrhage caused by rupture of tube, but as she was so much better I would wait and see whether I was right. She was kept in bed in charge of the nurse and not allowed to move. This treatment was continued until the following Thursday. There was no return of pain or collapse, and she said she did not know why she was kept in bed. At midnight I was hurriedly summoned to see her. She had been out of bed for a short time and almost the same symptoms came on—sickness, tendency to faint, cold sweats, with a sense of fulness in the abdomen. Her appearance was changed, face was blanched, the abdomen was distended, but there was no localised swelling. By resting she again revived. I told her husband that I was now certain as to what she was suffering from and an operation would be required. He gave me permission to call in Mr. Lawson Tait, whom I telegraphed for as soon as I could." On my arrival I completely agreed with Dr. Dolan's diagnosis, and I opened the abdomen without further delay and removed an enormous quantity of clots and bloody serum and debris. The tubal pregnancy was on the left side. I tied the broad ligament, removed the pregnancy, washed her out thoroughly, and put in a drainage-tube. Dr. Dolan stayed with her all night feeding from time to time with diluted champagne. She gradually rallied, there was but a slight discharge

from the tube, very little pain, the pulse came down day by day, and on February 25th she was regarded as convalescent and is now in a condition of perfect health.

What a contrast lies in such a pair of cases! And to make the lesson still more emphatic let me make a long quotation again from Parry's book (p. 211-13). "In speaking of the result of this pitiless termination of extra-uterine gestation, it was stated that so few recovered from it, that all hope of such a happy result is to be dismissed in considering the treatment. No doubt, notwithstanding the statement of Rogers to the contrary, a few women have recovered, though the number is very small—so small that when one is called to a case of the kind, it is his duty to look upon his unhappy patient as inevitably doomed to die, unless he can by some active measures wrest her from the grave already yawning before her."

"A bleeding vessel through which the red stream of life is rushing away, can be ligatured. A gangrenous limb which is destroying the possessor by sending its poisonous emanations to the remotest regions of the body can be amputated. A cancerous breast, which is sapping the vitality of its victim hour by hour, can be removed with the prospect of temporary relief. An aneurism that places life in constant jeopardy, can often be cured by proximal or distal ligation. The tumultuous action of the heart organically diseased may be quieted till nature restores the balance after which the person may enjoy a long and even a useful life. Even phthisis now counts its many cures; but here is an accident which may happen to any wife in the most useful period of her existence, which good authorities have said is never cured; and for which even in this age, when science and art boast of such high attainments, no remedy, either medical or surgical, has been tried with a single success. From the middle of the eleventh century when Albucasis described the first known case of extra-uterine pregnancy, men have doubtless watched the life ebb rapidly from the pale victim of this accident as the torrent of blood is poured into the abdominal cavity, but have never raised a hand to help her. Surely this is an anomaly, and it has no parallel in the whole history of human injuries. The fact seems incredible, for if one life is saved by active interference it may be triumphantly pointed to as the first and only instance of the kind on record. In the whole domain of surgery—for we cannot look to other than surgical measures under the circumstances—there is now left no field like this. In this accident, if in any, there is certain death. How often do we see persons recover from injuries which their surgeons tell them will be mortal, if they do not submit to a grave and terrible operation, and which with a dogged determination they refuse to have performed, preferring to perish rather than to suffer such grave bodily mutilation; or else, with

a keener instinct they foresee a happier result and get well notwithstanding the evil prognostications of the surgeon and in defiance of all the laws which, as man with his fallible knowledge supposes, govern human injuries. But in rupture of an extra-uterine foetal sac, in the early stages of pregnancy, a whole lifetime—a whole century—is not enough to enable one person to make two errors in regard to the prognosis of this accident.”

“The only remedy that can be proposed to rescue a woman under these unfortunate circumstances is gastrotomy—to open the abdomen, tie the bleeding vessels or to remove the sac entire. The first suggestion of performing gastrotomy to save a woman dying from early rupture of the cyst came, so far as we know, from our countryman Dr. Harbert, while to Rogers belongs the credit of formulating the arguments in favour of this practice and bringing them prominently before the profession. Since he wrote the same plan of treatment has been advocated by Meadows, Hewitt, and Greenhalgh in a discussion before the Obstetrical Society of London. Koeberle, Behier, Schroeder, and Atlee countenance the proceeding, but no person has yet performed gastrotomy for the relief of this accident. *The great impediment to the adoption of this treatment is the uncertainty of diagnosis.*”

Mark the importance of the last sentence, which I have italicised, for this sentence it is, reiterated by almost every writer on abdominal surgery up to 1878, and continued as a tendency by a great many still, which has stood in the way of our success. I have long since thrown it to the winds, and when I find my patient “in danger of death from conditions within the abdomen which do not seem to be clearly of a malignant nature, but a correct diagnosis of which is impossible, I open the abdomen and at once make the diagnosis certain and a successful treatment possible.”

This is the rule I laid down in 1878, adding to it, for other purposes, that I did the same thing when “the conditions were such that the patient’s life was miserable by reason of suffering which could not be relieved, or at least had not been—by all other measures.” The result has been an enormous advance in abdominal surgery, obtained only after a severe struggle with the authority of the elders, who asserted that the abdomen was a region into which the writs of ordinary surgical laws should not run.

This principle of exploration is nothing new, in fact the way it is sometimes used or rather abused is almost horrible. I once saw a surgeon, who is now a baronet and has a Court appointment, remove a breast with a tumour in it. After he had the whole thing away in his hands, he drew his knife across the tumour and out spurted a lot of pus, “laudable pus.” He had made his exploration after the treatment was complete. If he had explored first his diagnosis would have been completed, his blunder saved

and the radical and exaggerated treatment rendered wholly unnecessary. I have similarly seen a limb amputated for a sequestrum opening into the knee joint, which a preliminary exploration would have shown to be capable of removal without amputation and the limb would have been saved. Crowds of illustrations of this kind of theory could be given; shewing in the first place, that complete accuracy of diagnosis is no more possible in the breast than it is in the abdomen, that exploration is a sound principle when there is doubt, and that many ghastly blunders would be saved if the practice were extended into general surgery. Absolute accuracy of diagnosis in the abdomen is very far from being possible; only the ignorant assert that it is, and only fools wait for it.

After the terrible lesson given to me by Mr. Hallwright's case, I did not see another example of ruptured tubal pregnancy, or one which I suspected to be of that nature till I was called to Wolverhampton by Mr. Spackman, on June 17th, 1883. There could be no doubt as to the nature of the case and Mr. Spackman was fully aware of it before I was summoned. The patient was clearly dying of hæmorrhage, and I at once advised abdominal section. The fœtus, about the twelfth week was lying amongst masses of clot and coils of intestine and to these latter the partially extruded placenta had obtained new attachments. These I cautiously separated and occasioned fast and copious bleeding at every point. I wasted much time in trying to stop this hæmorrhage so that by the time the operation was finished my patient was practically dead. We got her to bed alive, and that is all that can be said. I thought much about this case, for it was a bitter disappointment, I thought I should achieve a triumph and I had only a failure. But my conclusion was speedily arrived at that I had blundered, that the true method of operating in such a case was to separate adhesions rapidly, regardless of bleeding and make at once for the source of the hæmorrhage, the broad ligament, tie it at its base, and then remove the ovum debris and clots at leisure. This I have done now in thirty-nine cases with one death, and I think I may fairly say that I have really achieved a surgical triumph. My example has been widely followed, and the success is almost uniform.

The diagnosis of tubal pregnancy before rupture of the tube is not easy, as I have said, because the patients do not claim our attention. What symptoms there are, as in the solitary case where I had a chance of making a diagnosis, are merely those of tubal occlusion and distension—matters very easy to diagnose and to treat. If I ever should make a diagnosis of tubal pregnancy before rupture I should advise its immediate removal by abdominal section as being more certain and far more safe than the fancy methods of puncturing the cyst and injecting poisonous fluids or passing

through it some kind of galvanic current. There can be, there clearly is from the statements of those who have tried these plans, neither certainty nor safety about them; and they will commend themselves only to such as, by lack of courage and skill to obtain good results, have only bad records to show in abdominal section.

The diagnosis of tubal pregnancy at the time of rupture may be made with certainty seven times out of eight, and may be guessed at in the eighth instance. They are too serious to be lightly regarded at any time, and are practically coincident with those of pelvic hæmatocele. If the rupture takes place into the broad ligament they are the symptoms of extra-peritoneal hæmatocele. If the rupture takes place into the peritoneal cavity they are the characteristic and most serious group which belong to intra-peritoneal hæmatocele.

No more appropriate place than this occurs to me to discuss this much confused question, if for no other reason than that I have never seen an intra-peritoneal hæmatocele that was not due to a ruptured tubal pregnancy; and very many cases of extra-peritoneal hæmatocele (effusions of blood into the broad ligament) have undoubtedly been tubal pregnancies which have ruptured between the peritoneal folds of that important structure. The difference between them is all important in every way, for the intra-peritoneal ruptures seem to be almost uniformly fatal, whilst the extra-peritoneal hæmatoceles, whether arising from tubal pregnancies or not, should certainly be left to take their own course unless they give signs that they are suppurating.

A most especial interest was given to this question by a trial which took place at Liverpool some two years ago, which raised the whole question, and displayed the extraordinary confusion which existed then in the professional mind upon it.

The first important contribution to the literature of pelvic or abdominal hæmatocele was the work of Bernutz and Goupil, translated by Dr. Alfred Meadows, and published by the New Sydenham Society in its English form in 1866. It appears to me a matter of great regret that the writers of our text books on gynæcology have so neglected this admirable work, most of them seem never to have read it at all, and in those where it is quoted it is clear that nearly every one of the writers has failed to understand the meaning of the French author. An instance, by no means remarkable as an exception, may be found in one of the most recent text books on gynæcology—that by Dr. Emmett, of New York, and we see that throughout his chapter on this subject this confusion is remarkably prevalent. The chapter begins with the definition that hæmatocele is an “accidental collection of blood in the pelvis, either in the peritoneal cavity, or outside the peritoneum, or within the connective tissue of the pelvis.” This definition is faulty to begin with, because the second and third

varieties must of course be classed together, and to class under the same name—the common name of hæmatocele—two conditions which must be so absolutely apart as hæmorrhage within the peritoneal cavity and hæmorrhage outside it, is the very fountain and origin of all the confusion which has arisen. Dr. Emmet quotes Nélaton as having given the first accurate description of the pathology of the lesion; but in reality Nélaton's views, from the very words he coined to express them, are very largely answerable for the confusion. M. Nélaton regarded the origin of hæmatocele as being from the rupture of a Graafian follicle, the bleeding naturally gravitating from the surface of the ovary to the bottom of Douglas's cul-de-sac, the most dependent point, and for this the term he invented was "retro-uterine hæmatocele." On page 228, Dr. Emmet gives a diagram labelled a "retro-uterine hæmatocele" in which the section of the blood-clot is clearly enough placed behind the uterus, but a glance at it will show that such clot never could possibly arise from an ovary, so that either Dr. Emmet is wrong in his notions of the pathology, or he has altogether misunderstood M. Nélaton. On page 231 he gives a diagram which is really the diagram intended by Nélaton, but in which the blood-clot is peri-uterine, and therefore the case in the second instance comes under the definition and title which we owe to Simpson.

Between the appearance of the first real essay on the subject by Bernutz in 1848, and the translation of his larger work in 1866, a great many contributions to the literature of this subject were made, each of which advanced some peculiar theory on the subject, and to all of these there may be urged the objection that they were too exclusive, and they did not in any instance, as it appears to me, grasp the whole pith of the case. The word "hæmatocele" is a convenient though not very accurate term, and so long as it is limited to the idea of an effusion of blood it may be taken as the basis of our consideration. The moment, however, such terms as *true* hæmatocele and *false* hæmatocele were introduced confusion reigned supreme. Bernutz held that true hæmatocele consisted of an effusion of blood within the peritoneal cavity, whilst Simpson argued that it could never be an intra-peritoneal effusion. What I am inclined to advise, and for reasons that will be given immediately, is that the phrase "pelvic hæmatocele" ought to be retained to cover all effusions of blood which have their origin in the pelvis. This I advise because it would cover the vast majority of cases of effusion of blood into the peritoneal cavity; for if we exclude the results of traumatic lesion, there are very few effusions of blood into the peritoneal cavity which have not a pelvic origin—a fact which is at once indicated by the extreme rarity of the occurrence in men. With this simplification we can look over the great bulk of the

literature on this subject with a certainty of arriving at more logical conclusions than if we did not accept the limitation. Bernutz and all other writers agree in recognising the fact that any effusion of blood must be regarded rather as a symptom than a disease of itself, and this is true enough if we are discussing merely the etiology of the condition; but if we regard the condition in itself as an entity we certainly cannot accept this as a limitation, for whatever the origin of the effusion may be the moment the effusion is in existence it becomes in itself a disease, and sometimes an extremely severe one. But in the two great classes into which I am about to divide hæmatocele this is far more true about the first class than it is about the second, and this is the first indication that we get of the differences which are found to exist between the two classes. This difference is created *ab initio* by differences in the anatomical relations of the effusion.

In the pelvis—indeed we may take the whole abdomen and say in the abdomen—an effusion of blood must be either within the peritoneum or outside it. And let us just speak for a moment on what the primary, what the initial result is in any effusion of blood under these two different circumstances. Let us take an imaginary case of rupture of a blood vessel in the neighbourhood of the kidney by reason of a blow or other injury. Effusion of blood in that neighbourhood must of necessity be extra-peritoneal; it would travel through the cellular tissue, and by reason of the very fact it had so to travel, provided there was no rupture of a vessel into the pelvis of the kidney, the effusion would be limited, the interstices of the cellular tissue would form the very best of all known hæmostatics, and I find it difficult to imagine that an effusion of blood—let us call it a renal hæmatocele—in the neighbourhood of the kidney could be so extensive as to be fatal, always supposing it was not a main trunk which had been wounded. But on the other hand, if we imagine from some cause or other a blood vessel of the kidney bursting into the cavity of the peritoneum, there would be no natural hæmostatic to assist it in the arrest of the hæmorrhage; the bleeding would go on indefinitely, and unless some means could be secured to assist nature in arresting it, the patient would almost with certainty die.

Let us now take another illustration. Suppose that a small vein on the posterior peritoneal surface of the uterus were to rupture and to bleed into the peritoneal cavity. There the blood would of course naturally tend to coagulate, but not in the same way as when extravasated into the connective tissue. All of us who have experience in abdominal surgery know that when blood flows in quantity into the peritoneal cavity, probably by reason of its dilution by the lymph always present there, and easily excited into excessive flow by any abnormal condition, it does not show much tendency to coagulate, save in a very fitful and fragmentary

way. One of the most remarkable proofs of this is the influence of the drainage-tube in arresting hæmorrhage. If the cavity is kept dry by frequent withdrawal of blood and serum oozing from torn pelvic adhesions, the bleeding will soon stop; but if drainage is not kept up the bleeding will probably prove fatal.

Supposing, on the other hand, that a small vein should rupture in the tissue and between the folds of the broad ligament, we should again have exactly the same condition as I have imagined to occur about the kidney; in fact it would be still more marked, for in the first place the cellular tissue through which the bleeding could permeate is much more limited in quantity than it is in the neighbourhood of the kidney. Again, we have a space between the folds of the broad ligament which is not capable of rapid distension to an indefinite extent. The broad ligament when distended forms a limited cavity, and we shall then have two processes by which the tendency to excessive hæmorrhage is arrested; the first is the natural tendency on the part of the interstices of the broad ligament to limit the bleeding; and again the pressure of the broad ligament itself, as a membrane distended and resisting further distension, exercises pressure upon the bleeding point and becomes a powerful natural hæmostatic.

These anatomical considerations alone, were they supported by no other facts at all, would be enough to persuade us into an acceptance of the division, which has often been described but never precisely laid down by writers of this subject, of pelvic hæmatocele into the two classes of *extra-peritoneal* and *intra-peritoneal*, the former corrected and checked by two powerful agencies which are absent in the latter, whilst the hæmorrhage in intra-peritoneal hæmatocele is actually favoured by the dilution of the blood as it passes out of the bleeding vessels. The confusion which has arisen from a want of the recognition of the two classes of cases of intra- and extra-peritoneal, may be seen by taking up any text books on the subject, and turning to the allusions which are made as to the frequency of the occurrence of hæmatocele or to its differential diagnosis and still more to the treatment. Thus, Dr. Emmet says: "If we limit the acceptance of the term 'hæmatocele' to an accumulation of blood passing into the peritoneal cavity, the accident is comparatively a rare one; but if it is held to embrace all blood accumulations in the pelvis, the occurrence is certainly a far more common one than the profession at large have any conception." If we accept the first sentence of this passage as alluding to intra-peritoneal hæmatocele the statement is relatively correct; and if we accept the second sentence as referring to extra-peritoneal hæmatocele the statement is absolutely exact; but if we go a few more pages further on in Dr. Emmet's book we find him attempting to make a differential diagnosis between hæmatocele—of which he has given no precise

definition either for extra- or intra-peritoneal effusion—and tubal pregnancy, and the confusion becomes positively amazing; for it will be seen as we proceed that for intra-peritoneal hæmatocele by far the most common cause is the tubal pregnancy for which Dr. Emmet desires to find a differential diagnosis. This is what he says upon treatment: “Surgical interference has been advocated by many in its practice, and been urged as the necessary procedure at an early stage. Unquestionably cases must occur when the surgeon would be wanting in sense of duty if he did not assume the responsibility and puncture the mass. But with a large majority of cases such interference would be criminal, as it needlessly places the life of the patient in jeopardy.” Here, again, what Dr. Emmet says is absolutely true about extra-peritoneal hæmatocele, and it is absolutely untrue about intra-peritoneal effusion. I only desire to say that I have taken up Dr. Emmet as an example of this confusion in English writings, not because he is worse than others, but merely because his work happened to be the first text book on gynaecology which caught my eye as I started to write this lecture. If we accept the anatomical and physical facts before alluded to as a basis, we shall find that it is not a difficult matter to reconcile a very large number of discordant facts and many discrepancies in the views of various authorities; in fact, the whole story of hæmatocele may be reduced from confusion into order. We shall find also that the two varieties of hæmatocele are different in their relative frequency, in their causation, in their history, and of course particularly in their relative fatality, different in their symptoms and the signs by which they may be diagnosed, and, finally, in their demand for surgical interference.

Dr. Bernutz has expressed an opinion to which I have already alluded “that the bloody tumour which is left as the remains of a hæmorrhage has no right to be regarded as a specific disease apart from what has caused it.” This is true, I hold, of intra-peritoneal hæmatocele, but not of the extra-peritoneal variety. When hæmorrhage into the broad ligament occurs the arrest of the hæmorrhage has already been brought about, in the vast majority of cases, by Nature’s own methods, probably even before the accident has been diagnosed, and therefore all we have to do with is the thrombus, and in the great bulk of cases that may be and generally is let alone. But cases do arise, as I shall tell you by-and-bye, when it becomes a serious disease, for if the sac of the broad ligament bursts into the peritoneal cavity the hæmostatic pressure is relieved and bleeding goes on, the two forms of the lesion co-exist and the patient bleeds to death. That such an ending may occur and has actually occurred is known by a case I shall quote as a result of this secondary rupture of the broad ligament pregnancy cyst, the primary rupture having taken place

at the ordinary period and the direction of rupture being into the cavity of the broad ligament. The secondary rupture takes place into the cavity of the peritoneum and proves fatal. I have seen no such case, but more than one is faithfully recorded by Bernutz, and such a case is recorded by Goupil, and is a perfect example of what I can fully believe to be possible, though I have not seen it, therefore I quote it at length.

S.—, aged thirty-two, from a delay in menstruation thought herself pregnant and regarded a metrorrhagia which occurred, as an abortion, though she had seen no trace of an ovum. On admission, the abdomen was distended, and very tender on pressure, and it was resonant on percussion. The cervix was open and the uterus was pushed somewhat to the left and forwards by an enormous swelling which was behind it. The posterior cul-de-sac was occupied by a fluctuating tumour which was felt filling up the pelvis entirely and the fluctuation was very distinct. The diagnosis was (and I regard it as one of the most brilliant on record) intra- and extra-peritoneal blood tumour, probably accompanied by extra-uterine gestation. She gradually grew worse and died on the third day after admission. She died, because in 1855 M. Nonat, under whose care she was, had not been infected by the "restless spirit of surgery let loose" since 1878, which has done so much to save cases such as this.

The post-mortem record of this case, however, is a perfectly peculiar record of facts. In the peritoneal cavity about twenty-five ounces of black fluid blood and clot were found, constituting the intra-peritoneal hæmatocele, the cause of the patient's death. When that was removed an ovoid tumour was observed covered by the peritoneum of the broad ligament. It seemed to be formed by a mass of blood. This was the extra-peritoneal hæmatocele. At the bottom of the left recto-uterine cul-de-sac the peritoneum forming the posterior layer of the broad ligament presented a perforation with a communication between the recto-vaginal cul-de-sac and the cellular tissue separating the peritoneal layers of the left broad ligament. On making an incision into the ovoid tumour a small fetus was discovered.

The importance of this record cannot be over estimated, for it proves, as I shall show afterwards how some cases of broad ligament hæmatocele arise. It shows that broad ligament hæmatocele may occasionally be fatal by becoming intra-peritoneal hæmatocele, and it shows us (this case has shown me) how thirty-eight out of forty of such cases may be saved from death. Further, it proves what is perhaps not very pertinent to the present discussion, that the views I have advanced about the tubal origin of all extra-uterine pregnancies are correct. The only other case of this kind familiar to me is one very imperfectly narrated by Duverney, as having occurred in 1712. These two cases are all the

records I have found of the coincidence of intra- and extra-peritoneal hæmatocele and the combination was due in both instances to rupture of a broad ligament pregnancy with hæmorrhage into the peritoneum. Both cases ended fatally by reason of the hæmorrhage into the peritoneum. I have seen dozens of cases of broad ligament hæmatocele and have never met with a fatal one. I have seen nearly eighty cases of intra-peritoneal hæmatocele all resulting in death save those (with two exceptions) in which abdominal section was performed for the purpose of obviating death, so that we find a very wide difference in the results of the two classes of cases in my experience. It will also be found that when the real difference between the varieties is understood, it will explain all the discrepancies in the views held by various authors and all the confusion will cease.

I propose to deal first of all with the extra-peritoneal hæmatocele and to give first in detail two cases which prove in every way its character and relations, and which illustrate also two of the exceptional instances in which it requires to be interfered with.

C. T., aged twenty-six was placed under my care in December 1883, by Dr. Faussett, of Tamworth on account of a large parovarian tumour. I operated on January 3rd, 1884, and removed a cystoma of the left ovary weighing fourteen pounds. There were no adhesions, the pedicle was long and thin, and the operation was as easy as possible. A metrostaxis appeared about twenty-four hours after the operation, as is usual after such operations, the only peculiarity in this instance being that the loss was very abundant. It suddenly ceased after being present for about twelve hours and immediately the patient was in great pain. From having seen the same accident under similar circumstances very frequently, I knew at once what had happened. I examined and found, as I suspected, a large hæmatocele of the left broad ligament. The hæmatocele increased slowly in size until a tumour could be felt above the brim of the pelvis, and the patient suffered greatly. I also found that the rectum was completely blocked as I had seen it often before by a stricture caused by the effused blood dissecting round the rectum outside the peritoneum. This is one of the signs of broad ligament hæmatocele which has not yet been noted by any writer with whose work I am acquainted, and it is of great importance. It does not—indeed it cannot—occur in an intra-peritoneal effusion. In the case of C. T., I tapped the hæmatocele from the vagina and drew off a large quantity of tarry blood, but in fourteen or fifteen hours the sac had filled again, and the patient had become exsanguine. I therefore re-opened the abdomen, opened the distended cavity of the broad ligament, emptied out the blood fluid and clots, sponged it out with vinegar and water, fastened the edges in the aperture, to the edges of the parietal wound, and placed in a drainage-tube. The patient then made a

rapid recovery. I only wish to emphasise the fact that this second operation made it absolutely certain that the effusion was in the cavity of the broad ligament, and not in the peritoneal cavity, for the peritoneal covering of the blood mass was perfectly free from adhesions, and its entire relation could be made out with the greatest ease, quite as easy as if it had been a post-mortem instead of an ante-mortem examination.

The second case was one in which a tubal pregnancy had ruptured into the broad ligament, and the subsequent effusion of blood was so great that it caused complete obstruction of the rectum by annular constriction. The diagnosis of broad ligament hæmatocele was easy enough, but I did not diagnose its cause, for the patient had never missed a period. She had been married four years and had never been pregnant. Suddenly she experienced violent pelvic pain whilst engaged in some social amusement and the symptoms so rapidly advanced that in about four hours she was collapsed. I was called to her and found a large ovoid well-defined and quite firm tumour above the brim of the pelvis, the roof quite fixed by an effusion which followed the archings of the pelvic fascia and completely blocked the rectum. It was so firm that I decided not to tap it but to open the abdomen, and it was well I did so. Next morning I carried out my proposal and removed from the cavity of the broad ligament about two pounds of blood-clot and a foetus and placenta of about the ninth week. I sponged out the cavity with vinegar and water, stitched the opening in the broad ligament to the opening in the abdominal wall, as in the operation for pelvic abscess, and the patient made a rapid recovery.

This case proves that tubal pregnancies rupturing into the broad ligament (*c*, in the scheme) may occasionally require interference at the time of primary rupture.

Speaking of a series of cases by Nonat, M. Bernutz says very quaintly that there should have been at least one necropsy in order to demonstrate the legitimacy of the different diagnoses—that is, between what he calls true (intra-peritoneal) and spurious (extra-peritoneal) hæmatocele. But these five cases recorded by M. Nonat are precisely in point in the present discussion, for four of them were diagnosed by that eminent gynaecologist as being the subjects of extra-peritoneal effusion, and they all recovered, whilst the patient in whom he diagnosed intra-peritoneal hæmatocele died, and M. Bernutz was gratified by an accurate post-mortem record. Nothing could prove more satisfactorily than this, what I contend for, that it is the anatomical relations of the two kinds of hæmorrhage which make all their differences, and now we examine them carefully before death, and by that very examination prevent death by curing them, we get the first corroboration of all that M. Bernutz has said.

Of extra-peritoneal hæmatocele there are only two causes known to me, one very common, and one relatively rare. The first is sudden arrest of metrostaxis which may either be normal menstruation or the pseudo menstruation which occurs so constantly after abdominal operations. The first case I have just detailed is a typical example of what occurs very often after any operation on the broad ligament, and to the inexperienced surgeon is a fertile source of worry. The accident is always indicated by the sudden access of pain, and often an alarming feeling of faintness. The pulse always rises and sometimes the temperature does so too. On examination the uterus will be found to be fixed on one side, sometimes on both, and this occurs with a suddenness that puts inflammatory effusion out of the question altogether. In the majority of cases the effusion is not extensive enough to be felt above the brim of the pelvis, but in severe cases it is, and then it forms a rounded and distinctly limited tumour, with a feeling of distinct fluctuation. This upward limitation of the tumour and a distinct vaulting of the upper surface, the effusion of blood round the rectum, and a peculiar concave vaulting of the lower surface of the mass, form the characteristic signs of extra-peritoneal effusion of blood. The mass is, in fact, like an irregularly shaped jelly-fish, rounded above, concave below, and this shape is uniformly regulated by the relations of the peritoneum and pelvic fascia. The edges of the mass are felt to fade off downwards on the walls of the pelvis, just as the groins of a Norman crypt fade off on the brackets or capitals which support them. The effusion of the intra-peritoneal hæmatocele, contained in the rounded cavity of the retro-uterine cul-de-sac, bulges into the vagina like a dilated bag. I cannot form any exact estimate of how many cases of these operative hæmatoceles I have seen, but it certainly is not less than fifty, and is more likely to be seventy or eighty, and I have been induced to meddle only with the one I have narrated. In every case in which I have diagnosed the condition the patient has recovered, and in the necropsies which have been made upon cases operated upon by me no record of the incident occurs, so that I conclude it is an accident very nearly, if not quite, devoid of mortality. Its only drawback is that it delays convalescence for ten or fourteen days, and otherwise I believe it to be of no account at all.

Extra-peritoneal effusion of blood is also very common apart from cases of operation, but by reason of the same sudden arrest of a metrostaxis. Its symptoms in such cases are very much what I have described—sudden pain, a feeling of faintness in severe cases, with a rise of pulse, and even of temperature. On examination the uterus is felt fixed and generally pushed forwards with a boggy swelling behind or on one side of the uterus, and if the effusion be large the mass is felt distinctly limited by the

distended broad ligament above the brim of the pelvis, this latter condition being the essential diagnostic difference between the two varieties of hæmatocele. An intra-peritoneal hæmorrhage unlimited in quantity or by membrane has never yet been felt by me as a defined tumour above the brim, and I have now had a large experience of such cases in which the diagnosis was confirmed by operation or post-mortem examination.

Cases of effusion of blood into the broad ligament by sudden arrest, or at least associated with sudden arrest of menstruation, are, as I have said, very common, and I am sure that large numbers of these occur without the patients thinking it worth while to ask for medical assistance, and they get quite well without it. It is, as I have said, a condition probably almost free from primary mortality, and has only a remote secondary mortality when one thrombus breaks down and suppurates, and brings about the tedious condition of pelvic abscess.

Effusion of blood into the broad ligament also occurs from another cause, much more rare and probably much more fatal, certainly much more serious—I mean rupture of a tubal pregnancy about the twelfth week of its existence into the cavity of the broad ligament. It is now pretty well admitted that the scheme of the pathology of extra-uterine pregnancy which I have just given in detail covers and explains all the facts of that curious condition, and now it is capable of being used to help us to understand pelvic hæmatocele. Briefly, to recapitulate what I have said at length elsewhere, this view is that impregnation under normal conditions can and does occur only in the uterus. So long as the ciliated epithelium is in action in the tubes, spermatozoa cannot enter them, and the ovules cannot adhere to their walls. But the moment an ovule reaches the cleansed and fresh endometrium infiltrated with spermatozoa, its adhesion occurs. Destruction of the ciliated epithelium of the tubes by desquamative salpingitis, or otherwise, reduces the internal tubal surface to the condition of that of the endometrium, and then entrance of the spermatozoa, impregnation and adhesion of the ovum are possible, and we have the occurrence of tubal pregnancy. The tube is distended by the growing ovum, and as it is not capable of indefinite distensions it ruptures, and the seat of rupture seems to be determined by the site of the placenta where the sinuses have so channelled the walls as to weaken them greatly. A glance at a section of a Fallopian tube will show (see p. 5) that there are two areas in that section which will severally give very different results, as one or other of them is the site of the rupture. One is much the smaller of the two, and is situated between the layers of the broad ligament, forming, as it were, an ideal roof to the cavity of that space. Rupture here of course means that hæmorrhage occurs into the cavity of the broad ligament, and that an extra-peritoneal

hæmatocele results. Such a case may, as I have already proved from Bernutz, become fatal in its later course by a further and second rupture of the broad ligament cyst and hæmorrhage into the peritoneal cavity. But I feel sure that the great majority of these cases end then and there by the natural cure as mere extra-peritoneal hæmatoceles; the ovum dies and everything is absorbed (*e* in my tabulated scheme). I am quite sure that I have watched several cases of this kind. In the minority of cases the ovum is not killed but develops into a broad ligament pregnancy (*d* in my tabulated scheme), formerly known as the "sous-peritoneo-pelvienne" variety of Dezeimeris. I have had seven cases of this kind which I have operated upon, saving five of the mothers and three of the children. Everyone of the cases of extra-uterine pregnancy operated upon at or after the full time with which I am familiar, comes easily within this explanation, and it makes quite simple what is an otherwise wholly unintelligible jumble in physiology as well as pathology. These cases may die at any point of their subsequent progress up to the full time, and then either remain quiescent as lithopædia (*g* in the scheme), or may suppurate and be discharged in various directions (*h* in scheme). The conclusions therefore are that, save under three sets of circumstances, extra-peritoneal hæmatocele is an accident perfectly free from danger. These are (*a*) when a secondary rupture of the cyst occurs with continued bleeding into the peritoneum; (*b*) when it is merely a stage in the growth of extra-uterine pregnancy; (*c*) when it goes on to suppuration, a condition I shall refer to in its proper place.

I do not think that suppuration of a broad ligament hæmatocele is very common, and yet I have met with quite a large number of cases. Of course by the ordinary methods of proceeding, and those which certainly ought to be adopted in the milder cases, it would be very difficult indeed if not impossible to make anything like an exact differential diagnosis between a suppurating hæmatocele of the broad ligament and several other conditions which I need not specifically allude to, and therefore any assertions concerning them, after dealing with them as they used to be, and as I say they ought to be dealt with in the majority of instances, by tapping from the vagina may easily be met by the criticism adopted by M. Bernutz against M. Nonat, that at least one necropsy ought to be in existence to prove the assertions. I have, however, already pointed out that an abdominal section performed before death is, for such a purpose as this, quite as satisfactory as a post-mortem examination. In the sixty-third volume of the "Transactions of the Royal Medical and Chirurgical Society" I published a series of six cases in which I had adopted, for reasons of extreme seriousness, an abdominal section for dealing with pelvic abscesses which otherwise would have opened out in the usual disastrous ways. I say there

that "these six cases have all been, so far as I can discover, cases of suppuration occurring in pelvic hæmatoceles," and I may at once dismiss this question by saying briefly that this depended upon the fact that in clearing out the cavity of the abscesses I removed a considerable quantity of laminated, broken down, old clot. All these cases were undoubtedly extra-peritoneal hæmatoceles.

Of these cases I select only one as a characteristic example, to illustrate alike their pathology and treatment; and the history of the case is eminently suggestive that it had its origin in a broad ligament pregnancy.

The patient was sent to me by Dr. Flynn, of Birchills, now of Kingstown, Dublin. She was forty-five years of age, and had never been pregnant save one doubtful miscarriage soon after marriage nineteen years before. Symptoms resembling those of hæmatocele had occurred eight months before (after an arrest of menstruation for three months) I saw her and since that time she had been losing flesh, had lost her appetite, was troubled by constant thirst and night sweats, and had a rising night temperature. The uterus was fixed in a mass of effusion occupying the left broad ligament and partly the right one also, and the mass on the left side encircled the rectum forming a pronounced stricture of the rectum as hæmatoceles of the left broad ligament frequently cause. No point of fluctuation could be felt in the pelvis but the symptoms pointed clearly to the presence of pus. I therefore determined to open the abdomen and readily obtained the consent of my colleague to this proceeding. A large abscess was opened just behind the base of the bladder, between which and the uterus it principally lay, but stretching round behind the rectum. The floor and posterior wall of the abscess were found to consist of old laminated blood clot, so that its origin had been in a blood effusion into the broad ligament. A glass drainage-tube was inserted and this was changed for one of Chassaignac's wire tubes on the eleventh day after operation. She sat up on the twenty-first day and the tube was finally removed on the twenty-sixth. She went home on the thirtieth day perfectly well and has remained so ever since, now nearly eight years.

About thirty of such cases have been operated on by me and have all recovered. I say about thirty because I could not be sure that all these cases of pelvic abscess originated in suppurating hæmatocele, and I can form no estimate of how many of these were originally cases of tubal pregnancies bursting into the broad ligament and then suppurating, but I suspect that more than half of them were.

Therefore, I conclude that extra-peritoneal hæmatocele arising from tubal pregnancy though rarely fatal, has serious consequences in a fairly large proportion of cases. How different it is with intra-

peritoneal hæmatocele from the same cause, I have already sufficiently indicated. My first experience of this condition was one of the saddest things I have ever known, a young married lady one of the most charming and brilliant of women, the daughter of an author known wherever the English language is spoken, the wife of one of the most brilliant of surgeons, died after a short illness, and after a post-mortem examination, a ruptured tubal pregnancy was found to be the cause of an enormous intra-peritoneal hæmatocele. Another case of immense importance in my own experience, and I venture to think of still greater importance in the history of surgery, I have already given because from that point we have been able to fulfil the indications so urgently presented by the quotations I have made from John Parry.

During the twenty years which elapsed between the case I am speaking of, and the first of my surgical ante-mortem experiences of these dreadful accidents, I had seen at least twenty-three cases of a similar kind, and therefore I can entirely confirm what M. Goupil says of these cases to this effect—"So frequent is the occurrence of intra-pelvic" (by this he means the true or intra-peritoneal) "hæmatocele that I have made an analysis of forty-two of my cases, which are irrefutable as to their diagnosis." He gives us the causes of these cases. 1. Hæmorrhage caused by the rupture of dilated utero-ovarian veins. 2. Hæmorrhage from rupture of the ovary. 3. Hæmorrhage caused by rupture of the Fallopian tube. 4. Hæmorrhage from the foetal cyst itself having ruptured; and he says, "The largest number of cases fall under the last head"—5. Hæmorrhage within the foetal cyst. Probably, now, M. Goupil would group the last three causes under one head—at least I certainly should. At another place he says that ruptured tubal pregnancies are very common; for according to Nonat, Baudelocque saw five examples in three months, and I know that anyone who makes a research in our serial literature will find them in abundance. The final argument as to their not being so rare, as our text books seem to assert, is the fact that between January, 1883, and July, 1888, I operated upon thirty-nine cases, and succeeded in saving thirty-seven of them—a very striking contrast to the old plan of letting them alone to die. I have never seen a case of suspected rupture, or one in which we suspected intra-peritoneal effusion of blood, recover if left alone.

As to the causes of intra-peritoneal hæmorrhage, I have been able to speak only of two from personal experience—the first, and by far the most common, being ruptured tubal pregnancy. The second is hæmorrhage from some torn adhesions or badly-tied vessel after an abdominal section. Thus, I tied the pedicle of one ovarian tumour with catgut, and the patient died on the fourth day after the

operation. I found a large intra-peritoneal hæmatocele due to the digestion and loosening of the ligature. In searching the literature of this question I have found one case due to the rupture of an aneurism of the coeliac axis, and a large number of cases having a traumatic origin chiefly from rupture of the liver. Bernutz and Goupil have collected a few instances due to rupture of dilated uterine and ovarian veins not connected with pregnancy; also two cases of rupture of the ovary in pregnancy. But everywhere the evidence is overwhelming that the most fertile source of this most fatal accident is rupture of a Fallopian tube dilated by a fertilised ovum. In very many of these cases a feature of great interest is the fact that the first attack of hæmorrhage is generally not fatal, and that the records yield incontestible evidence that it may require the repeated occurrence of bleeding to bring about the fatal issue. In some of these attacks hæmorrhage seems to have been separated by long intervals. Thus, one case recorded as having occurred in the *Maison d' Accouchement* in 1816, where the history makes it evident that the tubal rupture occurred at the usual time, in the third month; the fatal hæmorrhage did not occur till the sixth month of extra-uterine gestation. In this case the fœtus was found, so that there could be no doubt as to the nature of the case.

But in some of the instances recorded by Bernutz and Goupil themselves—and I prefer their facts to all others, being as they are so carefully sifted and so free from any effort to theorise—it seems to me that the history was that of tubal rupture, repeated hæmorrhage, absorption of the gelatinous fœtus, and final death from hæmorrhage; so that when the post-mortem was made, the absence of a fœtus, which the authors note, blinded them to the real nature of the case. That the fœtus may disappear by absorption is made certain by my own experience. I have removed it only twelve times in my forty cases, though I have found the placenta in every one. Thus, case thirty-two in the work of Bernutz and Goupil is an instance of fatal intra-peritoneal hæmatocele due to a ruptured Fallopian tube which was distended by a tumour to the size of a pigeon's egg. I have no doubt that a microscopic examination of the tumour would have shown it to have been a placenta. I think that this explanation applied to many of the carefully recorded cases of these distinguished French authors, in which the details given would incline us to characterise them as being indetical with that which was the subject of the recent lamentable trial at Liverpool. There are half-a-dozen cases in Bernutz's book which are identical with that case, except that they were all fatal, whereas the Liverpool case was successful, the patient having been saved from death by surgical pluck and skill. That woman's peritoneum was occupied by a quantity of blood-clot

and blood serum so great that it could be recognised by palpation before the operation. One of the Fallopian tubes was the source of hæmorrhage because it had a quantity of blood and blood-clot in it when removed. Here is a case almost identical taken from the *Lancet* of 1848. "A woman aged twenty-eight was suffering from rheumatism when she was suddenly seized with nausea, vomiting, and pain in the right side of the abdomen; her face became anxious and pallid, the pulse imperceptible, the extremities cold, and the respiration oppressed, in short, collapse was complete and she died in twenty-four hours, evidently from internal hæmorrhage. On opening the abdomen a quantity of blood was seen but no rupture of any of the viscera could be detected. In the pelvis a clot was found in the left Fallopian tube. On separating the uterus, its cavity was filled with muco sanguineous fluid and lined with a decidual membrane. The left tube contained a clot of blood the size of an almond. About an inch from the uterus at the upper part of this tumour was a rent, and within was a small sac so compressed and deformed by the clot that it was impossible to say whether or not it was an ovum. The left ovary was the size of an apple, filled with blood and ruptured."

Another case on the authority of Dr. Tilt is given by Bernutz at page 196, "A multipara, aged thirty-seven, was seized with lumbar pain, the menses were four days late, the left hypogastric region became tender, and some tympanites and vomiting followed. She succumbed in ten days. On post-mortem examination there was general peritonitis, a large clot of blood filled the left iliac fossa and pelvic cavity, the uterus was normal in size, and the appendages on the right side healthy; the left half of the uterus and its appendages were larger and more distended than the right; the Fallopian tube midway the size of a nut; a probe introduced at the fimbriated extremity passed into a cavity in the centre of the clot, which dilated that portion of the tube." Another on page 197 is to the same effect—"On post-mortem examination all the abdominal organs were observed to be quite healthy, but very bloodless. In the pelvis a large quantity of blood was discovered, clotty and fluid. After careful examination of the principal blood-vessels, arterial and venous, without discovering anything abnormal the uterus was examined, together with its appendages and the source of the hæmorrhage was soon apparent, a small rupture of the right Fallopian tube being discovered at about half an inch from its distal extremity; blood was oozing from it, and it was evident that this was the seat of the bleeding. The tube itself was also a good deal enlarged."

Dr. Goodall also gives a fatal case where death occurred from about eight pounds of blood being lost from the Fallopian tube, though there was no evidence of a tubal pregnancy.

CASE 2 given by Bernutz (page 208) is extremely instructive,

because it is a fatal case of hæmorrhage from the Fallopian tube in a young woman, aged twenty-two, due apparently to measles. "On post-mortem examination hæmorrhage was found to have proceeded from the left Fallopian tube, which was distended to the size of the index finger, and contained about two ounces of blood, partly fluid, partly coagulated, and through the abdominal orifice as much as sixteen ounces of blood had escaped into the pelvis. These samples of hæmatocele occurring in rubeola, scarlatina and variola, demonstrate that this accident may occur in any severe fever."

Finally, I wish to refer to a case originally contributed to the *London and Edinburgh Monthly Journal* for 1841, because it establishes beyond all doubt, that fatal hæmorrhage can occur from the Fallopian tube into the peritoneum, under circumstances where the occurrence of rupture of the tube by an ovum is out of the question. An illustration of the tube is given. "A large quantity of blood was effused into the abdomen and pelvis, mostly coagulated but partly fluid. At first it was impossible to say whence all this blood came, but on examining the pelvic viscera solid coagula were observed protruding from the open orifices of the Fallopian tubes. The tubes themselves were filled with blood and distended at a short distance from the uterus up to the distal extremity. The condition of the parts is very well shown in the accompanying sketch, which represents the serious state of one of the tubes and the appearance of the clot attached; the latter has a sort of lobulated appearance produced by the constrictions exerted upon it in its passage along the tube. The other tube was the same. The greater part of the blood found in the pelvis escaped from the tubes no doubt in a fluid state, but that which was attached to the tubes was coagulated before it left the canal, as is evident from its shape."

Concerning the prognosis of such cases Goupil says: "It is but too true, I fear that we are authorised in saying, that all the cases of intra-peritoneal hæmorrhage arising from extra-uterine pregnancy, end in death—in fact all the cases that I have quoted have terminated in death; generally it has taken place in a few hours or days, and though death has been delayed for six months (as in the case already quoted) it is wholly exceptional." This was absolutely true in my own experience till I was emboldened—shall I say till I was shamed by Mr. Hallwrights case, into opening the abdomen and saving their lives.

We come to the following conclusions: That in the great majority of cases of extra-peritoneal hæmatocele, even when due to ectopic pregnancy, the disease may generally be left alone, being rarely fatal, and that it is to be interfered with only when suppuration or extreme hæmorrhage has occurred. That, on the contrary, intra-peritoneal hæmatocele is fatal with such

almost uniform certainty that so soon as it is suspected the abdomen must be opened and the hæmorrhage arrested. In the overwhelming majority of cases the source of the hæmatocele will be found in the broad ligament, and then it can be dealt with, and with every prospect of success. If any one objects to this I appeal again to the canon of surgery which is of uniform application: For surgical hæmorrhage cut down and tie the bleeding point; if a big branch of the femoral artery were bleeding my colleagues who deal in such cases would cut down and tie it. Why should Poupart's ligament be a line of demarcation within which this surgical writ will not run? Why should my friend Mr. Bryant be allowed to do to the external iliac artery what I am prohibited from doing to the internal iliac division? Indeed, at page 202 of Bernutz and Goupil's work they assert this principle: "The indication in such a case is plain—we must stop the hæmorrhage."

A very admirable contribution has recently appeared from the pen of Professor Charles A. L. Read, of Cincinnati, which has so completely corroborated what I had already published on the matter that I venture to make some abstractions from his writings.

"It is stated by Mr. Lawson Tait⁽¹⁾, in the "Ingleby Lecture for 1886, that Bernutz⁽²⁾, in 1848, was the first to recognise the causal relationship existing between tubal pregnancy and hæmatocele, and to indicate the proper line of treatment, viz., laparotomy and ligature. I am disposed to accept this claim for Bernutz, so far as it relates to a suggestion of treatment; but I must insist that all the *essential conditions* of intra-abdominal accumulations of blood from ruptured tubal pregnancy were recognised and described⁽³⁾ by one of Mr. Tait's own countrymen, Dr. John Burns, of Glasgow, as early as 1814. It is true, Burns does not use the word "hæmatocele," which was coined by Nélaton a quarter of a century later, and is such a positive misnomer that it had better never have been coined at all.

"Burns, however, said that 'the sac might burst and the patient die from hæmorrhage.' He clearly described the subsequent changes when he said that 'irritation is produced, inflammatory symptoms supervene, and hectic takes place.' He still further indicated his insight into these cases when he said of them that 'the most frequent termination is that by inflammation ending in abscess.' And I know no better way to round out a description of what is now known as hæmatocele than by employing Burns' observation that the suppurating contents of a burst tubal pregnancy 'might be enclosed in a kind of cyst of

(1) *Lancet*, October 30th, 1886.

(2) Bernutz and Goupil; "Diseases of Women," translated by Meadow's New Sydenham Society, 1866.

(3) "Principles of Midwifery," by John Burns, edited by James, Vol. I., p. 168, Philadelphia, 1817.

lymph.' Blundell ⁽¹⁾, writing in 1830, recognised the same condition, and said that he did not doubt that 'many women die in this way, but, being buried without examination, the real cause of their death is never ascertained.' He even went so far as to mention the expediency of abdominal incision for the control of the hæmorrhage, but doubtless under the pressure of the mediæval conservatism of Guy's Hospital—a conservatism which still exists in that institution—he abandoned the idea, leaving it to be again suggested by Bernutz thirty years later, and finally to be realised by Mr. Lawson Tait after the lapse of a half-dozen decades. Between Blundell and Tait, numerous writers touched upon both topics, but relatively few of them recognised that tubal pregnancy caused intra-peritoneal hæmatocele. As soon as Nélaton, and, subsequently, Bernutz and Goupil, began to write upon hæmatocele, the profession appeared to drift away from the definite etiology and pathology so clearly outlined by John Burns, until latter-day authors attribute the condition to almost every other than what I believe to be the one most fruitful cause."

"It is fortunate, however, that the other side of this important pathological question has not been entirely neglected. From the time Blundell, in 1830, and Bernutz, in 1848, guessed at the nature of these cases and suggested the expediency of abdominal section for the control of the progressive hæmorrhage, there was no one to put the suggestion into practice until Mr. Lawson Tait ⁽²⁾, in 1883, did the operation. It was the beginning of a new era in the intelligent understanding and management of these hitherto intractable cases. Prior to that time the mortality was almost one hundred per cent.; since that time I have heard of no one losing a case subjected to Mr. Tait's line of treatment, except in one instance, and that was a case in Mr. Tait's own hands. The pathology upon which the treatment was based, and which has been confirmed by the revelations of the treatment itself, has, however, been more generally accepted than has the practice. Schroeder ⁽³⁾, J. Veit ⁽⁴⁾, and Kiwisch ⁽⁵⁾ are among the leading Germans who agreed with Fritsch ⁽⁶⁾, that 'the most frequent source of the hæmorrhage is the ruptured ovisacs of a tubal or other extra-uterine pregnancy.' Among gynaecologists, Tait, Imlach, Berry Hart, Thomas, and Emmet are among the most conspicuous who concur in the doctrine, while among the obstetricians, Lusk, Parvin, Barnes, Galabin, and Playfair may be mentioned; indeed, it appears that among those who are the closest students of this question there is practical unanimity that

(1) "Principles and Practice of Obstetrics," p. 442, Washington, 1834.

(2) *Lancet*, October 26th, 1886; also, "Diseases of Ovaries," p. 348.

(3) "Handbuch der Krankh. der weibl. Geschlechtsorgane," 7 Aufl. Leipsic, 1886.

(4) "Zeitschrift für Geburt und Gynæk," 1884.

(5) Quoted by Lusk: "Midwifery," p. 289.

(6) Fritsch: "Dis. of Women," p. 289, New York, 1883.

tubal pregnancy is the most common cause of intra-peritoneal hæmatocele, but, as I have intimated, there is less unanimity on the subject of treatment. Why there should be variance on this question, when there is practical agreement on the more primary and fundamental one, is not apparent, unless we shall find that different constructions are placed upon those pathological changes which take place subsequent to extravasation. To my mind those changes were described with great fidelity to truth, if not to details, by John Burns, already quoted.

“With this pathology as the guide, the duty of the surgeon with regard to treatment is, to my mind, obvious. It is merely an application of that general law of surgery which, as formulated by Tait and applied to these cases, is as follows: ‘For surgical hæmorrhage, cut down and tie the bleeding-point; if a big branch of the femoral artery were bleeding, my colleagues who deal with such cases would cut down and tie it. Why should Poupart’s ligament be a line of demarcation within which this writ will not run?’ Bernutz and Goupil (1) say: ‘The indication in such cases is plain—we must stop the hæmorrhage.’ No person, I fancy, who properly realises the situation in the cases will deny the propriety of the proposition; but it occurs to me that there are other indications than hæmorrhage for surgical interference—the damaged tube, the foetal structures, and the placenta tissue demand attention. Of the latter two it may be said that, even though they become incapsulated and partially absorbed and the residue remain innocuous, they cannot be considered in a surgical sense other than as foreign bodies, and, as such, constant menaces to the health and life of the patient. The tube of necessity becomes destroyed as an oviduct, and, if left intact, it will only be to figure at a later period as a hæmato-salpinx or a pyo-salpinx, and consequently to demand extirpation.”

Dr. Read concludes this paper with the following summary: (1) Intra-peritoneal hæmatocele is an intra-peritoneal accumulation of blood. (2) Ruptured tubal pregnancy, the most common form of extra-uterine foetation, gives rise to an accumulation of blood within the peritoneum. (3) In consequence of the fluid condition of the extravasated blood and of the yielding character of the adjacent tissues, the hæmorrhage has a tendency to continue. (4) In consequence of the death of the foetus, there is a developed a marked tendency to suppuration. (5) In consequence of becoming a foreign body, the product of conception, even though it become encysted, is a constant source of danger. (6) The damaged tube, if left *in situ*, can serve no other than a pathological purpose. (7) Abdominal section is therefore called for (a) to control progressive hæmorrhage, (b) to remove dangerous *débris*,

(1) “Diseases of Women,” p. 202, New Sydenham Society.

(c) to extirpate worthless appendages, and (d) to overcome septic conditions.

I have now to conclude this important branch of my subject by submitting a list of the cases, properly authenticated, as the custom now is, in which I have performed this operation up to time of writing. The number is thirty-nine,* and I need hardly say that this number includes every case of the kind I have done. There have been only two deaths. The first was due to my want of appreciation of the proper principle of the operation, and the second was due to the fact that the patient was practically in *articulo mortis* when I operated, interference having been too long delayed. The results on this list show a very different possibility of prognosis in this dreadful disaster when promptly treated on sound surgical principles, from that so hopelessly pronounced by Dr. Parry when they are left alone: "From a careful examination of this subject it must be acknowledged that a happy termination of the rupture of the cyst is exceedingly rare." "Of 149 cases in which the ovum was located in that portion of the tube which does not traverse the tissues of the uterus, 145 died."

* The full number is forty, including the extra-peritoneal case given on p. 82.

No.	Residence.	Medical Attendant.	Age.	Date.	R.	D.
1	Wolverhampton	Dr. Spackman....	41	17, I., 1883	...	D.
2	Solihull	Dr. Page	40	3, III., 1883	R.	...
3	Birmingham	Dr. Taylor.....	37	10, IV., 1884	R.	...
4	Birmingham	Dr. Wilson	27	21, V., 1884	R.	...
5	Birmingham	Dr. Leech	34	6, VI., 1884	R.	...
6	Walsall	Dr. G. Sharpe...	28	23, VII., 1884	R.	...
7	Smethwick	Dr. Pitt	31	29, X., 1884	R.	..
8	Birmingham	Mr. Farncombe ..	30	28, XI., 1884	R.	...
9	Birmingham	Dr. Ward	35	9, XII., 1884	R.	...
10	Wolverhampton	Dr. Scott.....	41	9, II., 1885	R.	...
11	Birmingham	Dr. A. E. Clarke	30	2, IV., 1885	R.	...
12	Birmingham	L. T.	37	5, V., 1885	R.	...
13	Birmingham	Dr. Whitcombe...	25	11, V., 1885	R.	...
14	Birmingham	Dr. Whitley.....	34	2, VII., 1885	R.	...
15	Birmingham	L. T.	42	11, VII., 1885	R.	...
16	Wolverhampton	Dr. Watts	31	2, IX., 1885	R.	...
17	Manchester.....	Dr. Walter	26	6, IX., 1885	R.	...
18	Birmingham	L. T.	28	19, IX., 1885	R.	...
19	Birmingham	L. T.	42	23, X., 1885	R.	...
20	Coventry.....	Dr. Davidson	37	31, X., 1885	R.	...
21	Tipton.....	Dr. Price	24	2, II., 1886	R.	...
22	Oldbury	Dr. Cunningham	35	3, VII., 1886	R.	...
23	Birmingham	Dr. Wilson	32	16, VII., 1886	R.	...
24	Tipton.....	Dr. Price	34	27, IX., 1886	...	D.
25	Birmingham	Dr. A. E. Clarke	44	26, I., 1887	R.	...
26	Birmingham	Dr. Hoare	31	18, II., 1887	R.	...
27	Halifax	Dr. Dolan	29	17, II., 1887	R.	..
28	Coleford	Dr. Prosser	29	27, IV., 1887	R.	...
29	Walsall	Dr. Gordon	30	6, V., 1887	R.	...
30	Birmingham	Dr. Lafarelle	44	19, IX., 1887	R.	...
31	Birmingham	Dr. Wilson	29	20, IX., 1887	R.	...
32	Wrexham	Dr. Williams.....	37	30, IX., 1887	R.	...
33	Nottingham	Dr. Hunter.....	37	16, XI., 1887	R.	...
34	Birmingham	L. T.	37	16, XII., 1887	R.	...
35	Birmingham	Dr. Harmar	41	7, I., 1888	R.	...
36	Birmingham	Dr. Vokes	30	16, II., 1888	R.	...
37	Kidderminster ..	Dr. Jotham	38	11, V., 1888	R.	...
38	Derby	Dr. Carter Wigg	27	12, VI., 1888	R.	...
39	Ilfracombe	Dr. Slade King...	27	9, VII., 1888	R.	...
40*	Birmingham	Dr. Drury	26	28, VIII., 1888	R.	...
41*	Birmingham	Dr. Bracey.....	27	29, VIII., 1888	R.	...
42*	Birmingham	Dr. Hallwright ...	35	25, IX., 1888	R.	...

The patients were all married women.

* Cases which have occurred since these Lectures were written.

Two of these cases require further details for special reasons, the first (number 13), as strangely enough she fell a victim to a second calamity of the same kind, and the whole of her history is as follows:—

On May 10th, 1885, Mrs. E. R., aged 25, was sent to me by Mr. W. P. Whitcombe, Victoria Road, Aston, suffering from urgent abdominal symptoms. The history was to the effect that she had been ailing from a short time before Christmas. She thought it was pregnancy. Menstruation had been suspended for three months. In April she had a period, and again early in May, and at the latter time she complained of violent pains in the lower abdomen, and on the 9th she had an attack of fainting with vomiting, the pain being referred to the lower abdomen. When I saw her she looked extremely ill and anæmic. A large ill-defined mass existed on the right side of the uterus intimately associated with the organ, and the roof of the pelvis was fixed. There was no difficulty in diagnosing the case to be one of ruptured tubal pregnancy. I opened the abdomen on the 11th, and found the belly full of blood-clots and bloody serum. I removed the right Fallopian tube, which was occupied by a pregnancy of about the third month, and in its walls a large rent had occurred, through which the fœtus and placenta were partly protruding. Some points of bleeding from the intestine required touching with perchloride of iron, I inserted a drainage-tube, and the patient made an easy and rapid recovery. The case is published in a short paper on Ruptured Tubal Pregnancy, in the *British Medical Journal* of December 19th, 1885.

About eighteen months after this operation, she was confined of a child, at the full term, being attended by a midwife, and there was nothing remarkable about the labour.

About fifteen months after this confinement she again became pregnant, and her husband states that during the period of this pregnancy (which she thought had turned four months), she had no symptoms of note, but only complained at intervals of slight pain in the abdomen, but not sufficiently severe to induce her to call in medical assistance. The only point on which he lays any stress was that she stated that she felt the child very plainly, more so it seemed to her, than at the same period in any previous pregnancy.

Mr. Whitcombe was sent for to see her in the forenoon of March 9th, but he being from home, the patient was seen by his assistant shortly before 1 o'clock on that day. She was lying fully dressed on the bed, her knees drawn up, and was complaining of great pain in the hypogastrium. She was extremely pale and almost pulseless, and had had some vomiting. Mr. Hall was informed that only half an hour before she had been cleaning her fireplace, and, in the act of stooping, was seized with acute pain and a

feeling of faintness. Stimulants were at once administered, and every effort made to restore her without avail, and the patient died shortly after 5 o'clock, clearly from internal hæmorrhage.

Mr. Whitcombe made a *post-mortem* examination, and has been kind enough to give me the following particulars: He found the abdomen full of blood-clots and fluid blood; a large clot was adherent to a portion of the placenta which protruded from the uterine wall, and when this clot was separated it had a quantity of villous placental tissue adherent to it. All the organs were very anæmic, and there could be no doubt that the hæmorrhage was the cause of death. Mr. Whitcombe was good enough to bring me the preparation, and aided by my assistant, Mr. Teichelmann, I am enabled to give the following report and drawing of the appearances presented.

There can be no doubt that the specimen represents an interstitial tubal pregnancy of the left side. The cavity in which the fœtus is situated is separated from the true uterine cavity by a strong septum of uterine tissue springing from each side of the uterine walls. The under surface of the septum and the rest of the uterine cavity is lined by hypertrophied mucous membrane (decidua) (B). The stump of the right Fallopian tube (C) is attached to what appears to be the lower angle of the uterus, but which is really the much displaced upper angle. This displacement, however, is only apparent, and arises from enormous development of the left cornu of the uterus. A fine probe may be passed from the true uterine cavity into this stump. The left



FIG 7.—Drawing from preparation of interstitial pregnancy (Case xiii.) now in Queen's College Museum.

Fallopian tube, (A) on the contrary, communicates with the cavity in which the fœtus and placenta lie, and the rupture has taken place in the upper and back part of the left uterine cornu. In this case we have the almost incredibly strange instance of a woman suffering from tubal pregnancy twice, with the still stranger fact of her having a normal pregnancy between the two occurrences.



FIG 8.—Diagrammatic representation of interstitial tubal pregnancy at time of rupture.

From the first of her disasters she was saved by prompt surgical interference, and she might even have been saved the second time, but there can be no doubt that the poor woman's doom was sealed before medical assistance reached her, and there was no time then to effect the interference which was necessary. All the appearances of the preparation point to the fact that the woman's estimate of the period of her pregnancy was correct, and we have therefore an indication that the interstitial form of pregnancy does, as we might have expected it would, take a longer time to arrive at the period of primary rupture than do those cases in which the pregnancy occupies the free part of the tube. In these latter we have no evidence as yet of any instance going beyond the twelfth or thirteenth week before primary rupture. It may be noticed here I am introducing a new phrase in using "primary rupture." I do so because I am becoming convinced that unless we make such a distinction as I have indicated we shall still continue some of the elements of confusion which exist about this interesting displacement.

It is perfectly clear that in all cases of tubal pregnancy, when the ovum is growing, the tube must burst, and that it bursts in

two directions, either into the peritoneal cavity or into the cavity of the broad ligament. In the free part of the tube this rupture takes place, as I have said, about the twelfth or thirteenth week. In the interstitial form, the case before us shows that the rupture may be deferred to a later date. The primary rupture into the peritoneal cavity seems to be almost necessarily fatal alike to mother and child; but when the rupture occurs into the cavity of the broad ligament, it may be followed by a continuance of the development of the child, and these only are the cases in which the child is permitted to reach a viable period.

In a recent number of the *New York Medical Record*, a case is reported by Dr. Taft as being one of which no rupture had taken place. But the description given makes it perfectly certain that this was a case where the primary rupture had taken place into the cavity of the broad ligament. In this group of cases a secondary rupture at any period is possible, and therefore it is that the adoption of the terms, used strictly to indicate relative dates, will become very useful. This secondary rupture was most clearly demonstrated in Nonat's celebrated case as given by Bernutz, a case which, on account of the occurrence of this secondary rupture, is full of the greatest interest (see p. 32). This secondary rupture explains such an occurrence as that in Jessop's celebrated case.

Connected with the case I am now discussing there are many important points worth alluding to, some of which are new, and others, though quite familiar, are worth noticing on account of the confusion which still seems to exist in the mind of most recent writers on this subject, some illustrations which I have already given.

The patient was rather an intelligent woman for her class, who, having undergone the terrible experience involving her first operation, had obtained a fairly full knowledge of the nature of the accident, and what had been the condition as a consequence. Yet, with this dreadful experience, and the knowledge of it when the same condition recurred, so little did she suffer that, up to the moment of rupture, knowing she was pregnant, she never thought of asking for medical assistance; and this was the case also in her first tubal pregnancy. There were no symptoms whatever to draw attention to her state until the rupture occurred; indeed, there were no symptoms even calling for examination.

The strangest thing of all to me is that, in the enormous experience I have now had of tubal pregnancy, I have never but once been called upon to make an examination until the rupture had occurred, and in that case there was neither history nor symptoms which enabled me to do more than determine that there was tubal occlusion; not, indeed, until the rupture occurred and the abdomen was opened was a diagnosis possible. Under these circumstances I think I may be excused for maintaining a

somewhat sceptical attitude concerning the correctness of the diagnoses of those gentlemen who speak so confidently of making certain diagnosis in cases of tubal pregnancy before the period of rupture, and who speak with equal confidence of curing the cases by a puncture either simple, medicated, or electrolytic.

The great bulk of the utterances in these directions may stand very well in "society discussions," or in "library papers," but they will not stand the test of bedside experience. Upon these points I have been much misrepresented, and am glad to have an opportunity of clearly stating my views; but I wish to state that after the period of rupture a diagnosis can be, and has in my own experience been, made correctly in the majority of instances.

Another point in connection with this interesting case is the fact, made abundantly clear by the preparation, that, no matter what the symptoms had been previous to rupture, physical examination could not have permitted any diagnosis other than that of normal pregnancy of about four months and a half.

This is my solitary experience of interstitial tubal pregnancy, but it so closely resembles a number which I have seen in museums that I take it to be quite typical of its class. I am, therefore disposed to believe that from physical examination interstitial tubal pregnancy could not be diagnosed, and I can imagine no symptoms which would help us to recognise it before rupture.

The whole of the museum specimens of this class do not appear to amount to more than five or six, there is one in the Edinburgh College of Surgeons, one in the museum at Guy's Hospital, one in the museum at University College Hospital, and another in the museum of the College of Surgeons, described by Mr. Alban Doran. That authority has also mentioned two in the museum of the London Hospital, which clearly, however, do not belong to this class at all, but are broad ligament pregnancies. Dr. John Parry, speaks of 31 cases of interstitial pregnancy in his table of 500 of all kinds, but that he is mistaken in the great bulk of this group of 31 there can be no doubt whatever. This is indeed one of the illustrations of the want of critical acumen on the part of Dr. Parry in making his statistical collections. There can be no doubt that this interstitial form is much more rare than he believed.

If we were to assume that in such a case as this a diagnosis could be made, much ingenious speculation might be indulged in as to what could have been best to do for the patient. If a correct estimate of the relation of parts could have been made, clearly what ought to have been done was to dilate the cervix, divide the septum freely, and empty the cornual cavity. To have attempted to destroy the child would not have benefited the patient one bit. The placenta would have gone on growing; and even if it had not putrescible material would have been left, which must have burst into the peritoneal cavity. At the time of rupture, if surgical

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assistance could have reached the woman with sufficient promptitude, she might have been saved by a hysterectomy; and from the appearances at the post-mortem examination, there is no doubt that this could have been easily accomplished.

The last case on my list is also worthy of recital in detail, because it proves what we might have expected would occur occasionally, though it has never before been clearly proved, that intra-peritoneal rupture of a tubal pregnancy may not have an immediate fatal ending from hæmorrhage. In such a case we might expect that intra-peritoneal digestion of the ovum would prove a satisfactory solution of the difficulty; but here it did not. A suppuration process interfered, the patient had repeated attacks of peritonitis from which she nearly died, and had I not relieved her from the presence of the decomposed remains of the ovum in a large suppurating cavity, there is no doubt but that one or two more such illnesses as it had already caused would have seen the end of the case.

The patient in question was twenty-seven years of age, had been married six years, and had never been, as far as she knew, pregnant, this being not unfrequently a leading feature of these cases. She had menstruated with perfect regularity until Christmas, then she had missed till March, and during the whole of that time she had been confined to bed with what was called inflammation of the womb, and was attended during that illness by a well-known practitioner in Liverpool. At the beginning of March she had so far recovered as to be able to get up for a short time, but on the second day of her getting out of bed, she was suddenly seized with acute violent pain, and was kept in bed again for three weeks with what was said to be, and what clearly was from her description, an attack of acute peritonitis. Early in April she returned home to Ilfracombe, and was then seen by Dr. Slade King, who recognized the fact that there was a tumour on the left side of the uterus. In April she had an attack which she described as being very like a recurrence of the peritonitis that she had in the previous month, and there had been two or three attacks since then, more or less severe. She had menstruated twice for a fortnight each time, the loss being very profuse, and the pain extremely severe. When I saw her on July 4th, she was emaciated, in constant pain, quite unable to get about, and evidently suffering from the presence of pus in the pelvis. Examination revealed a tumour, quite as large as a fœtal head, on the left side of the pelvis, fixed and extremely tender to touch. Such a history gave no clue whatever to what proved to be the real nature of the case, for even the suspension of the menstrual flow from January till March was what precisely might have occurred in a case of hæmatocele of the broad ligament, or in several other conditions, which might have been referred as an explanation of this case.

Certainly, in the minds of those who gave the history, the suspicion of pregnancy had never been entertained, and my own diagnosis did not include a differential suggestion in the direction of tubal pregnancy, but was given as that of suppuration of the left Fallopian tube. That diagnosis proved to be perfectly correct so far as it went, but to be complete it ought to have been extended to include suppuration as the result of ruptured tubal pregnancy, but such an extension did not occur to me. The state of the patient was such as to demand immediate interference, and therefore I opened the abdomen, and found a state of matters, the details of which were easily ascertained, and were as follows:—

The omentum was glued over the contents of the pelvis, and I had a little difficulty in detaching its fringe from the base of the bladder. After I had done so, I found several coils of intestine adherent below it, and on removing these, I at once opened up a cavity from which escaped a quantity of extremely fœtid purulent fluid.

This cavity was as large as a Jaffa orange, and the first thing I came in contact with was a large mass of easily detached substance recognised at once by my fingers as a piece of placenta. I removed it, and the naked eye appearances confirmed what I had uttered about it before I removed it. I then easily recognised that the cavity from which I had taken it was formed of the dilated and distended Fallopian tube, forming the anterior, posterior, and lower walls of the cavity, whilst the upper part was composed of the coils of intestine and omentum, which I had partly detached. All round the cavity I could feel a number of sharp hard points, and these I easily recognised as foetal bones embedded in the walls of the cyst. I removed as many of them as I could, and found that they were what I had believed them to be, for included in what I removed were a number of foetal ribs and flat bones. I then proceeded carefully to detach that part of the cyst formed by the Fallopian tube, and when I had done so, I tied the pedicle, and removed what you now see before you. The presence of fimbriæ proved conclusively the accuracy of my supposition. We have here, then, a case of the greatest possible interest, for it proves what certainly has not been completely established up to the present time, that rupture of a tubal pregnancy into the peritoneal cavity may not be fatal at the time of rupture by reason of recurrent hæmorrhage. There is one case quoted by Campbell, and originally narrated by the late Mr. Samuel Hey, of Leeds, in which I think it is possible to accept this conclusion as very nearly proved, but the difficulties of a certain diagnosis of ruptured tubal pregnancy are so great that without the complete proof which can be obtained only from a post-mortem examination or an abdominal section, it is very easy to throw doubt upon any such record.

Here, however, we have absolute proof of the occurrence of tubal rupture into the peritoneal cavity, not only without a fatal issue at the time, but apparently without the occurrence of much hæmorrhage. It is, however, very likely that such cases are very rare.

In the absence of this fatal incident of hæmorrhage, it is not difficult to believe that the whole contents of the tube may be absorbed by the peritoneum, as the fetus was in process of being absorbed in this instance; and but for the occurrence of suppuration, it probably would have been so completely absorbed in a few months that no trace of its existence could have been recognised. The facts, however, that in nature's own process of cure an interruption by suppuration occurred, leading to such extreme peril that the patient escaped narrowly at least three times from peritonitis, and that if she had been left alone long her death from the recurrence of this trouble would have been absolutely certain, shows completely that it is never safe to leave these cases to a natural termination, and that their treatment by electrolysis is mere nonsense.

It is impossible to imagine that the Fallopian tube could ever have resumed its functions, after being submitted to such an accident as this, and it is not difficult to believe that for months after, if not for years, it would have continued liable at any moment to the suppurative process, which you see here had taken place.

The patient has made an easy recovery, and under these circumstances, and with a growing experience of the small fatality resulting from this operation, I unhesitatingly recommend the removal of the Fallopian tube, together with the remains of the pregnancy in every instance, and as soon as possible.

It must now be clear that the progress of an ectopic gestation is the subject of a great cataclysm, the primary rupture of the tube duct which may, and in the great majority of instances most certainly does, arrest its progress by destroying at one blow both mother and child, unless the surgeon boldly steps in to save the former.

We have now to consider the minority of cases in which the ovum survives the process of rupture, and this it can do only when the rupture takes place into the cavity of the broad ligament.

When the rupture takes this direction there is a great probability that the process is accompanied by hæmorrhage into the cellular tissue, and that we have a hæmatocele resulting. The actual proof of this I place on record at page 32, and I have no doubt, as I have already said, that many of the suppurating hæmatoceles upon which I have operated, have been originally tubal pregnancies, in which the rupture has taken place into the broad ligament and has caused hæmatocele. And I am quite as certain that many of the extra-peritoneal hæmatoceles which we

see, and with which we never interfere, are also produced in this way. It is easy to understand now how Parry could say that "Extra-uterine gestation may be occasionally confounded with pelvic hæmatocele. It may sometimes be impossible to distinguish between them." This must be clearly the case when the hæmatocele is a mere stage or a result of the processes of the extra-uterine pregnancy. The confusion into which Parry gets at this point is very interesting, for it leads him to a series of quotations, and a series of inconsistent conclusions which go a very great way negatively to show the value of the scheme of ectopic pregnancy for which I am now arguing. Thus he says, "It has been stated, however, that peritonitis, by which means alone intra-peritoneal effusions can become encysted, rarely follows the rupture of an ectopic gestation," and in this he is perfectly correct." Peritonitis rarely occurs in these cases, and the talk there about the collections of blood becoming encysted by inflammatory process is the merest nonsense. The encystment is brought about by the distension of the broad ligament, by the effusion of blood into its cavity, and of course exists from the first. Parry quotes a case from Matthews Duncan, in which the latter authority gives his facts so clearly as to admit of no doubt as to what had happened, but without in the least understanding them. Duncan says that the woman had all the symptoms of intra-peritoneal hæmorrhage, about a month before her death, whereas it was extra-peritoneal hæmorrhage into the broad ligament, which he describes. He goes on to say that the process of encystment was going on with every prospect of recovery, when the tumour (a broad ligament hæmatocele) burst into the cavity of the peritoneum (by a secondary rupture) causing fatal peritonitis. It would be difficult to find a clinical record so clearly given as this, with the evident conclusions so maladroitly overlooked and erroneous inferences put on record. The strangest thing, however, is that this broad ligament hæmatocele of Duncan is correctly interpreted by Parry in another part of his book, but still the true conclusion escaped him. In another passage Parry strongly urges the argument against the encystment theory by peritonitis, as follows, and I entirely agree with him:—"There are few things in regard to extra-uterine pregnancy which excite more surprise than the rarity with which peritonitis is noted upon examination after death from rupture of the foetal cyst. The practical conclusions that may be drawn from a careful investigation of this subject are:—That peritonitis is a rare sequel of rupture of the cyst, and even when pain, tenderness, and other symptoms of this affection supervene after the escape of the ovum, they do not necessarily indicate the existence of inflammation."

"Peritonitis so rarely follows rupture of an extra-uterine gravid cyst, that the possibility of its occurrence need not be taken into

consideration in the decision of any questions relating either to prognosis or to treatment."

Here the views of the process following the primary tubal rupture which I have advocated explain all the difficulties of the situation. Dezeimeris was the first to discover the fact that there was such a thing as a pregnancy under the pelvic peritoneum, though he neither recognised its frequency nor discovered the process by which it was brought about. Rut there was no disputing Dezeimeris' facts, for almost as soon as they were published they were confirmed. As late as 1842 Campbell disputed them, and brought forward the familiar "encystment theory" as an alternative explanation. "In the *sous-peritoneo pelvienne*, or second variety of Dezeimeris," Campbell says, "it is difficult to comprehend how the ovulum can insinuate itself under the peritoneum which is reflected over the organs situated in the brim of the pelvis. Through time, certainly, the connexions of the original cyst with the adjacent parts become so numerous that when superficially considered the ovum may seem to be enveloped by the layers of the broad ligament; but how it can pass under this appendage it is impossible to conceive." But the explanation is now before us, and Dezeimeris' facts have been confirmed by every unprejudiced observer.

As we have from this point to deal exclusively with cases in which the direction of rupture has been into the cavity of the broad ligament, I must ask to be excused further re-iteration of the fact, and it must at the same time be taken for granted that when I speak of effusion of blood in connection with these cases, I mean effusion into the broad ligament only—extra-peritoneal hæmatocele. The only exception to this will be when I speak of *secondary* rupture, by which I mean rupture of the broad ligament, distended as the result of the primary rupture and its resulting hæmorrhage, as in Nonat's case (p. 32), or in the case just alluded to, as so misunderstood by Matthews Duncan. This secondary rupture must, if it cause hæmorrhage at all, pour the blood into the peritoneal cavity, and thus produce intra-peritoneal hæmatocele. If, when the rupture takes place into the broad ligament, the blood effusion should be considerable, it is not difficult to understand that the ovum will frequently be killed at once, and be absorbed in time as the blood itself is. The whole thing will disappear, and the patient will get well, and I have no doubt that this is the origin of many of the inexplicable hæmatoceles of the broad ligament which we meet with. I have already given a case of the kind proved by abdominal section. I have as little doubt that in this way very many cases of ectopic gestation have a fortunate ending.

But they do not all die in this way, and many of them go on developing in their new position, and their development may go

to the full time. On the other hand, the death of the ovum may occur at any time up to the full period, and then a change, which I believe to be perfectly uniform, goes on slowly. The first part of this process is that the liquor amnii is absorbed, and then the soft parts of the fœtus and the bones are also as far as they can be. At the end we have a small cyst in the broad ligament containing fœtal bones and debris of fœtal tissue. From the record of numberless cases in the literature of this subject it is certain that ultimately most of these cysts begin to suppurate, and cause much suffering. Some of them we know remain quiescent, and are found as lithopædia, little and big, on the post-mortem table. Parry knew this, and expresses the fact well, when he says that "If the woman does not perish from rupture of the cyst during the first four or four and a half months of gestation, it is not likely that an opportunity will offer to inspect the body until at, or near, or even some time after, the close of pregnancy." But as he did not recognise the process of rupture into the broad ligament, he failed to understand the position, and his clinical accuracy suffers accordingly, whilst his subsequent pathological speculations are full of error. Thus, he continues his guesses about "encystment," though he has himself given the most conclusive argument against it, that the encysting process of inflammation is extremely rare—personally, I doubt if it occurs at all. He says, "Though the presence of an encysted fœtus is not incompatible with life, and even with comfort and usefulness, the woman who bears such a burden within her is in constant danger of the cyst taking on inflammatory action, which will greatly endanger and may even destroy her."

When the bone-containing cyst suppurates, the matter seeks an exit, and that is found uniformly in one of four directions: through the rectum, by far the most common; through the posterior vaginal cul-de-sac, the next in frequency; through the bladder; and most rarely through the abdominal wall at the umbilicus. "During the discharge of the decomposed child," says Parry, "the mother is subjected to all the dangers which result from the absorption of purulent and putrid matter," and he gives a table which, though it has no absolute value, is immensely suggestive of the terrible mortality of this process. He has tabulated 330 cases, and of these 105 died, and we may feel quite sure that, as in all such reckonings, this is an understatement of the true death-rate, as we never hear so much of unsuccessful cases as of those that have a satisfactory ending. The cures involve a great amount of suffering, for they go on for years, and therefore deserve the surgical interference for which I shall afterwards advance arguments.

But, first of all, let me say that the four directions in which the debris is evacuated prove clearly that its seat is the cavity of

the broad ligament. If the seat of the trouble were the left broad ligament, and the effusion had dissected the peritoneum up from the rectum in forming the annular stricture of which I have spoken, it is into the rectum that the abscess would most likely lead. I have seen a number of these cases, and have removed foetal debris through a hole in the rectum, opening straight into the cavity of the broad ligament; and, with my finger in the aperture, and a sound in the uterus I have proved the site. The bladder and posterior flexure of the vagina would naturally expect to be the next most available seats of evacuation, and in the case of the latter opening I have again proved, as in the case of a rectal aperture, that the cavity of the broad ligament was the seat of the debris cavity. Finally, in the case of lady who came to me from South America, and who for years had been passing phosphatic calculi from the bladder, the nuclei of which were foetal vertebrae (the bodies of them), I opened the abscess cavity from above, without opening the peritoneum, cleared out a quantity of pus, foetal hair, phosphatic deposit, and foetal bones, and promptly cured her, I could pass my finger into the bladder by a hole in its right wall, and as the uterus was quite fixed in situ, there was no doubt but that the abscess was the result of the death of an ovum which had been extruded into the right broad ligament.

The exit of the products of the foetal decomposition at the umbilicus was not intelligible to me till I saw the marvellous frozen sections, made by Berry Hart, of a cadaver in which he found a well-advanced broad ligament pregnancy. Then this and the many other riddles were cleared up; but these had all better wait till I speak of the relations of the peritoneum as altered by the growth of a broad ligament pregnancy.

Let me speak of the abscesses opening by rectum, vagina, and bladder more in detail.

In all of these the history helps but little, for the story is seldom more than that of obscure pelvic trouble ending in an abscess bursting and continuously discharging into the rectum, and it is not till the arrest of some sharp spicula of foetal bone in the anus declares the true solution that the nature of the case is discovered. Most of these women suffer severely till the abscess bursts, and then they are able to get about at times, though on the whole they lead invalid lives. The mortality is doubtless quite what it is asserted by Parry, though I never saw a fatal case. All that have come under my own care have been easily cured by the complete emptying of the sac.

The cases where the abscess has burst through the vagina have histories very much as in the former case, and they certainly suffer less, and the cure is easier still. Quite lately a woman came to my out-patient department with the remains of a foetal

femur sticking out of a hole just behind the cervix, and to the left. I enlarged the opening, took out two or three teaspoonfuls of debris, and she was cured within a month. Parry tells us that under exceptional circumstances the contents of extra-uterine fœtal cavities may make their way to the surface by a fistula through the perineum, and he quoted Dr. Yardley, of Philadelphia, as having recorded an observation of this kind. Such an occurrence would clearly form only an extension of their method of extrusion by the vagina, the walls of the vagina and bladder being separated by the advancing abscess, and the opening taking place as low down as it could in the perineum.

In the cases when the discharge is into the bladder the story is very different. Parry says it is much more fatal than discharge in other directions; and I think this is very likely, for in addition to the pelvic abscess we have the very serious complication of cystitis, leading to pyelitis and abscess of the kidney, a complication I certainly have not seen, but one which is, on a priori ground, very probable. But the mere sufferings of the patient, greatly enhanced by the formation of phosphatic concretions, would alone be enough to increase the mortality.

Curiously enough I have never yet seen one of these cases in its early stage, though I have for long expected to come across them, because it has been my habit for years to deal with all pelvic suppuration by abdominal section. By this method I get results far more rapid, complete, and permanent than in any other way, and doubtless some day I shall have the experience of opening a suppurating fœtal cyst before it has made its external opening. As I have said, I have opened one from above after it had already made its own way into the bladder, and with a brilliant result, for the patient was cured at once after years of suffering. But the case does not reckon as one of abdominal section, as I did not open the peritoneum, and by the definition I have adopted; and have illustrated and defended elsewhere, this is necessary to constitute an abdominal section.

I feel quite confident that if these cases were dealt with by opening from above in their earlier stages, much of their mortality would disappear, and the patients would be spared years of suffering. I would treat them as I do pelvic abscesses, and if the peritoneum were opened I should close it in my usual fashion, by stitching the opening in the walls of the cavity of the broad ligament to the opening in the parietal peritoneum (see pelvic abscess), after emptying the decomposing debris and cleaning out the cavity. I have now done over fifty operations of this nature, and not only has there been no mortality, but the cures have been so rapid, complete, and permanent as to give me perhaps more satisfaction than almost any other class of my work. I have said nothing about the differential diagnosis of broad ligament abscesses

originating in the deaths of ectopic ova, because I hardly think it possible till bones are found in the discharges, and then of course it is easy enough. Before this has happened I have had no experience of them, as I have said, when I do have I shall certainly not trouble about the differential diagnosis, and the want of it will certainly not delay my interference for an hour, for my rule is to get pus out of the pelvis as soon as I am satisfied it is there.

The death of the foetus may occur, as I have said, up to any time of foetal life, and if suppuration of the foetal cavity occurs there can be but little variation in the processes, or in the proceedings required for their relief. Of course the larger the foetus the greater the trouble, the more urgent need for interference; and the larger the foetus the greater the possibility of the sac bursting at the umbilicus, an accident to be afterwards discussed.

Now we come to the later stage, and the last division of my subject, the minority of the minority of cases, where the ovum survives and grows towards the full time.

During this process of growth the secondary rupture of the broad ligament sac may take place, and prove fatal, as in the case recorded by Nonat, Bernutz and Mathews Duncan. Such an accident would give rise to alarming symptoms, similar to those observed in primary rupture, and so far as we know from a few recorded cases, the accident would be quite as fatal. One case of such a rupture has been recorded which was not fatal, and in which the child was removed, and it forms an instance perfectly unique in the history of ectopic pregnancy, for the child was absolutely free in the peritoneal cavity, not encapsulated by cyst. Mr. T. R. Jessop, who records the case, puts it among what he calls, quoting the text books, the "abdominal variety." If he had said intra-peritoneal variety his language would have been more accurate, but as a matter of fact it stands by itself, and may therefore be known as *the* case of intra-peritoneal ectopic gestation. Fortunately no post-mortem was necessary, but it is perfectly clear from the history, that about the tenth week she had a "rupture" and that this was tubal is, in my belief, quite certain. If the pregnancy had ruptured its way into the peritoneum it would have been at once digested; for I am certain, from what I know of the digesting powers of the abdomen, no gelatinous foetus of the tenth week could resist them. I interpret this case then to be one where a broad ligament pregnancy on the right side went on till the seventh or eighth month, and that then a secondary rupture of the broad ligament cyst took place, the child escaped into the peritoneal cavity, and continued its life amongst the intestines, its tissues having arrived at a period of development by that time which enabled them to resist the efforts of digestion which doubtless would be directed towards them. The ruptured cyst

would contract and disappear towards its edges, and the placenta was found where it is found in the great bulk of broad ligament cysts, plastered over the pelvic contents.

The following is an abstract of the case :—“ M. C., aged 26, has enjoyed fair average health up to the commencement of the illness. In March, 1869, she gave birth to an only child, after a labour in all respects natural, and, having weaned the child, she menstruated with moderate regularity up to 1874. From the beginning of January, 1875, her menstruation ceased, and she believed herself to be in the family way, early in March she was about two months pregnant, whilst washing she was suddenly seized with violent pain in the right side of the belly, which caused her to faint, she was taken to bed, and her ordinary medical attendant was sent for, she was suffering from violent pain in the abdomen, with swelling, vomiting, retention of urine, and high pulse, and for two months she was confined to bed, suffering from abdominal pain, sickness, and loss of appetite. Towards the middle of May she began to feel the movements of a child, and at the same time noticed a hard swelling in the lower part of the abdomen, towards the right side. On the 13th August Mr. Samuel Hey and Mr. Clayton in consultation determined the existence of an extra-uterine living foetus, and she was taken to the Leeds Infirmary, under Mr. Jessop, the same day. The abdomen was throughout distended. At the umbilicus and below was a large rounded prominence, which gradually sloped off towards the ensiform cartilage, and terminated inferiorly somewhat abruptly in a hollow, which was bounded again by a lesser prominence immediately above the pubes. On a closer examination the umbilical prominence presented the characters of a child's breech; the cleft and the two buttocks were distinctly traceable through the thin abdominal walls, and extending upwards in a straight line towards the sternum the little prominences of the vertebral spinal processes were plainly perceptible. Above the pubes two feet could be made out, and above the umbilicus, immediately below the ribs, it was not difficult to map out the outlines of the two scapulae. The rapid beating of the foetal heart could be most distinctly heard towards the right side above the umbilicus. The breasts were enlarged and the areolæ were fairly developed.”

“ On examination, per vaginam, the uterus felt somewhat enlarged, and on measurement by Simpson's sound its cavity was found to be $2\frac{1}{2}$ inches in length. The uterus remained motionless, whilst the abdominal contents were swayed from side to side. On several occasions the movements of the child were plainly visible, and indicated considerable vigour. After repeated careful search we were unable to satisfy ourselves of the presence of a placental souffle. The diagnosis of extra-uterine gestation seemed complete. The woman's condition was becoming extremely critical. Under

these circumstances it was decided to remove the child by abdominal section. With the full concurrence of my colleagues, I accordingly proceeded to perform the operation at 12.30, on the morning of the 14th of August."

The patient having been placed under the influence of ether, and the bladder emptied of urine, an incision six inches long was made through the linea alba, with the umbilicus at its centre. The abdominal wall was unusually thin, but more vascular than common; and the peritoneal lining, though natural on its free surface, appeared thick and velvety on section. Immediately upon the completion of the incision the breech and back of the child, thickly coated with *vernix caseosa*, came directly into view. At the upper part of the wound the omentum was seen lying like a cape upon the child's shoulders, and inferiorly the funis, of natural appearance, passed transversely across the wound, and was traced round the external aspect of the left thigh of the fœtus to its attachment at the umbilicus. The child was in a kneeling position, its breech presenting towards the mother's navel; its head, folded upon its chest, buried beneath the omentum and transverse colon; the soles of its feet pointing towards the pubes, and its knees resting upon the posterior brim of the pelvis. . . . Its removal was readily effected. The funis was tied and separated in the usual manner, and the child was handed over to the custody of two gentlemen previously appointed to look after its well-being. . . . It was now seen that the gestation had been of the "abdominal" variety; no trace of cyst or of membrane could be found. The child had lodged in the midst of the bowels, free in the cavity of the abdomen. A few bands of unorganized lymph of a very friable nature lying upon, but not adherent to, intestines, were readily removed by sponging, and about an ounce of a clear serum was found in the peritoneal cavity. On tracing the umbilical cord, the placenta, having a larger superficial area than natural, was seen covering the inlet of the pelvis, like the lid of a pot, and extending some distance posteriorly above the brim, where it apparently had an attachment to the large bowel and posterior abdominal wall. Near its centre was a round prominence, which seemed to correspond with the swollen fundus of the uterus beneath. Great and especial care was taken not to cause the smallest disturbance to its connections. The placenta was indeed left untouched. On the 29th of October the wound is reported as quite healed; and three weeks later she returned to her home. From that time to the present she has kept in good health.

Menstruation commenced about a month after she left the infirmary, and has recurred at regular periods ever since. The child was as healthy, vigorous, and large as an average child born in the natural way; and it continued to thrive well

until July, 1876, when, after a week's illness, it died of croup and inflammation of the lungs at the age of eleven months."

I have placed this case by itself, because it is the only one of its kind, and the only one which, after critical investigation, will admit of being termed "abdominal," or intra-peritoneal pregnancy. Certainly those quoted by Parry will not do so, and I have met with no others.

Another somewhat similar case is published in the *Die Krankheiten der Tuben*, by L. Bandl and is to be found in Tarnier and Budin's book, and is as follows:—"In the case reported by this last author in a multipara examined several times, he diagnosed extra-uterine pregnancy. The child was living and arrived at full time. The patient refused gastrotomy; phenomena of false labour, and expulsion of the decidua occurred, and some symptoms of peritonitis having supervened, she succumbed. He immediately performed laparotomy; the child, who weighed 3,800 grammes, was extracted alive, but it only breathed three times and died. The following day, at the autopsy on the mother, they found in the abdominal cavity about 2,500 grammes of thick fluid, but nowhere could they discover the foetal membranes. There existed, however, a pocket which enclosed the foetus on all sides, but the walls of this pocket were formed by false membranes about four or five millimetres thick, and which hid the anterior, posterior, and lateral abdominal walls, the small intestines, the ascending colon, the descending colon, etc. On the internal surface of the pouch were a certain number of threads, some thick and some thin, which extended from one wall to the other. A mass which comprised the placenta in its thickness lay in part on the internal iliac fossa, and penetrated into the little basin on the right side. Some very dilated vessels, being the size of a raven's quill, were very close to this placenta. The umbilical cord, part of the foetus, formed a handle round the uterus, and penetrated by a circular orifice, which was a centimeter and a half in diameter, into a cavity of which the walls were smooth; the foetal surface of the placenta limited this cavity, into which the finger could easily penetrate. Outside the opening round the cord were prominences of wrinkled ovular membranes of a yellow-brown colour, and dating from the first months of the pregnancy. Here the evidence of the remains of the broad ligament cyst clearly point to the occurrence of secondary rupture."

Under the circumstances of Jessop's case nothing could have been easier than the diagnosis, though there is one source of error which I have met with several times, and no authority, Parry excepted, makes any allusion to it, so far as I know. At page 103 he says:—"I have met with an example of thinning of the abdominal walls a few years since, which was exceedingly puzzling. I was asked by Dr. E. W. Watson to see a young woman, to decide

the nature of an abdominal tumour, which was the size of a seven and a half or eight months' gravid uterus. Upon making pressure upon the enlarged abdomen a foetus was felt receding from beneath the finger, against which it immediately rebounded. It was so superficial in its situation that it appeared impossible to believe that there was anything more than the skin of the abdominal wall interposed between the fingers and the child."

It is clear that in such a condition we must have not only a "thinning of the abdominal walls," but a want of development of the uterine tissue; and a few cases in which this arrest of development was so remarkable that the walls were no thicker than a single fold of a towel, forms a part of the curiosities of my experience. In one case in the practice of Mr. Langley Brown, of West Bromwich, we found a very thin uterus extremely retroverted. In the others the conditions were those of extremely thin walls, with some kind of displacement, as latero-flexion or retroflexion, and in these patience always solved the doubts. If I met with a case where any urgent symptoms existed, I would not hesitate to use the sound or use my dilators if necessary; for the worst that could happen, in the event of mistake, would be a premature labour.

This condition of extreme thinness of the uterine walls, in a pregnancy perfectly normal in every other respect, is a point which has not yet received the notice it deserves. It is, however, of sufficiently common occurrence to be a source of difficulty and danger, and therefore I propose to say here what I have noticed about it, in the hope that it may draw the attention of someone engaged in obstetric practice who may be able to investigate it more fully. I can now recall eight cases in which I have been consulted concerning a supposed extra-uterine pregnancy, yet in which there was only an extreme thinness of the uterine walls. I have no record of three of the cases, but of the others I have more accurate data than mere recollection. The features of all of them had much in common, and the known histories of four quite establish this. The ordinary symptoms of pregnancy were present in all of them, and in only one was there any doubt as to its existence. The question generally was, Is the child in the abdominal cavity? and sometimes I had great difficulty in persuading the gentlemen who brought the patients to me that the position of the child was normal. Save in one case—that seen by me with Dr. Whitwell, at Shrewsbury—there was a marked absence of the liquor amnii, so that the movements of the child could be seen and felt in a most striking manner. In the pelvis the finger came upon the presenting part of the foetus, as if it lay immediately under the mucous membrane; and it was only on very careful investigation that the attenuated cervix uteri could be made out, spread over the body of the child.

These cases were, with one exception, all under the seventh month. In the eighth and ninth months the walls of the uterus thickened, the quantity of liquor amnii increased, and the cases terminated in perfectly natural labours. The exceptional case I have seen within the last few days, and the pregnancy had advanced well into the eighth month. Vaginal examination makes it quite clear that the pregnancy was intra-uterine, whilst from the appearance of the abdomen alone the conclusion would have been inevitable that the child lay amongst the intestines.

These facts were given to me in connection with Mr. Langley Browne's case, also with a case which was watched by Dr. Hill Norris, and attended by him in her confinement. In Dr. Whitwell's case there was a large, thin-walled cyst, through which the child could be felt with the most astonishing distinctness, and it floated about as if it were perfectly free in the abdomen. He wrote to me afterwards that "the patient went on very well, that some time before the expiry of gestation the foetus became much more a fixed body, which undoubtedly showed an increased thickening of the walls of the uterus, as well as enlargement of the foetus, and that her labour was quick and without any subsequent hæmorrhage."

The other conditions with which extra-uterine pregnancy may be confused, before the death of the child, are (*a*) displacement of the normally pregnant uterus during the early months of pregnancy, complicated with fibro-myoma or cystic disease of the uterus; and, more rarely, (*b*) pregnancy of one-half of a double uterus. In a case which I saw with the late Mr. Ross, of Wakefield, I diagnosed either extra-uterine gestation or a double uterus with pregnancy of one side, and it turned out to be the latter. Frequently we have considerable lateral displacements of the normally pregnant uterus, especially in unmarried women, sent to the specialist as something very different to what they really are.

But it is in cases seen after the death of the child, or at least when the time of the expected confinement has passed so long that if there is a child it is sure to be dead, that our most serious difficulties in diagnosis are met with.

The first point to consider is the history given by the patient of her supposed pregnancy, and the events which occurred at and after the time of her expected delivery. It is somewhat remarkable, and I think it is in favour of the views of the pathology of tubal pregnancy which I have advanced, that the majority of the instances of this abnormality occur in women who have not borne children previously, or in those who have had no children for many years. This point in the history of the patient is therefore always noteworthy. The other matters requiring careful consideration are the sudden arrest of the menses, the gradual increase in size, the occurrence of symptoms of labour at or about the end of

the ninth month, *and the subsequent diminution in size.* Of all those points, the last is the only one having the importance of a sign; but it must always be born in mind that no history, however complete, is of sufficient weight to establish a diagnosis unless there be some distinct physical signs in support of it. This I lay down as a rule based upon a remarkable experience, which I published in detail in the "Transactions of the Obstetrical Society of London" for 1874. In this case I had diagnosed double ovarian tumour, but was completely misled by a subsequent history which the patient volunteered. This was to the effect that just three years before she had believed herself pregnant, because her menstruation had ceased for eight months, her abdomen had slowly enlarged, and so had also her breasts. She was also quite sure that she had often felt movements, and, indeed, had all the feelings that she had experienced in each of her seven pregnancies. One day, when walking in the street, she was seized with pains, exactly like labour pains, and these lasted for four hours. At these pains she felt no surprise, fully believing that she was in labour. She felt as if a child was about to pass from her, and was aware of the "swelling pressing downward." She afterward felt this "pass back into the belly," the pains ceased, and her size remained unaltered. At this false labour there was no discharge. Up to the time when I first saw her she is quite certain no diminution of her size had ever occurred, and that there had been very little increase, if any.

The physical signs of the case were those of multilocular disease of both ovaries, and on them I need not dwell. I found it was so when I operated, and the operation was successful. The lesson of the case is that we should place very little confidence in the statements of patients, if they are not in harmony with physical signs. I must plead in extenuation, that I never saw a woman farther removed from any taint of hysteria, and, being an illiterate woman, there could have been no cramming up of symptoms from books. The strongest points in her story were the arrest of menstruation for eight months, and the very complete narration of the phenomena of labour, and on these points I had corroboration of her statement.

This singular imitation of the process of labour is a striking feature in most of the cases in which an ectopic gestation is carried beyond the normal period, and seems thus to indicate the conclusion that the initial mechanism of labour is not in the uterus, as generally supposed. It was first noticed in 1652 (Phil. Trans., Vol. V.) by Vassal and has been constantly alluded to by writers recording such cases, one case being given in the Memoirs of the Medical Society of London in 1789, when the spurious labour went on eight days, and then abdominal section was performed. The child was dead, and, as the placenta was

unfortunately removed at the same time, the patient died in four hours. Campbell gives a great deal of curious information on this point* as on others, and he especially emphasises the records of cases where there has been a "show" and separation of secundines. It is also worthy of note that he gives a long list of records where it is especially noted that up to the occurrence of the false labour no trouble of any kind was encountered by which the patient was led to suspect that there was anything wrong. The gestation in the case which I am now discussing, which led me astray as much as anything, was the suppression of menstruation, and the digest of the records made by Campbell on this point is worth quoting at length to show how little trust can be placed in histories. "In many instances of the different varieties of misplaced gestation, the catamenia are suspended; frequently, however, they appear regularly in each of the early months; in some cases they flow at uncertain periods; and in other examples they are either profuse, or limited in quantity. In many cases, at an uncertain period of gestation, we have hæmorrhage, uterine effusions, the extrusion of coagula, of bodies which resemble moles, or portions of the placenta. These appearances have occasionally led to the belief that the patient has actually aborted, so that the ovum was originally not extra- but intra-uterine, and had escaped through a rent in the uterus into the peritoneal cavity, the extruded body in either case being viewed as the placenta. Cases attended with much uterine excitement, whether arising from unusual exertion, or some external injury, are the most likely to be accompanied by these latter phenomena." (p. 104.)

The weak points in the story of my case were those I did not attach sufficient weight to, and they were those alone on which we ought to place any reliance whatever. They are that she had no "show" during the false labour, and that her size did not diminish after it. Having now almost exhausted, I believe, the literature of the subject, I am satisfied that these two circumstances are invariable in extra-uterine gestation which has gone past the period. The first is due to the general excitement and congestion of the organs involved, specially to the enlargement of the uterus, which is always present to some extent; and the second, to the absorption of the liquor amnii after the death of the child. The complete arrest of menstruation during the period corresponding to normal pregnancy is far from being a constant condition. But even though it were like its accompanying signs, such as

* For once (p. 120) Campbell indulges in a piece of criticism based on a wholesome scepticism concerning the utterance of "a veteran practitioner," who I suspect was Hamilton. He says:—"Those of the profession who have been led to bestow some share of attention on the subject under consideration, will excuse me from entering my dissent against the dictum of a late veteran practitioner, who imagined that there was something so characteristic in the mere moans of the patient, that it would be sufficient for the medical attendant to hear them once, to enable him to pronounce any future case to be one of a certain variety of extra-uterine gestation."

enlargement of the breasts, darkening of the areolæ, increase of Montgomery's tubercles, malaise, vomiting, etc., it would help us to do little more than suspect a pregnancy. Sometimes there is metrorrhagia, due to the large size and empty condition of the uterus, a symptom which would incline us to the diagnosis of uterine myoma. Parry has fully investigated this point in the numerous records he has collected, and tells us that "the uterus, except in some rare instances, undergoes striking alterations, both in its structure and volume. Its developement has been found to vary from twice the size of an unimpregnated organ to the volume which it is known to attain when gestation is four months advanced."

After the death of the child, auscultatory signs cannot, of course, be made available; though in one of my cases, where the child was clearly dead, the placental sound was heard at my first visit, but had disappeared entirely at my second, ten hours afterward—a set of signs which tended to confirm my diagnosis.

The invariable condition of the uterus in extra-uterine pregnancy, whether before or after the death of the child, is that it is intimately associated with the tumour, generally in front of it, moveable to a limited extent, always enlarged before the death of the child, and remaining so afterward if the placenta be attached, as it generally is, to the posterior surface of the fundus. The most important point is that the cervix is always quite open—in my cases almost admitting the finger. Under such circumstances, if a fetal heart is audible, the case is clear. If not, then the character of the tumour must be taken carefully into account. If the case is seen soon after the death of the child, the tumour will be soft, more or less obscure ballottement will be felt in it, and possibly a part of the child may be made out by rectal, vaginal, or supra-pelvic examination. It is at this stage the great difficulties in diagnosis are met with, and Parry has so well summed this up that I cannot do better than reproduce what he has said on the subject:—

"If the patient is not seen until after the death of the child, the diagnosis of an extra-uterine pregnancy may be very difficult. Many years may have intervened before the woman comes under notice. Of course, if the cyst has opened into the bladder, bowels, or vagina, or a fistula has formed through the abdominal walls, there will be little or no trouble in arriving at a correct conclusion. Difficulty will arise only when the cyst has not ruptured, or, having opened into the bladder or into the rectum out of reach, it has not discharged any of its solid contents. Under these circumstances, a correct conclusion can be reached by carefully sifting the clinical history. No point is too minute for examination. As a rule, it will be found that all such women have a firm conviction that they were pregnant when the abdominal tumour

made its appearance. Though more than a score of years may have passed, they will not have abandoned the idea that they still carry a child somewhere in the abdominal cavity. Such women will nearly always give the history of labour at or near term, attended with uterine hæmorrhage, and followed by the secretion of milk; after which they will assert that the abdomen diminished in size, and that this diminution steadily continued until the tumour reached the dimensions presented when the patient comes under observation. This association of phenomena is very characteristic, and when they are all present, erratic gestation should always be suspected. The diminution in the size of the abdomen after labour is a most important symptom."

After the absorption of the liquor amnii, the character of the tumour in extra-uterine pregnancy alters very much. The uterus may become smaller and more mobile, and parts of the child may be felt, especially in the rectum, such a sign at once pointing out the nature of the case. These prominences, and likewise the "bosselures," or knobs of the hands and feet, which are often felt above the pelvis, may be closely imitated by the small nut-like cysts of small ovarian tumours, and especially by the hard irregularities of dermoid cysts. These resemblances existed in the case I have narrated above to a considerable extent, but to a very much more marked degree in another patient, where I removed both ovaries—one dermoid—but where the resemblances, fortunately, did not lead me astray. If the cyst be packed down in the pelvis, the deception may be great, and nothing but an exploratory incision will clear up the case. I would strongly recommend that, in such cases, the aspirator should not be used. In a joint, or in the pleura, where the conditions between which diagnosis has to be made are limited in number, this instrument is doubtless of great use, as it is for treatment as well. But in the abdomen and pelvis it is very different. The aspirator may tell you a tumor contains serum, blood, or pus, but that helps you but little as to the seat of the disease, and nothing at all as to its treatment. Besides, the risk of the aspirator is great, quite as great as the risk of an abdominal section. The use of the aspirator in my special line of practice is therefore diminishing, has almost disappeared, and in all cases of abdominal tumor where there seems a reasonable prospect of doing good to the patient, I open the abdomen and make out the condition. I have never had to regret this practice, and I very often have had reason to be pleased with its results. Parry's evidence on this point is so strong and important that I quote it at length to strengthen my position:—

"In cases of doubt, the fœtus being dead, the trocar has been used to draw off some liquor amnii in order to confirm the diagnosis. Unless it has been decided to operate immediately for

the removal of the fœtus, the use of the trocar is utterly unjustifiable. A few, but very few women have long survived its use. Mr. Jonathan Hutchinson, in a clinical lecture upon this subject, says that this practice "is in itself attended by great danger, nor shall I deal honestly with you or myself if I do not candidly admit that, with due care and patience, I do not think that paracentesis ought to be necessary in a case of fœtal tumor simulating ovarian dropsy." Mr. Hutchinson reached this conclusion after having been so unfortunate as to see fatal peritonitis follow the use of the trocar in his hands. Dr. Cardeza's patient was tapped after consultation with Dr. W. L. Atlee, of Philadelphia, on November 19th, and the latter gentleman performed gastrotomy five days later. As soon as the cyst was opened, "there was a rush of offensive gas." Jordan used the aspirator for diagnostic purposes, the woman, there is every reason to believe, having no bad symptom at the time. She was given chloroform, the puncture made, and two hours after "complete collapse came on." Speaking of the use of the aspirator under these circumstances, Dr. Jordan remarks: "The doubts cast on my diagnosis, and the variety of opposing views in regard to the nature of the case, which unfortunately resulted in the use of the aspirator, were nearly the cause of the patient's death."

Slow-growing cancer of an ovary, or in the neighbourhood of the uterus, especially behind it, might be difficult to diagnose by physical signs from extra-uterine pregnancy of long standing, but the history would here greatly help us. The increase would probably be steady, and if a rapid accession to the growth took place, a temperature chart would settle the difficulty; for the only condition which could induce rapid increase of the cyst of an extra-uterine pregnancy is suppuration, and this would tell its story on the chart in lines that could not be mistaken. The history of the case would probably help, but it might just as easily lead one astray, as in the case I have detailed. I once saw a very eminent obstetric physician attack an abdominal tumour which, from the history mainly, he had assured himself was an instance of ectopic gestation gone beyond the full time. He asked me to examine the case and give an opinion, but as the physical signs were in no way distinctive from those of a large uterine tumour, certainly not myomatous, I said I should depend more upon the exploratory incision than upon the history. The event proved that the history was entirely fallacious, for the tumour was a mass of cancer of the omentum, adherent to and involving everything.

After the liquor amnii has been absorbed, and the contents of the ovum cyst consolidated, the relations of the mass to the uterus and the other pelvic viscera are made so close by the placental connections, that the physical signs never can be very clear, and therefore, alternative diagnosis of fibrocystic tumour of

the uterus must be the refuge of uncertainty.* But an exploratory incision will clear up all doubt as to the diagnosis, and at the same time it will put the operator on the road to the proper method of treatment.

After the diagnosis of a case of extra-uterine pregnancy has been satisfactorily determined, the question arises, What is to be done with it? If the child is still alive and near the full term, I believe it to be our duty to operate. If the child is dead, the propriety of operating seems to me quite evident, though it has been disputed by so eminent an authority as Mr. Jonathan Hutchinson. Of course no strict rule can be laid down, and each case must be decided on its own merits; but the records of surgery are so full of instances of the risks which such cases have to run when suppuration of the sac occurs, as it almost always does some time or other, that I think we are in most instances justified in operating. Moreover, the surgical principles on which the operation is to be conducted are now so well established, and its results are so good, that the opponents of the operation seem to me to be in a very illogical position if they still continue to advocate certain other surgical proceedings, of which the results are notoriously bad.

Of late years much discussion has turned on various forms of treatment designed to obviate the necessity for surgical operations, and in the arguments used to support them, an altogether new and I venture to think, a very immoral element has been introduced. It is to the effect that if the child is alive the proper thing is to kill it in the belief that the infant's sacrifice is the mother's safety. I am no theologian and this is hardly the place for a discussion on morals, but I am bound to say that this seems a most mysterious kind of belief, and it would put legitimate practitioners of medicine quite on a level with abortion-mongers and reckless craniotomists. Certainly I will have none of it, the more that the men who urge it happen, commonly enough, to be notoriously unfortunate in all their surgical efforts, belonging generally to the hybrid class of obstetric physicians.

If the death of the child did bring the mother safety, something might be said for the proceeding, but nature kills the child in the vast majority of instances of ectopic gestation, as we have seen, and safety is thereby brought to a mere fraction of the cases, as Parry

* Writers of "library papers" and other inexperienced persons talk so lightly of diagnosis in pelvic and abdominal troubles, and so assuredly of the accuracy of their diagnosis, that I am disposed to ask those who are passing through those stages of their professional existence to read the following extracts on the subject of the diagnosis of ectopic gestation:—

"Although from the careful perusal of numerous histories of cases of this nature, some degree of facility of distinguishing their presence may be acquired after a certain period of their duration, and of deciding even, in occasional instances, on the particular variety of such pregnancies, yet assuredly every practitioner who has attentively studied the subject, must admit the distinction to be a task of no ordinary difficulty.—*Parry*.

"Telle est l'obscurité du diagnostic, après l'exploration du col utérin, que les Baudelocque, les Oslander, les Dubois, etc, n'ont jamais osé, au milieu des incertitudes qu'il laisse, entreprendre, au terme de neuf mois, l'extraction de l'enfant. *Archives Gener.* Vol. xxvii, p. 211."—*Lesouef*.

has proved. Puncturing the ovum sac with needles, medicated or galvanic, is therefore an immoral and dangerous proceeding, which ought to have professional condemnation. Parry is of opinion that all measures that necessitate wounding the cyst without removing the child are not without danger to the woman, and that the question to determine is whether the risks of such a therapeutic measure, though they may be grave, may not be less than those which follow when the accident is abandoned to nature. This is a fair way of stating the case, certainly at the time Parry wrote (1874) it was a very advanced kind of statement, but now we can speak with far greater certainty. He himself says in this very passage that future experience must settle the question. I venture to think that my own experience settles the question in favour of surgical interference in ectopic gestation at the time of primary rupture. I think there is no appeal against the decision to cut down and tie the bleeding point. No acupuncture, simple or medicated, and no electrolytic charlatanry will save a woman who has a vessel bleeding into the peritoneal cavity. If the child survives that rupture it has a legal and a moral right to its life, and ought not to be deliberately killed as has been done by Dr. Braxton Hicks and Dr. Aveling. Parry says of this case, narrated by the former authority:—

“The observation of Dr. Hicks is more important, since it involves less speculation. This case has already been alluded to. The patient died, when four months pregnant, of internal hemorrhage, the result of an attempt to destroy the foetus by puncturing it with a trocar. About a fortnight before her death she had some symptoms of rupture, but these were not distinctive. At the post-mortem the cyst, which had originally contained the ovum, was found ruptured; and outside of it, having formed new connections, was the perfect ovum with its placental attachments, on the side opposite the opening into the cyst and to the posterior surface of the uterus.”

In Dr. Aveling's case both mother and child had survived the primary rupture, and the ovum was going on developing in the broad ligament. Beyond the fact that an ectopic gestation was diagnosed by Dr. Aveling, and was even made clear by him to Mr. Spencer Wells, there was no reason apparent for interfering. If the case had been carefully tended up to the viable period a living child might have been removed. Instead of this the child was killed by galvanism, and that seems to me a wrong thing—a far more immoral thing even than “spaying.”

One of the most recent cases in which electricity has been used for the purpose of dealing with an ectopic gestation is that reported by Dr. Buckmaster, of Brooklyn, in the *Medical News*, July 21st, 1888, and this case is so characteristic that it may serve as a type against which criticism can be easily and justly directed.

Dr. Buckmaster asks three questions in connection with his case, of which the first is: "Was the diagnosis of extra-uterine pregnancy warrantable?" and in reply there can be no doubt at all, for the description that he gives of the accident which occurred to the patient about the ninth week of pregnancy is essentially characteristic of tubal rupture—"She suddenly felt a violent pain in the 'pit of the stomach,' heard a ringing noise in the ears, and fainted. She lay on the floor groaning, and did not have strength enough to call loudly for assistance. She was found in this condition by her husband and removed to her bed. It is said that her face was very pale, and she fainted at each attempt to sit up. She was very thirsty, and 'thought the doctor cruel' in that he did not permit her to drink all the water she desired."

The second question is: "Was the child living when the electricity was first applied?" and then Dr. Buckmaster gives a categorical reply in the affirmative, when really it is a matter open to the greatest suspicion. I think in all probability from the details of the case given that the patient was suffering from a hematocele of the broad ligament, due to the rupture of the tubal pregnancy, to such an extent that the ovum had been destroyed, and that if she had been left alone the absorption of blood would have taken place without the violent influence of the electric current, just as generally follows when the electric current is not applied. Further, he describes the tumour as not only decreasing in size but changing in character, losing its elastic feeling on account of the absorption of the fluid contents. But supposing the child had not died, his third question comes up for discussion: "Is the uninterrupted current the best means for destroying the foetus?" and to this I reply, What right had Dr. Buckmaster to destroy the child at all? There can be no doubt from the very clear description given that the pregnancy was in the broad ligament. "An ill-defined mass, elastic to the touch, was distinctly traceable on the right side. Vaginal examination showed that the uterus was crowded forward toward the pubes, and that it was somewhat enlarged and softened. The sac of Douglas was occupied by an elastic mass in which fluctuation could be detected, and which felt not unlike a small ovarian cyst, and seemed to be part of the tumour felt in the right iliac region, from which the uterus appeared free."

After carefully considering the different methods for destroying the foetus, none of which seemed altogether satisfactory, Dr. Buckmaster continued to use the galvanic current uninterruptedly, but he gives no justification whatever for his determination to destroy the child. All the severe symptoms had disappeared, the patient was suffering from nothing but slight discomfort and the unfortunate fact that Dr. Buckmaster had diagnosed an ectopic gestation. If the case had been left

alone a living child might have been the result, for there can be no doubt whatever that it was an extra-peritoneal pregnancy, which, if there really was a living child, would have gone on precisely in the way to be described hereafter. Then, finally, Dr. Buckmaster tells us that three months after the electric treatment the patient still had left a hard mass, which could be felt on making a vaginal examination, and that there was a slight tenderness about it, in fact the physical condition of the patient was precisely that in which he found her, except that the mass had diminished in size, it still remained there, a source of danger, and in all probability will some day suppurate. Certainly three months is far too short a period on which to base any conclusions for the safety of the treatment, even supposing that he achieved the result which he says he desired in killing the child. My own belief is that he did not do so, for the method which he employed is one which could not by any means be applied with safety to the child, and the strength of the current was not such as is likely to be fatal to anything at all.

In Dr. Buckmaster's papers there are two other points upon which some criticism might be directed. In the first place he credits Dr. T. G. Thomas with the belief that the electrolytic treatment has these great advantages, if any error of diagnosis has been made, it will do no harm, and if the diagnosis be correct, experience proves it to be sufficient.

My answer to such statements is this, that it is by no means clear from experience which we have had in this method that the electric current is without harm, whether the diagnosis be correct or not, and it is equally without proof that it is sufficient to produce the effect desired. Further, Dr. Buckmaster says on his own account, that cases will undoubtedly appear, as the literature of the subject expands, in which, after cutting into the abdomen, it will be found impossible to complete the operation. I say from my own experience that this is absolutely inaccurate, it may be impossible for the immediate operator in certain cases to complete the operation, but the rule ought to be that all such operations should be completed, and any man who has such want of pluck and skill as to stop in the middle of one of them ought not to attempt them. They can all be completed. The second point is that Dr. Buckmaster says that "it has been claimed recently that the placenta continues to grow after the death of the fœtus, but as we have seen no corroborative evidence, it is not worth consideration at present."

As I am responsible for having first made a statement that I had seen the placenta growing after the fœtus had clearly been dead for some time let me here draw the attention of Dr. Buckmaster and others to the evidence upon which the statement is based.

In case number six the rupture had occurred apparently in the

tenth or eleventh week of gestation, and the placenta was lying in the midst of a quantity of clots, as a round mass the size of a cricket ball, for the most part in the wall of the tube, for when the tumour was removed the placenta was still adherent to part of its inner surface, and the pelvic mass was intact. On slitting it open, the ovum cavity was found to contain about a desert-spoonful of liquor amnii, but there was no trace of foetus at all.

As we have very frequent experience of this kind of incident—the growth of a large placenta, embracing a small ovum cavity without any, or with only very slight trace of a foetus, in the so-called uterine “moles”—we have no reason to do other than expect that they will occasionally occur in tubal pregnancy. As a matter of fact such was the state of matters in this case.

In case 19, when the foetus was found it was only about $2\frac{1}{2}$ inches long, and had evidently been dead for some considerable time, for it was partly digested. Whereas the placenta had grown to be quite as large as that of an intra-uterine foetation of four months, and it had been forming adhesions to intestine and omentum, giving rise to recurrent hæmorrhages, for which the operation had ultimately to be performed. Similar appearances occurred also in cases 24, 30, 32, and 37. At the meeting of the Obstetrical Society, at which Dr. Champneys read his case, Mr. Thornton gave testimony to the same conclusion, and in the first edition of the “Manual of Gynæcology,” by Hart and Barbour, published in 1882, there is the following evidence on this important question:—“Case of extra-uterine gestation, with death of the foetus, but continued growth of the placenta, which led to fatal hæmorrhage. A. B., æt. 24, had passed two periods without menstruating, and thought herself pregnant; three months ago she began to have irregular hæmorrhages three times a month, and in considerable quantity. The tumour was found in the pelvis, the vagina being compressed against the pubis, the cervix reaching about the brim, and the bladder displaced into the abdomen. The tumour was as large as a uterine pregnancy of $4\frac{1}{2}$ months. After a puncture of the cyst with an aspirator needle the patient died with symptoms of internal hæmorrhage, and on a post-mortem examination, by freezing the pelvis and cutting sections, the uterus was found to be $5\frac{3}{4}$ inches long, the fundus being 5 inches above the symphysis, and the cervix so drawn up that the fornices are obliterated. The gestation sac lay in the pouch of Douglas, and was chiefly occupied by the placenta. The cavity of the amnion contained but little fluid, and the foetus was about the size of a three months’ pregnancy.

The continued growth of the placenta after the foetus had died had led to fatal hæmorrhage.

In looking over the records of cases which have gone beyond the full period of gestation, I find numerous illustrations which

cannot be other than the growth of the placenta after the death of the child. No emphasis in any case is laid upon this fact, but the descriptions completely establish it. In a case mentioned by the first Mr. Samuel Hey, of Leeds, the patient went over the nine months with a false labour, and the child died. Three months afterwards the mother succumbed from the sufferings involved in the carriage of the ectopic gestation. The child was found to be fully formed, and showed no marks of decomposition. As the child had attained a size so unusual as to weigh nearly two pounds and a half, the cyst was supposed to be the right Fallopian tube, but the description makes it perfectly clear that it was the right broad ligament, together with the tube. The placenta in this case must have grown greatly after the death of the child.

Some of the facts which have been recently recorded in the application of electricity for the treatment of ectopic gestation are positively ghastly, as illustrated in the paper by Dr. Matthews Duncan in the Bartholomew's Hospital Reports for 1883.

Electricity was first tried in the form of an induced current as strong as the faradic coil in a Croxeter's combined battery could give. A carbon disc electrode in connection with the positive pole was placed over the tumour on the left side, and a gum-elastic electrode, with a nickel-plated end, was passed into the vagina towards the left side and connected with the negative pole. A current was alternately passed and withheld during periods of two seconds for about a minute and a half. A continuous current of forty modified Leclanché elements was then passed for a space of six minutes, producing slight vesication of the skin, and a rough dried surface in the vagina. The foetal heart was heard beating the same evening. On the following day two grains of morphia were injected into the amniotic cavity. An hour afterwards the mother began to feel drowsy and her pupils became slightly contracted. It was thought advisable to draw off the liquor amnii, which was done through the abdominal wall by aspiration, eight ounces being removed. The foetal heart still continuing to beat, Dr. Duncan, five days later, injected $\frac{1}{4}$ gr. of morphia into the *body of the fetus*, to the depth of two inches, at the spot where the foetal heart was heard plainest. The operation was twice repeated at intervals of two days, but without the desired result. It was decided now to try and destroy the foetus by galvano-puncture. Two insulated electrolysis needles were passed into the tumour for an inch and a half and connected with the negative pole of a battery composed of modified Leclanche elements, a carbon disc-shaped electrode connected with the positive pole being applied over the tumour externally. A current from forty cells of the battery was passed for six minutes with occasional interruptions. After the operation the foetal heart could still be heard beating, but more slowly. Four days later

Dr. Duncan, having heard the foetal pulsation, drew off the liquor amnii, with the aspirator, and then injected m. xij. of equal parts of water and liq. morph. hypod. into the foetus just over where the heart was heard. After this the foetal heart could not be heard.

The patient died two days subsequently. At the autopsy, twenty-six hours after death, the contents of the cyst were found very foetid, and the soft parts of the foetus itself were for the most part as if completely macerated, the bones being exposed. Almost all the internal organs were diffused in the surrounding fluid, or were diffluent. The heart was scarcely recognisable.

Such a record is positively discreditable to the art we practice, a series of ineffectual experiments were tried upon this poor mother and child, one after another involving fearful suffering and finally double death, when probably both lives might have been saved by following the ordinary rules of surgical proceedings.

If the ovum perishes between the period of primary rupture and the viable period and becomes a source of danger it ought to be removed, but if it can be nursed through the time till the end of gestation it ought to be saved by abdominal section. If the patient discovers herself only after the child is beyond the gestation period and dead, it ought to be removed for it is a source of perpetual risk. Quiescent lithopedia are far too rare and suppurating ovum sacs far too common and far too fatal for us to recommend such a risk to our patient. Parry sums up the question very well in the following passage:—

“After the death of the foetus, and the restoration of the normal condition of the system, the retention of an extra-uterine foetus is not incompatible with a long and useful life, but a woman is never free from danger while she is carrying an encysted child. Violent exercise, injuries, blows, strainings, and similar mechanical irritations may be the exciting cause of inflammation of the sac at any time. Hence, violent pain, with fever and evidences of inflammation following these, always demand a cautious prognosis.

“Depressing diseases, as any of the continued fevers, or local affections which introduce a profoundly typhoid condition, endanger the woman by impairing the nutrition of the cyst, and leading to destructive inflammation.”

The earliest case of abdominal section for ectopic gestation which has been found upon record, is that of Primerose, who operated in October, 1594. The history of this patient has become classical. She was twice pregnant with extra-uterine children—first in 1591, and again some time before 1594. The cyst of the first child opened spontaneously through the abdominal wall. The fistula was enlarged, and the child extracted by Jacob Noierus, a surgeon. This operation proving successful, Primerose removed the second child by abdominal section two months later. It is easy to imagine how he was led to perform the second and more

hazardous operation. Felix Platerus reported another successful case only three years later. After this we have found no indication that the operation was performed for more than a century. In 1714 Calvo reported a case in France, and in 1764 Bard another in America.—(*Parry.*)

Mr. John Bard was a surgeon in New York, and no one is known to have operated in that country before him. The patient was the wife of a mason, and the operation was performed several years before it was published, for Mr. Bard communicated an account of it to Dr. Fothergill, in a letter, which was dated on the 25th of December, 1759.

On January 14th, 1791, this operation was performed in America for the second time, the subject of it being a Mrs. Cocke, the wife of a Virginia planter. The operation which was done by Dr. William Baynham, a country physician, was entirely successful. The same gentleman operated with the same happy result upon a negro slave on February 6th, 1799. This was the fourth American abdominal section for the removal of an extra-uterine fetus. The third one was performed by Mr. Knight, and communicated to the celebrated Dr. Lettsom, by Dr. Mease, of Philadelphia, and published in 1795. Dr. Baynham's cases are well worth attentive study. They illustrate the intrepidity and good judgment so often displayed by the country surgeon, who, separated by long distances from his fellows, often has to act in the greatest emergencies without the counsel which he may earnestly desire. Almost a quarter of a century passed before the operation was repeated in America. On the sixth day of October, 1823, it was again performed by Dr. Wishart, likewise a country practitioner. The sixth American operation was performed on February 6th, 1846, by Dr. A. H. Stevens, of New York, a man who had all the advantages of a metropolitan experience.—(*Parry.*)

Sprengel, in his *History of Medicine*, vol. VII. p. 290, et seq. refers to the following authorities for cases of this nature, viz., Comax, a professor at Vienna, said to be the first who operated successfully for gastrotomy; Hector and Gassarus, both of Augsbourg; Soligen, who is said to have practised the operation repeatedly; C. Denys, a French Physician, who relates several cases of extra-uterine conception, followed by abscesses, from which fetuses were extracted; Runge a surgeon of Bremen, who operated on a woman in whose abdomen a fetus had been retained eleven years; Spaering a Swedish physician, who, with a lancet, opened an abscess, and from the lower part of the abdomen extracted a fetus of thirteen years retention; Breyer of Leipsic, and Weinhardt, both of whom operated successfully by gastrotomy; Professor Colomb of Lyons, and Professor Josephus of Rostock; both were unsuccessful.—(*Campbell.*)

Parry gives a number of tables which are intended to show the mortality of extra-uterine pregnancy reaching to and going beyond term, and submitted on the one hand to abdominal section, or left to nature, on the other. But it is perfectly clear that no tables of abdominal operations of any kind are of the slightest value antecedent to the year 1878, when the whole practice of abdominal surgery was revolutionized by the final discontinuance of the clamp in ovariectomy; and further, it is quite clear that the heterogeneous collection of cases of which rarely more than two are contributed to the list by the same operator, can have little or no value. In turning back over the records of the cases where the details are given, the great bulk of them have been operated upon when the patients were too far gone in illness, the result of accidental complications or suppuration of the sac, to give the collection any value whatever. The following are his conclusions. Of thirty cases in which gastrotomy was performed, or the breach dilated, twenty-eight patients recovered. In twelve cases of gastrotomy performed after the suppurative process was well advanced, ten of the operations were successful. Of nine women operated on, however, during the existence of fetal life, or soon after its extinction, the whole died.

If these conditions had to be accepted there would be an end of the discussion concerning the saving of the child. I, for one, would say no more about it, and willingly would adopt some means of destroying the fetus; or I would watch till it died, and then, after waiting awhile, I should remove it. Parry seems to have been greatly impressed with the belief that the fatality attending the removal of living children was due to the "puerperal state," and therefore he advised waiting till the child had been dead some time. In fact, he divided the operations into "primary" and "secondary" on this principle—a most mistaken one. That puerperal women are especially susceptible to surgical influences is true enough; but our recent experiences make me believe that it is only true that they are specially susceptible to the influences of bad surgery and unskilful operators. If, therefore, we have a proceeding based on sound principles and a skilful operator, I believe the puerperal woman has no more to fear from an operation than any others. My own experience in the Cæsarian operation and in the modern methods of amputating a pregnant uterus convinces me that this is so. I never succeeded in getting a woman through a Cæsarian section, and I concluded that it was the puerperal influence. But I know now that this conclusion was nonsense. As soon as I began to amputate the uterus all my patients recovered, and recovered easily, just as ovariectomies recover. I used to do the Cæsarian section merely to save the child, now I amputate the pregnant uterus to save both mother and child, and therefore I begin to look upon a man who does craniotomy as a person worthy of suspicion.

If this revolution has been effected about one puerperal operation, why may not the basis of scepticism be applied to Dr. Parry's tables and their conclusions? Further objections may be urged against them. First of all, the figures are too small for any just conclusion. Then the conditions of individual cases, when unearthed, are so dissimilar that they cannot with any justice be slumped together in tabular form. The great majority of the "primary" cases were operated upon "in extremis," whilst the secondary cases had been going on in chronic form, and were operated on by specially experienced men. Generally speaking, the cases of "primary" operations are only surgical curiosities of a somewhat horrible kind, and of no value whatever. Indeed, Dr. Parry practically admits all this about his tables, for he says (page 223), of the 62 cases tabulated in what he calls "primary operations" were performed for the removal of extra-uterine children, "30 lived and 32 died, a mortality of 51·61 per cent. It is doubtful, however, if this can be accepted as the true mortality after gastrotomy. This result is to be compared with that of the third table, which shows approximatively the mortality of extra-uterine pregnancy left to nature, or, to speak more correctly, allowed to progress without operative interference until nature had pointed out the way in which she intended to effect elimination by forming openings either through the abdominal walls, bowels, vagina, or bladder. Of these women, 52·65 per cent. perished, a mortality of only 1 per cent. in favour of gastrotomy. This is certainly a very poor showing for surgical interference in this unhappy accident."

The great, and a very important qualification of this last statistical statement is entirely overlooked by Dr. Parry, and yet it is rendered perfectly clear throughout the whole of his writings on the subject, that these cases are only the remnants, the mere survivals of a vast number who died during the processes of suppuration, whereas a table of gastrotomies for living children, or children recently dead, represents no such residuum. To the mortality of the cases left to themselves there must of course be added a large number of those who died when their condition as recognised was beyond remedy, and this number I fancy vastly out-runs the number of the residuum.

Here I may speak of the application of the terms "primary" and "secondary" in connection with these operations, for which Dr. Parry is responsible and in which I think he has committed a grave error. He regards as primary operations those in which the life of the child was considered in determining the time for interference or in which the operation was performed shortly after its death, or near term; and as "secondary" operations he has placed all operations performed some time after the death of the child, and when the system of the mother had recovered to a great

extent from the "puerperal condition." It seems to me that these terms are most inappropriate and ill-used, and are certain to be most misleading.

In general surgery we have the words *primary* and *secondary* operations, more particularly in relation to the amputation of the limbs, used in different senses altogether, and so engrafted in professional parlance as to have become an almost necessary part of our conversation, certainly they are a great convenience. Used, however, as Dr. Parry has proposed they should be, they would be without meaning and would necessarily cause a great deal of confusion. I would greatly prefer that if we were to speak of a *primary* operation for extra-uterine gestations, we should speak of the operation for arrest of the hæmorrhage at the period of *primary* rupture. My reasons for this are that according to the ordinary meaning of the English language, abdominal section would then be certainly primary in point of date and also primary in the sense of being of greater importance, that is to say of far more frequent necessity. Abdominal section for a viable child is secondary so far as date is concerned, and it is but of very little importance in the matter of frequency. If we take the technical meaning of "primary," as in amputations, to mean operation at the time of accident when the patient is collapsed from shock, pain and hæmorrhage, then the patient who is suffering from collapse as the result of the violent pain and hæmorrhage which occurs at the primary rupture is surely in a condition much more resembling the state of the patient who has to submit to a primary amputation than anything else we can conceive. Most of my patients have been so, as much as if they had been cases of smashed knee-joint, and if left alone these cases must surely die. On the contrary, the women from whom I have removed viable children, or children dead by reason of having passed the ordinary period of gestation, have far more resembled cases of amputation for disease, and surely they are secondary operations in the technical sense. A further argument against the introduction of these terms in the relation proposed by Dr. Parry, is that they would practically be determined only by saving the life of the child, and though this must be, as strongly argued by Dr. Meadows, the vital element in the further consideration of such an operation, it cannot be the chief element. Finally by the adoption of these terms and by the argument he urges for their use, Dr. Parry would practically close the door against further advance in the possibility of saving the child: he says, "Notwithstanding the possibility of realizing this happy result, and even of saving both mother and child, as has been done a few times, the primary operation cannot be too emphatically condemned."

I cannot admit such a conclusion for a moment, for the

material upon which he has based it is made up of such discordant elements, every one of which requires special qualification, that it is quite impossible to submit it to a satisfactory investigation. But even if we admitted his premisses, his argument after all is based on a nine per cent. difference only against an operation which has saved child as well as mother; and this even is to be qualified, as I have said, by the mortality having been influenced by unintelligent delay and a vast amount of unscientific instrumentation. One of his cases was operated upon (unsuccessfully of course) after having been in false labour for over a week; and another (equally, of course, unsuccessful) after most strenuous efforts had been made for a whole day to deliver the woman by the forceps.

I therefore advocate the principle of saving a child who has survived the catastrophe of the primary rupture of the tube by being extruded into the broad ligament. If its existence is recognised during its life, the mother ought to be carefully guarded and watched till the false labour sets in, just as we watch a case for puerperal hysterectomy and seize the onset of labour or its early stage, as the most favourable time for both mother and child.

From this point of view, therefore, neither the time selected for the operation nor the details of the proceeding will be influenced save by two considerations, not to operate before the child is likely to be viable, provided the delay necessary does not prejudice the mother, and not to delay at all after the death of the child.

I specially lay this down for the purpose, amongst others, of excluding all operations for the removal of the child by vaginal section.

Dr. Herman has collected a series of twenty-three cases of vaginal section with fourteen maternal recoveries and only one child saved. I have unearthed a few more, but this kind of research is really of little value, for when the details of the case come to be perused it is evident that there are so many points of discrepancy, that it is the merest nonsense to argue from such a collection to any general, still more to any particular conclusion.

That vaginal section is an unsatisfactory method for the purpose of saving the child is certain from the constantly recorded difficulties in getting the child out, and only two cases are known where the child has been extracted living, only two cases where it ultimately survived. The mortality of the collection is over 60 per cent., but this forms an argument not half so strong as the records of the tearing of the parts which was revealed at the post-mortem examinations, and the concealed hæmorrhage, which was nearly always the ascertained cause of death. My own experience of one case is quite sufficient, and I shall never, under any circumstances whatever, attack a sub-peritoneal pregnancy from the vagina.

I give that case in detail as published in the *Medical Times and Gazette* for 1873.

"On July 16th, 1872, I was asked by Dr. Call Weddell, of Bloomsbury, to see in consultation with him Mrs. T., aged 32, who had been suffering for some time from anomalous and perplexing symptoms. She had had one child, nine years previous to the above date, and for some months had been under the impression that she was again pregnant. For some days before I saw her she had been suffering from feverish symptoms, and her condition had evidently become very critical. A crescentiform tumour occupied the pelvis and iliac fossa, giving no special indication of its nature from above, save that at one spot less than half an inch in diameter, and situated about an inch below the umbilicus, there was a distinct bruit, which was much intensified when the pressure of the stethoscope was increased. Vaginal examination revealed a tumour behind the uterus, occupying the whole available space, immovable, and with a peculiar boggy feeling to the touch. The uterus was open, four inches in internal measurement, and presenting very much the characters as if a miscarriage at the third or fourth month had recently occurred. It was movable over the front of the tumour to a limited extent, the fundus being anteverted and readily felt over the pubis. On examination by the rectum I felt what I believed to be the knee of a child and the edge of the placenta.

"On July 17th the condition of the patient was manifestly much worse, and admitted of no further delay. We therefore placed her under chloroform, and I passed the needle of an aspirator into the retro-uterine tumour and evacuated a few ounces of fluid, which was undoubtedly liquor amnii. The diagnosis being thus placed beyond doubt, I followed the needle with a knife, and came at once on the knee of a foetus. I enlarged the incision, and delivered a foetus of about the eighth month, which had evidently been dead for some time. As soon as the child was born I passed my hand through the aperture and searched for the placenta, which I found situated in front. I also found that the cyst had been ruptured above, and that some intestine was extruded into the sac. There was no difficulty in removing the placenta, and no hæmorrhage seemed to result from its separation. It weighed when put together nearly three pounds, and was very hard and fleshy. The patient rallied from the chloroform, but sank in a few hours."

I am indebted to Drs. Sawyer and Weddell for notes of the post-mortem examination:—

"There was a considerable amount of clotted blood among the coils of the intestines. The uterus was enlarged and displaced, being carried so much to the left that its right margin corresponded to the middle line, and so much forward that its fundus projected

over the symphysis pubis. The cyst was large enough to contain two clenched fists, and was situated between the uterus and vagina in front, and the rectum and sacrum behind, the greater portion of it being to the right of the middle line. The cyst was extensively ruptured inferiorly, and the small intestines freely protruded into its cavity."

"The lessons derived from this case and its failure are three:— First, that we should not delay interference after the child has come to the term or after it is dead; second, vaginal section should invariably give place to abdominal section, the latter being more scientific and less risky; and third, that the placenta should not be interfered with, but should be left to separate. I have profited by these lessons, and have since been able to operate on a case successfully."

In this case the temptation to remove the child from the vagina was very great, for it felt just as if it were separated from the fingers by the vaginal mucous membrane, and indeed there was little else. It felt as if a mere notch in the mucous membrane, and the child would come, and it is clear from the records that most of the operators have yielded to the temptation in similar conditions. But to do so is wrong, if for two reasons only. In the first place, as the placental relations are always chiefly pelvic, generally wholly so, the child cannot be dragged out without tearing tissues in which large sinuses have been abnormally developed, and through structures, as they are unyielding, a child can be dragged only with much damage to the tissues, and likelihood of killing the foetus; then, if there be torn vessels bleeding it is simply hopeless to expect to be able to find them and secure the bleeding points.

A case illustrating the difficulty of delivering a child under such circumstances is seen in one of the two cases known where the child lived.

A woman who had been four days in labour, and exhausted by her efforts, but in whom no os uteri could be traced, though the head of a foetus was easily felt, was delivered by an incision five or six inches backwards and downwards through the posterior wall of the vagina. Liquor amnii escaped, and the hand was passed into the cyst to extract the foetus, which, however, could not be effected, though the abdomen was compressed by an assistant; but extraction was ultimately accomplished by forceps, and although the child, when born, was asphyxiated, it was nevertheless resuscitated. The operation was attended with little hæmorrhage, and scarcely any pain; and in two weeks the woman was going about, and no traces of the incision could be discovered per vaginam.—(An American case, *Medical and Surgical Review*, vol. ii., p. 132.)

Opening the peritoneal cavity from the vagina is a clumsy and risky method of proceeding under any circumstances, and whilst it

has no advantage whatever over the suprapubic method, it possesses many disadvantages. Dr. Herman has very well summed up a series of conclusions on this subject, which I here reproduce, pointing out, of course, that in the first four he gives indications of some amount of the usual confusion as to the periods of rupture, and what happens at them. In paragraphs 5, 6, 7 he lays down fatal objections to the vaginal operation, for after the death of the foetus and the majority of cases will present themselves after this has happened, it is absolutely impossible to tell where the placenta is, nor is it always certain even when the child is alive. I have twice failed to discover its seat, even with my hands in the fetal sac. I am also of opinion that the most expert accoucheurs could not accurately ascertain the presentation of an ectopic foetus until the sac had been opened—at least I once saw a very experienced man utterly fail.

Dr. Herman's conclusions are as follows:—

- (1) The operation of opening an extra-uterine gestation sac by the vagina early in pregnancy, before rupture has taken place, by the cautery knife or otherwise, is a dangerous and unscientific proceeding. Abdominal section ought always to be preferred to this.
- (2) Soon after rupture has taken place, when interference is called for to arrest hæmorrhage, abdominal section is more likely to succeed than vaginal.
- (3) When rupture has taken place, and the effusion of blood is followed by pyrexia, the indications for incision of the vagina are the same as those in hæmatocele from any other cause.
- (4) At, or soon after, full term, before suppuration has taken place, there may be conditions which indicate delivery by the vagina as preferable to abdominal section. These are—
- (5) When the foetus is presenting with the head, breech, or feet, so that it can be extracted without altering its condition, and
- (6) When it is quite certain, from the thinness of the structures separating the presenting part from the vaginal canal, that the placenta is not implanted on this side of the sac, and it is not certain that the placenta is not implanted on the anterior abdominal wall.
- (7) If the child cannot be delivered by the vagina without being turned, abdominal section should be performed.

These conclusions may be taken as practically fatal to vaginal section.

Parry has collected a number of cases from which he draws the conclusion that about seventy-five per cent. of the cases which go towards full term (that is, according to my views, of the cases

which survive primary rupture, and are developed extra-peritoneally), arrive at that term, and die at or shortly after it, (if not destroyed by surgical interference), the minority dying at various periods in the progress. I have not tested the evidence on which he bases his conclusions, for I do not think they are of much moment. I am inclined to think that most of the women will not present themselves till they begin to believe that, having gone past their time and the child having ceased to move, something has gone wrong. Then it will simply be a matter of relieving the mother of a risky burden. If the child is living, an effort ought, in my opinion, to be made to save it. But whether the child be living or dead the steps of the operation will be practically the same, and the early part of the proceedings will not vary very much from the ordinary processes of any abdominal section, save in one particular—that the opening should not be made in the middle line, so as to avoid opening the peritoneum. In fact, the operation should not be an abdominal section at all, in the strict sense of the definition I have adopted. This fact has been the cause of much confusion on the part of one perverse critic, whose diatribes require no further notice or explanation.

To understand the motive of this avoidance of the ordinary incision in dealing with a case of ectopic pregnancy we must revert to the explanations already given of the process at the time of rupture, and to the views I have advanced, that all the full term ectopic pregnancies are those which have grown in the broad ligament—extra-peritoneally. As they grow they separate the folds of the broad ligament, and finally lift the peritoneum slowly out of Douglas' pouch, off the rectum, sides and brim of the pelvis, off the posterior surface of the uterus, and off the back and sides of the lower abdominal walls as far round as a point corresponding to the cornu of the uterus on each side. The result of this is that the posterior and lateral levels of the reflections of the peritoneum are raised very materially, whilst the utero-vesical pouch is uninterfered with, and it remains as a long process, like the finger of a huge glove running down in front of the gestation sac, to its normal ending on the base of the bladder. This curious re-arrangement of the peritoneum is similar to what we constantly find in cysts of the broad ligament, only the arrangement in them is less systematic, and the explanation of both is simple. The peritoneum is very easily lifted off any of the organs round which it is wrapped, if the process is slowly carried on. The growth of the ovum, therefore, easily lifts the peritoneum everywhere if the *pull* is direct; but when the pull comes to be indirect, as it must be the moment the top of the fundus is reached, the lifting of the peritoneum ceases, and the long tubular process is formed. As the growth of the ovum is not quite symmetrical, this tube is sometimes on one or other side, and sometimes in the middle, and

therefore it is that some of my operations for ectopic gestation at the full time have been abdominal sections, and some have not been. Therefore it is also that the opening in this case should be made not central but well to one side.

This curious lifting of the peritoneum may of course be interrupted by a secondary rupture of the sac into the peritoneum, and we may find—probably shall—that many of the minor variations which are quite well established, such as invasions of the intestines by the placenta, are due to the same cause. We may also find, what I have already indicated as a probability, that direct primary rupture into the peritoneum of a tubal pregnancy of the twelfth week, may end neither in the death of the mother nor in that of the child, but that it may go on developing in the peritoneum. I regard this as very unlikely, and as yet wholly unproven.

The lifting of the peritoneum also explains the intimate association which the foetal sac always has with the posterior wall of the uterus.

What was, on my part, originally a pure speculation concerning the methods of origin of the relations of the peritoneum and their details, has been elevated into a series of indisputable facts by the fortunate experience by Dr. Berry Hart, of Edinburgh, of two bodies which contained ectopic pregnancies. The bodies were frozen and sections made, and these have been so carefully and elaborately described by Dr. Hart and Mr. Carter that I cannot do better than reproduce their original observations. I must acknowledge at the same time my indebtedness to these gentlemen, and to the proprietors of the *Edinburgh Medical Journal* for permission to reproduce an admirable illustration which will assist my readers greatly in understanding the description of the parts.

“The first specimen had advanced to between the fourth and fifth month. Dr. Hart saw the patient for the first time in the Buchanan Ward of the Royal Infirmary, and found her with a tumour the size of a cocoanut in the site of the right broad ligament, and reaching from the right iliac margin to the region of the recto-vaginal space, which bulged down markedly. The uterus was displaced to the left side of a two months' pregnancy. From the history of five months' amenorrhœa, and the occasional attacks of fainting and pain during that time, there was no difficulty in coming to the conclusion that we had here to deal with an extra-uterine gestation developing between the layers of the broad ligament. Two days after, the patient collapsed markedly, evidently from rupture of the sac and loss of blood. Eight hours afterwards, when she had somewhat rallied, an exploratory abdominal incision was made to see if anything could be done. Blood poured out whenever the peritoneum was opened, and on passing the fingers in, rupture deep down through the posterior lamina of

the broad ligament was found, a condition which did not admit of removal of the sac, inasmuch as it had developed down between the rectum and the vagina. The incision was therefore closed, and the patient sank in about ten hours.

At the post-mortem, which was performed by Dr. Bruce, the bony pelvis and contents were removed and frozen, and in this way the relations were preserved—an impossibility if the parts are scooped out from the pelvis in the usual way.

The pelvis when frozen was sawn in the mesial, right saggital lateral, and left saggital lateral planes, so as to cut sac and uterus.

The following points are noteworthy:—

In the mesial line the fœtus and placenta are contained in a space bounded above by the laminae of the broad ligament, and below by the paraproctal tissue and that at the base of the broad ligament. The placenta is attached to the inner aspect of the tube and broad ligament, the fœtus lying below. The vertical measurement is 4.10 cm., the transverse 8.7 cm.

A similar section to the left of the middle line shows the enlarged uterus, and hæmatoma between the peritoneum and the rectum. The rupture had occurred through the posterior lamina, and low down.

The uterus measures 10 cm. vertically, has a well-marked decidua, and the dip of the vesico-uterine pouch is only 5 cm. from the fundus. The left Fallopian tube and ovary are intact. This specimen, therefore, shows that the gestation, primarily Fallopian, had developed between the layers of the broad ligament and into the connective tissue between the peritoneum and the rectum. It was thus, prior to its intra-peritoneal rupture, entirely extra-peritoneal (v. Plate I., Figs. 1 and 2)."

The description here given by the authors conclusively establishes the process of primary rupture into the cavity of the broad ligament, for which I have already advanced very many arguments, as the explanation of the occurrence of the sous-peritoneo-pelvienn variety of Dezeimeris. The rupture, which was the immediate cause of death, was the secondary rupture into the peritoneal cavity which I have already described as having occurred in Nonat's case, and I think that if the operator had been bold enough to carry on his proceedings, had opened the sac, and sponged it out with a styptic in the fashion that I have described (p. 32), a more satisfactory ending of the case would have been arrived at. But the unfortunate termination is, at least to some extent, compensated for by the brilliant contribution to the elucidation of the pathology of ectopic gestations, of which it has been the immediate cause.

The second specimen "was the unopened body of a female, aged 33, small and very emaciated, who was supposed to have gone a little beyond the term of normal pregnancy; but little

information of any kind could be obtained, as she was destitute, with no friends. The usual appearance of a multiparous pregnancy were present, without any varicosity of the venous system."

"On delivery into the dissecting room the extremities were cut off; and the head and trunk, after a process of freezing by means of ice and salt, were cut into a series of saggital, mesial and lateral slabs, six in all, of about $1\frac{1}{2}$ inches in thickness. These slabs may be for convenience mentioned as 1R, 2R, 3R, and 1L, 2L, 3L, viz., the first slab on the right side, and so on."

"In the saggital mesial section the saw passed almost exactly in the mesial plané of the body. There is nothing particular to remark about the brain and head and neck, the specimen presenting the usual appearances exhibited in sections made in this manner."

"In describing the gestation sac and its contents we shall try to avoid too minute details. The first great point to settle is the relations of the peritoneum to the sac, and it will simplify matters if we state the one broad fact brought out in the sections, viz., that the gestation is entirely extra-peritoneal, and that fœtus and placenta lie in extra-peritoneal connective tissue. The fœtal capsule and its contents, which occupy a great portion of the abdominal cavity, rise up to the upper margin of the second lumbar vertebra and extend well into the right half of the sections, pushing the intestines up and to the left. In front the tumour is separated above from the abdominal wall by the great omentum, while below, its wall is formed by the uterus, behind, it is separated from the posterior abdominal wall by a double layer of peritoneum. The uterus is much enlarged, the upper surface of the fundus being on a level with the upper border of the first sacral vertebra. It was pushed over to the left side, none being found in the right outer lateral section. The peritoneum has been entirely stripped away from its posterior and the upper part of its anterior surfaces, and from the fundus bands of tissue connect it with the upper and inner surface of the foetal sac. On the left side of the fundus a small fold of peritoneum enclosed the left Fallopian tube and left ovary."

"The left Fallopian tube passed obliquely downwards from the left side of the fundus to the left iliac fossa, its fimbriated end being attached to the tumour."

"The left ovary was found below the Fallopian tube and left under surface of the capsule, and is seen in the left lateral section 3" from the median line in the angle between the abdominal wall and the left iliac fossa. (v. Plate III., Fig. 6.) It measured $1" \times 1\frac{3}{8} \times \frac{3}{4}$ in thickness, and was enclosed in the same fold of peritoneum with the Fallopian tube. The ovarian vessels were greatly increased in calibre. *The right Fallopian tube and ovary cannot be identified, being taken up with the sac.* Owing to the surfaces of the peritoneum being more or less adherent,

it required great care to trace its general relation. In the mesial section it will be seen to be reflected from the inner surface of the anterior abdominal wall on the front of the uterus at the upper level of the pubes; the bladder lies below the lines of reflection, and is deficient of a serous covering. The front of the enlarged uterus is covered for a short distance, and the peritoneum is there reflected on the foetal capsule, this portion of its surface being rough and deficient of any serous investment. The foetal capsule is seen to be enveloped in front and above, and behind the membrane is reflected on to the rectum at about the level of the fourth sacral vertebra. On the left side the peritoneum passes from the left iliac fossa and covers a small portion of the upper part of the body of the uterus, and from this is reflected on to the capsule, forming a fold in which the left Fallopian tube and ovary are enclosed. The relations of the peritoneum to the other organs do not require any special remark. On the right side the peritoneum is lifted up. The foetus has thus developed beneath the peritoneum, elevating the folds of the broad ligament after distending them, and in its upward growth stripping the peritoneum up from the right side of the anterior abdominal wall for a distance of $7\frac{5}{8}$ in., above the pelvic brim. Posteriorly the deepest portions of the pouch of Douglas lie at the level of the fourth and fifth sacral vertebrae. The foetal capsule and its contents are found to extend into the hypogastric, umbilical, lumbar, and right inguinal regions."

"The sac can be studied in all its relations in the sections. Microscopical examination of its walls were made at various points, viz., at its uppermost portion, and also at the anterior abdominal wall below the peritoneal reflection (Plate II, Fig. 4)."

"In the former part there was peritoneum and unstriped muscle, showing the Fallopian tube origin; in the latter, connective tissue. The capsule was thus formed by connective tissue, bounded outside by the special structures displayed, viz., either by muscular abdominal wall or by peritoneum. On the right side of the body a deep dissection was made from the skin, and the cœcum and peritoneum found displaced up."

"*The Uterus.*—The cervix contained a plug of mucus, and in the flattened cavity of the uterus was found a small amount of disintegrated tissue. The foetus is situated below the placenta and between the uterus in front and the abdominal wall behind. Together with the placenta it is seen to be enclosed in a distinct capsule."

"The placenta consists of an oval-shaped and flattened mass of tissue situated in the abdominal cavity and extra-peritoneally, and lying above the foetus. Its long axis is directed up and down, and in the mesial section is seen to extend from the upper margin of the second lumbar vertebra to a little below the upper border of the first sacral vertebra. It is attached to the posterior aspect of

the anterior abdominal wall and outer surface of peritoneum. Where attached to the anterior abdominal wall, the veins there are enlarged."

"The diameter of its long axis is 13.5 cm., and its average antero-posterior measurement is 7.5 cm. Around it is a thin investment of connective tissue, and it is firmly attached at points, especially in front and above, to the surrounding capsule by bands of vascularized tissue. In the right sections a cavity is seen between the capsule and the placenta, which was filled with a mass of grumous blood, and gases of decomposition, the position of which corresponds to a well-defined darkening of the skin of the anterior abdominal wall, as if the patient had suffered from a severe blow or fall. The fœtus weighed 2 lbs. 4 oz. without the umbilical cord. It was fairly well nourished, *but decomposition had commenced, especially at the lower part of the abdomen.*"

"The consideration of these two sections shows, therefore, a special phase in the development of extra-uterine gestation. They demonstrate that a Fallopian tube pregnancy may develop between the layers of the broad ligament, and may continue this extra-peritoneal mode of growth, stripping off the peritoneum from the uterus, bladder, and pelvic floor until it becomes in great part surrounded by a peritoneal capsule derived from these organs. All this is done without any actual intra-peritoneal invasion. The placenta in the advanced gestation case is attached in front to the extra-peritoneal connective tissue, the veins there enlarging and acting like uterine veins. In this special cadaver, therefore, the gestation began probably in the right Fallopian tube, developed into the layers of the broad ligament, and grew extra-peritoneally, lifting up the peritoneum on the right side of the middle line, both anteriorly and posteriorly, and also stripping the posterior uterine wall and upper part of the anterior uterine wall. The extra-peritoneal tissue, with its blood-vessels, is therefore not only capable of forming anastomoses in abdominal aneurism, as Turner and Chiene have shown, but may attempt to carry on the functions of the maternal portion of the placenta."

"We have here what may be termed slow displacement of the placenta. At first it lay in the Fallopian tube, but the growing ovum has slowly pushed it up (a process attended with blood extravasation) from pelvis to abdominal cavity, until at last its upper edge is about ten inches from its original site. Part of this is due to growth of course. The uterus also has had its cervical portions elongated in the same way to three inches. These sections have an important bearing on the classification of extra-uterine gestation. Much has been written, and little really demonstrated on this point. The Tubal variety is undoubted; the Tubo-ovarian has also been demonstrated; but the Ovarian is a very doubtful form. The Sub-peritoneo-pelvic or intra-ligamentous variety of





FIG. 2.

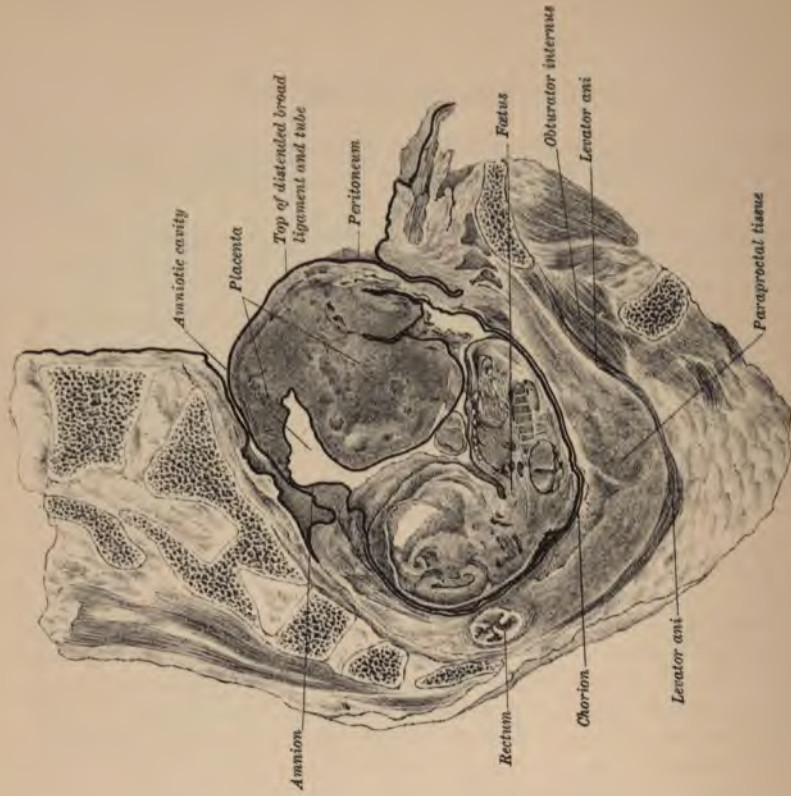


FIG. 1.

Dezeimeris, Tait, and Werth, is demonstrated in the second specimen, which also shows the ovary thinned out on the posterior lamina of the broad ligament. The presence of the ovarian structure in the cyst wall of an extra-uterine gestation has been brought forward as evidence of its being the Ovarian variety; it more probably shows that it is Sub-peritoneo-pelvic."

"The chief interest centres on the anatomical nature of abdominal gestation. The second case shows that this can be extra-peritoneal, a fact never hitherto demonstrated, although strongly contended for by Tait. We do not deny that we may have either a partial extra-peritoneal and intra-peritoneal variety, or an entirely intra-peritoneal variety, but we ask for actual proof of such. If it be urged that a purely intra-peritoneal form must exist because placenta has been found attached to the uterus and intestine, we answer that in the cadaver shown (Plate II.) the placenta has been attached to the portion of uterine wall where the peritoneum is stripped off; or it might have been attached to the other abdominal viscera, but yet carrying a layer of peritoneum before it, be still extra-peritoneal. We, therefore, hold that the following varieties have been demonstrated, viz.:—Tubal, tubo-ovarian, sub-peritoneo-pelvic, sub-peritoneo-abdominal. An abdominal variety, partly intra-peritoneal and partly extra-peritoneal, is probable; a purely intra-peritoneal variety has yet to be demonstrated, and the same holds good as to the ovarian variety. Hitherto we have always regarded the peritoneal cavity as the site specially chosen by extra-uterine gestation, for its development, but we must now more closely scrutinize such in the light of this and similar cases."

I have placed in the italics two sentences in this record. The first to the effect that the right Fallopian tube and ovary could not be identified, having been taken up by the sac. This clearly shows that, as Dr. Berry Hart concludes, and as I have for years argued, that such a pregnancy as this is originally tubal; and that the tube is carried up to form the upper part of the cyst is due to the fact that the rupture through which the ovum escapes into the broad ligament takes place at that part of the tube which lies at the junction of the two laminae. The second point worthy of note are that even in this case decomposition had commenced, and that, therefore, had the woman been received in the clinical ward instead of the dissecting room, a surgical operation would have been demanded.

DESCRIPTION OF PLATES.

PLATE I.

Fig. 1.—Sagittal lateral section (right) of pelvis, with extra-uterine gestation in right broad ligament.

Fig. 2.—Sagittal mesial section of same pelvis, showing uterus with decidua. This section demonstrates, inter alia,

that what is termed clinically retro-uterine hæmatocele may be hæmatoma.

PART II.

Fig. 3.—Saggital mesial section of cadaver, with advanced extra-uterine gestation—subperitoneo-abdominal (1R).

Fig. 4.—Saggital lateral section of same (2R).

PLATE III.

Fig. 5.—Saggital lateral (2L) of same.

Fig. 6.—Saggital lateral (3L) of same.

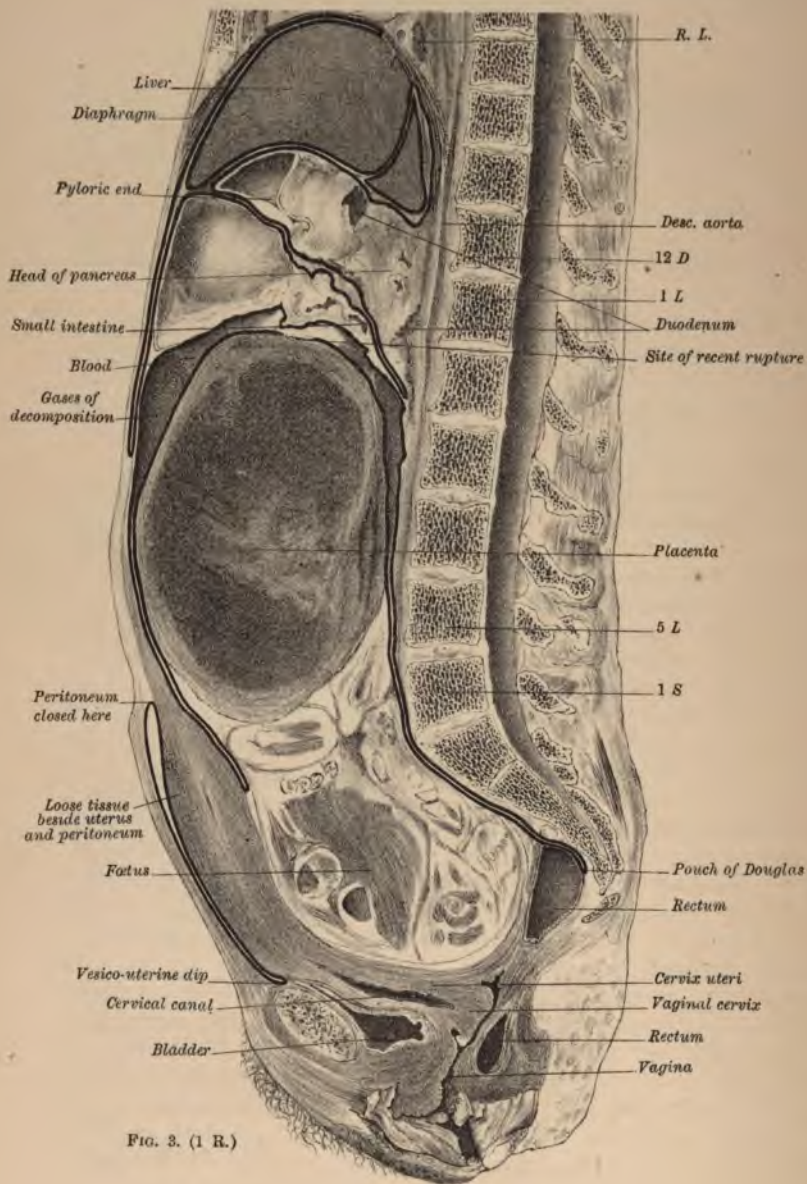
Dr. James Braithwaite, of Leeds, records two cases in which he operated successfully, and he has given such interesting details (*British Medical Journal*, Jan. 3, 1885), all of which directly support the views I have advanced in the preceding pages, that I need offer no apology for quoting them at length.

The first case had symptoms of primary rupture at the third month of gestation, and was operated upon about a fortnight after a spurious labour at the full time, the operation taking place on May 5, 1883.

“The incision was central; no peritoneum was met with, and the sac was closely adherent to the abdominal walls. The child was lifted out by its feet, but it proved so large that it was necessary to extend the incision upwards another inch. This unfortunately detached the cyst from the abdominal wall, and a coil of bowel protruded into view at the upper part of the wound. The cyst was carefully stitched to the lower surface of the wound with a continuous catgut suture. The placenta was deeply situated, but to what part it was attached was not positively ascertained. The cyst was of considerable thickness, already black from decomposition and lined with a smooth shining membrane (the amnion), which readily peeled off. After washing out the cavity with warm carbolic water the wound was closed with silver wire sutures, the cord being left hanging out at the lower end of wound. A large glass drainage tube was also inserted. During the next three weeks the whole of the placenta came away through the lower part of the wound. The cyst came with it: and I recognised the catgut which had been used at the upper margin of the abdominal wall incision. Much of the black and putrid mass was removed by daily traction upon the projecting parts, but unless great care was used hæmorrhage occurred. When the whole of the placenta and cyst had come away the wound healed up rapidly, and the patient made a good though slow recovery, and she is at the present time as well as she was before her illness.”

The extension of the incision probably opened the “finger glove process” of the peritoneum, rather than separated the cyst wall.





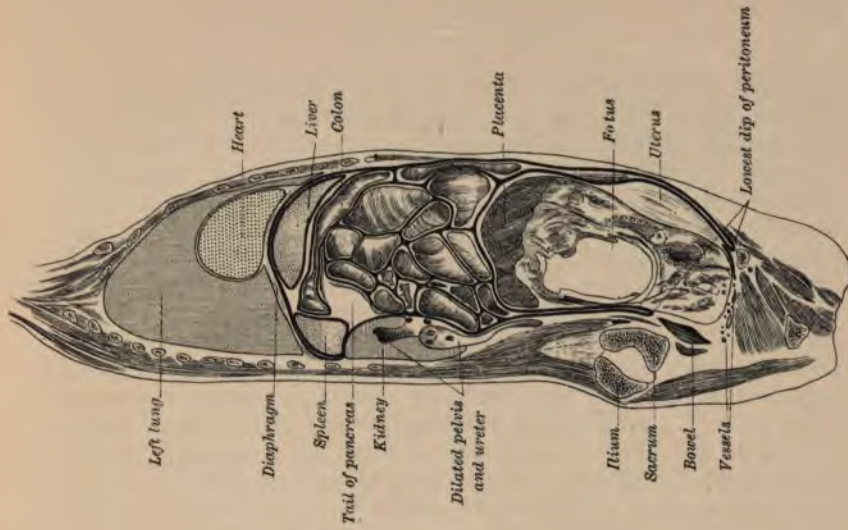


FIG. 5. (2 L.)

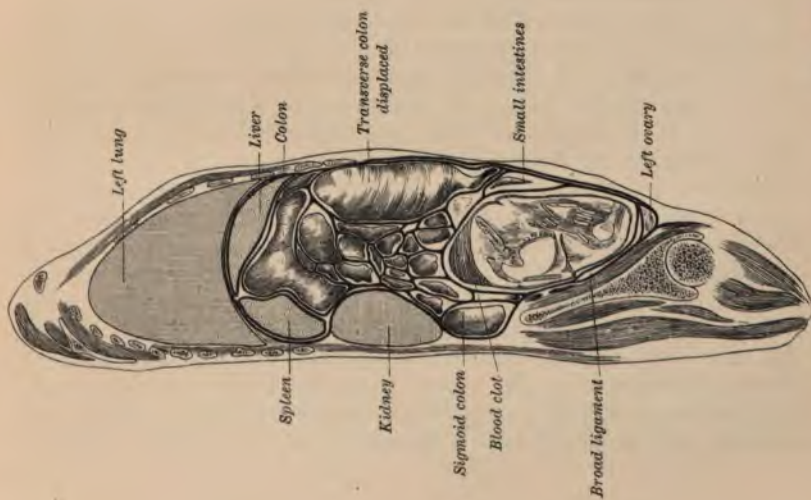


FIG. 6. (3 L.)

PLATE III.

“Case 2.—Mrs. W——, of Holbeck, a patient of Dr. Dodson’s, with whom I saw her in September last year, aged thirty-five, has been married ten years, but never pregnant until the present case occurred. Menstruation all her life quite regular and natural; the last period was about October 15th, 1883. On December 3rd, having missed exactly seven weeks, she was slightly unwell, and had at the same time, to use her own words, “a very violent pain” in the body. The symptoms were such as would be produced by rupture of an early tubal gestation—viz., pain and collapse. She recovered from this, but the body went on increasing in size just as in normal pregnancy. At the end of August a sanguinolent discharge occurred, and this therefore may be taken as the time when labour would have taken place had gestation been uterine. The movements of the child, however, ceased to be felt about the end of the first week in August. By examination of the abdomen the outlines of the child were not perceptible as in the last case, but some thick substance intervened, which subsequently turned out to be the placenta. This much increased our difficulty in the diagnosis. There was a projection outwards of the abdominal walls in the right inguinal region, which felt not unlike a foot. There were no foetal or placental sounds audible. The uterus measured only two inches and three-quarters and the cervix was well open, so that the finger could be passed up to, but not through, the os internum. The pulse was weak, and the condition of the patient such that, being quite certain it was a case of abdominal extra-uterine gestation, we decided to remove the child at once. This was done on September 11th, 1884, at the Women and Children’s Hospital. The incision was central, and we came, as expected, directly upon the placenta, the edge of which, however, was found about two inches to the right of the incision. Careful separation of the placenta in this direction did not produce hæmorrhage. An incision at right angles to the first was now made, and the edge of the placenta being pushed back the feet of the child were seized, and it was removed without much difficulty, the placenta yielding without being torn or separated from its attachment to the abdominal walls. Whether the child was enclosed in a cyst or not we were not quite certain at the time of the operation; but, as proved afterwards, this was the case. There were no veins in the abdominal walls at the seat of the placental attachment except just at the lowest angle of the central incision. These I was careful to avoid wounding; they were, however, only of small size. The wound was closed with silver wire, the funis being left out, and a drainage tube inserted, both at the extreme right of the lateral incision. An attempt to separate the placenta with the finger and traction in about two weeks set up hæmorrhage, and it was not attempted again until the discharge became very decidedly purulent at the end of six weeks. The whole of the placenta

which had not been removed, for some small portions had been, was at the end of six weeks separated by the finger and removed without much difficulty. It weighed thirteen ounces. The patient is still in the hospital, but is nearly well. In introducing the finger for removal of the placenta I felt the cyst walls, which appeared to be pretty firm and thick.

"The first thing worth remarking in the history of these cases is the occurrence of severe pain early in gestation, attended with some degree of collapse. This indicated rupture of the Fallopian tube, in which, up to that period, the foetus had resided, and its escape in the first case into the interior of the broad ligament, and in the second into the peritoneal cavity. I assume that the explanation of these cases given by Mr. Lawson Tait is the correct one, and I believe it to be so—namely, that all cases are originally tubal, that rupture always occurs, but that this rupture may be in different parts of the tube; and if on the lower surface of the tube the foetus is let down between the folds of the broad ligament, and then develops, the placenta retaining its original hold upon the interior of the tubal cyst; if the tube ruptures on its upper surface the foetus escapes into the peritoneal cavity; and if the mother survives it develops there just as it would have done in the uterus. It seems pretty clear that in my second case the placenta was detached from its original position and took root again in a fresh one, and that the interior of the abdominal walls. This situation of the placenta is rare, and I think it may without much difficulty be diagnosed by the thickness of the structures intervening between the foetus and the examining hand."

Dr. R. B. Maury, of Memphis, has recently published the details of the post-mortem examination of a case which completely confirms the conclusions of Hart and Carter; and now that the facts are known, doubtless, information will be abundant, and the old confusion will speedily end.

"The pelvic organs were carefully removed, and it was then seen beyond all possibility of doubt that the foetal sac was entirely extra-peritoneal, that the gestation had originated in the right Fallopian tube, and had developed between the folds of the broad ligament, downward to the pelvic floor, laterally to the pelvic wall, and upward into the abdomen.

"The ovum in its development had lifted the peritoneum off from the bladder and the anterior surface of the uterus, while the relations of the peritoneum to the posterior uterine wall and to Douglas's pouch were not altered.

"The sac extended quite to the pelvic and abdominal wall on the right side, but did not go beyond the left cornu of the uterus on the left.

"At the time of the operation it was observed to be covered by peritoneum, and this was clearly shown after death.

"The gestation was therefore entirely extra-peritoneal, and belonged to the variety, intra-ligamentous of Werth, or sub-peritoneo-pelvic of Dezeimeris.

"No trace of the ovary was discoverable in the structures belonging to the sac, but on the left side the ovary was found much shriveled and otherwise changed in appearance.

"This autopsy corroborates the view taught by Mr. Lawson Tait, that in extra-uterine pregnancy, no matter where the fœtus may be found, its development begins in the Fallopian tube, 'and that it may become intra-peritoneal or extra-peritoneal, just as the tube happens to burst.'"—*Memphis Medical Monthly*, March, 1888.

We come now to consider the further details of the operation of removing a fœtus developed in the broad ligament at or near or past the full time of gestation; and no variation on this point will make any difference in the essential details of the proceeding. The opening of the abdomen and sac should be, as I have said, to one side of the middle line, and the history together with the physical signs will probably enable us to decide on which side of the middle line the incision should be made. As the purpose is to avoid opening the uterine process of peritoneum, the incision should be made two or three inches away from the middle line and towards that side in which the pregnancy has been developed—if this point can be determined. When the sac is opened the fœtus is to be removed carefully, so as to avoid tearing as much as possible; and if it is alive, it should be handed over to those specially detailed for this duty. The umbilical cord should be divided close to its placental origin, and the placenta should be emptied, as far as possible, of blood. The interior of the sac should then be carefully cleansed of all dirt and loose membrane, and then filled and washed thoroughly with clean water, and the stitches carefully placed in the wound so that when they are drawn tight the sac shall be hermetically closed.

By means of my syphon trocar the sac should again be washed out with warm water, and then the stitches drawn tight with the trocar (small sized) still in the sac. The syphon action should then be reversed and the sac emptied of water as much as possible and the trocar removed—in so doing care should be taken that no air enters, and that the wound is hermetically closed.

I recommend this proceeding from the splendid results I have obtained by it, in dealing with congenital cysts (*Trans. Gynecological Society*, 1887), strikingly different from those arrived at by drainage. It seems to me that the conditions of the two cases are very similar, and that the success in one may justify the same means being tried for success in the other. The crux of the discussion is, of course, the removal of the placenta, and I have tried all ways with it, and I am disposed to think that leaving it will be the best. I have already detailed a disastrous case where I removed it by vaginal

section. I have twice removed it, arresting easily what hæmorrhage there was by the application of perchloride of iron. Both children were alive and still live, and both mothers survived, but in both cases I was able to tie a big pedicle—the remains of the tube and broad ligament—which doubtless contained the bulk of the blood supply to the placenta. This proceeding I certainly should recommend in all cases where it is practicable, and from my own experience alone it seems certain that it will be possible in a considerable number of cases. But there are others, and I have published these, where such a proceeding was not possible, where the placenta was plastered flat on various structures to which it was intimately adherent, and from which it would have been removed only with great difficulty and much hæmorrhage. I confess under such circumstances I should hesitate before commencing its removal, but if I did begin it I should rush rapidly through with it and follow separation with a sponge soaked either in strong vinegar, or a solution of perchloride of iron. Such a process would be very risky, and I confess I should not like to face it, and for the further reason that I do not think it will prove to be necessary.

The alternative proceeding which I have adopted in these cases—all three mothers surviving—was to close the sac (closing the peritoneum in one case, when it had been opened as in Dr. Braithwaite's first case) all save an aperture through which I brought the umbilical cord and a drainage tube. These three women all survived, but they survived a process of offensive suppuration lasting for months, and which nearly killed them all. One of them—as result of this profuse suppuration and of her own carelessness—has a ventral hernia, which contains most of her intestines.

I certainly, therefore, am not in love with this method of dealing with the placenta—for it deliberately induces the process of necrosis, which I do not in the least believe is necessary.

We must bear in mind that when the placenta has acquired adhesions outside the uterus it is in a condition altogether different from that in which it is placed when in contact with the endometrium. In both cases it is of course essentially a foetal structure, but it is far less so when it has its relations in ectopic pregnancy. When intra-uterine it is separated by a maternal layer of cells easily destroyed, and being constantly replaced, which are not present when its columnar villi invade intestines, muscles, and other maternal structures. Again, when the process of labour is going on in the uterus, every contraction of the organ tends to disturb the connections between the foetal and maternal tissues, so that when finally the complete contraction of the uterus is effected on the expulsion of the child, the placental relations are completely disconnected by the mere pressure of uterine contrac-

tion. No such disconnection occurs to an ectopic placenta. The histories of all the cases where an extra-uterine pregnancy has gone on for an indefinite period after the term of gestation without disturbance, show conclusively that all the tissues except the bones are capable of being digested and absorbed, and even the bones to a large extent yield to this powerful influence. The placenta, as a rule, is the first of the tissues to disappear, even despite the somewhat numerous instances to which I have already alluded, where the placenta at first seems inclined to grow. For the majority of cases such a tendency at this period might, for a time at least, be disregarded, but even if it became from subsequent observation evident in any particular instance; that the placenta was growing after the removal of the fœtus, we should have the advantage at least of having gained time in the treatment of the case; for nothing has so strongly impressed itself upon me in my experience of abdominal surgery, that we may deal safely by secondary steps with conditions which, had they occurred to us in a primary stage would certainly have led to unfortunate issues. I am therefore disposed, for the present at least, and until I am corrected by future experience, to advise that in dealing with an ectopic gestation in the advanced stages, we should deal with the fœtus only, should empty the placenta of blood and close the wound hermetically upon it. The only exception would be where it can be dealt with largely by tying the broad ligament only to a relatively small extent requiring separation from the tissues with which it is associated. Campbell has to some extent anticipated my argument on this point in the following passage:—"As the placenta, when long retained, is destroyed during the suppurative process, except in some rare instances, and removed from the abdominal cavity with the other decomposed structures, or cannot be discovered, this discloses to us the important fact that the retention of the mass may be permitted without any detriment to the parent; while it can scarcely be doubted that the irritation, which could not fail to be produced by groping for it among the abdominal viscera, or the hæmorrhage arising from its detachment, might be succeeded by formidable effects. At one period it was supposed that the placenta could not be suffered to remain in the abdominal cavity with impunity; but it may be asked, can the retention of the mass be more injurious to the patient than that of a full grown fœtus, which, as we are now aware, may remain in the abdominal cavity for a long series of years without any injurious effect?" (p. 152.)

A case of great interest in the consideration of this point is narrated in the "Obstetrical Transactions" of 1887, by Dr. Champneys, in which the proceeding which I now recommend was more nearly carried out than in any other I have seen. The placenta was emptied of blood, but unfortunately the cord was not

cut short, but was allowed to hang out of the wound, dependance having been most unfortunately placed upon the so-called antiseptic system to prevent decomposition.

The operation was performed on the 19th of October, and upon the 19th of November the progress of the case is noted to the effect that "the incision was completely healed, but the lower abdomen markedly distended, and a swelling which was supposed to be the placenta considerably smaller." Subsequent events made it perfectly clear, however, that the patient was suffering from placental decomposition and resulting peritonitis, and she went on from bad to worse, with a pulse of 114 and temperature 104, and as high even as 106, to the 7th of January when she died. On post-mortem examination the placenta was seen to be lying in the sac like a round ball, as large as a foetal head, and of a dark maroon colour. On passing the fingers round it a few bands and one or two adhesions were found between the placenta and the sac, but otherwise the placenta was detached. The blunder, of course, in this case was that the foetal sac was not opened a second time, and the placenta removed immediately at the outset of serious symptoms—that is to say, within five weeks of the original operation. It is perfectly astonishing that the patient should have been allowed to go on for very nearly six weeks after this, in a condition of sub-acute blood-poisoning, without any effort being made to save her. The lesson of the case I feel strongly is, that we ought to make a preliminary effort, by leaving the placenta alone and closing the sac over it, to permit of its absorption. Should that not occur, we may then, by a secondary operation at such time after the first as may be indicated by the course of events, remove the placenta. This proceeding would then be rendered far less hazardous, at least in the matter of hæmorrhage, by nature's own process of the inflammatory occlusion of the bloodvessels. Certainly this is the reasonable method, as it seems to me, of dealing with this important question, the only one yet awaiting its proper solution, and its solution is forced upon me not only by my experience in ectopic gestations, but by my experience in a large number of other operations in abdominal surgery. Certainly it is not a question which will be settled by the tabulation of a number of cases mostly dissimilar in the extremest degree from one another, and incapable of leading to anything but confusion when paraded in the form of statistical evidence.

Campbell gives a very interesting list, and withal a very ghastly one, of instances which he has unearthed where there have been multiple extra-uterine gestations, and of instances also where they have been retained for very many years. As a mere matter of curiosity I reproduce it:—"Two patients had the product of three extra-uterine gestations in their abdomen at one time; in both

individuals all the decomposed structures were evacuated through the abdominal parietes, and each recovered. Nine women conceived once during the retention of the extra-uterine fœtus; two, twice; one, three times; one, four times; one, six times; and one seven times. There were two cases of contemporaneous intra- and extra-uterine gestation. In this variety two single women only are particularised. In seventy-five cases the fœtus was retained for the following periods, viz:—three months in two instances, four months in one, five months in one, nine months in two, fifteen months in three, sixteen months in two, two years in eight, three years in seven, four years in four, five years in one, six years in two, seven years in three, nine years in one, ten years in three, eleven years in two, thirteen years in one, fourteen years in two, sixteen years in one, twenty-one years in one, twenty-two years in one, twenty-six years in two, twenty-eight years in one, thirty-one years in one, thirty-two years in one, thirty-three years in one, thirty-five years in two, forty-eight years in one, fifty years in one, fifty-two years in one, fifty-five years in one, and fifty-six years in one. In twenty-six patients the decomposed structures were evacuated through the rectum, and of this number six died. The foetal structures passed through the abdominal parietes in twenty-nine cases, and three of the number died. In eight instances the remains of the fœtus were discharged per vaginam, and three of the patients died.”

True lithopædion—that is to say, where the foetal sac has been encrusted, after more or less digestion and absorption, with a layer of the salts of lime, and has remained quiescent, is of remarkably rare occurrence. I have only once in my lifetime seen a case where it was suspected to have occurred. Dr. Fales, of Boston, has spent much labour in examining the literature on the subject, and he has found only eleven cases where the condition has been verified by post-mortem examination, and he adds a twelfth occurring in his own experience. As his paper is in a journal, the “Annals of Gynecology,” not very easy of access, and as the subject certainly has a considerable amount of interest, I venture here to reproduce his record.

“CASE 1 is reported by Dr. Brandt, in the *Edinburgh Medical Journal* for 1862:—

Miss A. was born	...	1778		
” was married	...	1795,	at the age of	17
” first child	...	1796	”	18
” second child	...	1801	”	23
” pregnant	...	1804	”	26
” third child	...	1808	”	30
” fourth child	...	1815	”	37
” died	...	1858	”	80

No history of the third pregnancy. The autopsy was performed September, 1858. The tumour weighed 1.8 kilos, 20.32 c.m. in length, 13.33 c.m. in diameter, 40.64 c.m. in circumference. It was a bony cyst containing a fœtus, head uppermost, looking to the left and downwards. The spine and back were in apposition with the right side of the cavity; the head was decidedly compressed; the cord could be distinguished passing round the neck; the whole body was twisted in its long axis.

“CASE 2 is reported by Dr. Conant, in *New York Medical Journal*, May 10th, 1865, p. 140:—

So far as known, the pregnancy, which was the first, was normal, labour-pains came on at the usual time, lasted a few days, and subsided. Subsequently she was afflicted with profuse and most offensive perspiration, which was almost unbearable to her attendants. After a time this disappeared, and slow recovery ensued, attended by a hard tumour in her side, which caused her no inconvenience other than a sense of weight. Subsequently she gave birth to three children. In June, 1863, thirty-five years after the accident, she died. The autopsy revealed a calcified fœtus, extra-uterine, seemingly, not enveloped with or in, membranes; another hard mass, said to have been the uterus, was found in the abdomen, this, however, contained the remains of the placenta, in the opinion of Dr. Conant.

“CASE 3 is reported by Dr. Parkhurst in *Medical Times and Gazette*, vol. I, 72, p. 655:—

She became pregnant in 1802; nothing unusual about the pregnancy was noticed; the catamenia ceased entirely; fœtal movements appeared at the usual time. Premature labour was begun at eight-and-half months, as the effect of a fright. The pains gradually subsided, and for two or three weeks she was comfortable. Her health then began to decline, and for one-and-half years she was an invalid. After this period there was a gradual restoration to a condition of comparative health, though she was subject to attacks of severe abdominal pains at irregular intervals. She died in 1852, at the age of seventy-seven. The autopsy disclosed a tumour, the external surface of which was smooth and white, and composed of fibro-cartilage. Its weight was 3.6 kilos. There was no connection with the Fallopian-tubes or omentum. The external surface of the fœtus was encrusted with an earthy substance.

“CASE 4 is reported by Dr. Hans Chiari, *Vienna Med. Presse*, vol. 17, No. 38, p. 1092:—

In this case symptoms of pregnancy were observed in 1827; but no birth followed them; the patient died at the age of eighty-

two, of pneumonia. At the autopsy the tumour was found to be attached to the walls of the uterus. It was about the size of a man's head, and here and there, over its surface points of calcification could be detected. The uterus, right tube, and ovary were normal; the left ovary was wanting. The fœtus was enveloped in a capsule, and was in a remarkably well-preserved state; the face, internal organs, and even the striæ of the muscles being recognisable. The placenta was found, but its position is not stated.

"CASE 5 is reported by Dr. Galli, in *Lo Sperimentale*, xxxix., 2, p. 135:—

In this case, two children having been born, pregnancy, occurred, for the third time, at the age of thirty. Fœtal movements ceased after the eighth month. No birth followed. Subsequently, for a long period, she suffered from severe abdominal pain. Became pregnant again, and was delivered of a healthy male child. The product of the third pregnancy was carried for thirty-seven years. In her sixty-seventh year she fell, and probably disturbed the lithopædion, as a violent peritonitis intervened, from which she died. The autopsy revealed a well-formed lithopædion; but nothing further is stated.

"CASE 6 is reported by Dr. Plexa, *Monatschr f. Geburtsh*, xxix., 4, p. 242:—

In this case symptoms were manifest which caused the diagnosis of extra-uterine pregnancy to be made. There were repeated attacks of abdominal pain, accompanied by fever. These gradually subsided, and strong hopes were entertained that this case would eventuate in a Lithopædion. After one and a quarter years, however, a peritonitis ensued, from compression of the intestines between the tumour and the abdominal walls, which caused the patient's death at the age of forty. At the autopsy it was found that the fœtus had entered the abdominal cavity by the bursting of the left Fallopian-tube. The right ovary and tube were normal. The colour of the fœtus was dark-brown and calcification had begun.

"CASE 7 is reported by Professor J. Van Graau and Dr. Schrant in *Genees. en Heilkunde te Amsterdam*, ii., 1, pp. 17—96:—

The patient was married at twenty years of age. Had seven children, and three miscarriages. Twelve years before her death she noticed a gradually increasing swelling of the abdomen. The tumour was distinctly moveable, and appeared to be adherent at the umbilicus. A diagnosis of lithopædion was made; and, at her death, at the age of forty-two, in the Amsterdam Hospital, this

was confirmed. The tumour was free, except at the front, where it was attached to the abdominal walls. The fœtus was developed in a calcified membrane; its head was situated at the umbilicus, the back towards the left hypochondrium; arms and legs drawn towards each other, and to the right. The uterus was in the lower pelvis, and was normal. The left ovary and tube were also normal. In the place of the right ovary there seemed to be a cyst, filled with a brownish substance, attached to the tube. After the covering was stripped off the fœtus was seen with the head, legs, and arms drawn towards each other. The internal organs, muscles, and other structures were easily recognised.

“CASE 8 is reported by Dr. Wagner, *Arch. der Heilk.*, vi., No. 2, p. 174:—

The patient was a widow, sixty-eight years old. At the age of twenty-four she had given birth to five children. In her thirty-seventh year she again became pregnant, but was never delivered of the child. Labour-pains were not present. For a long period the abdominal enlargement remained constant in size, and Cæsarean section was advised. Finally, the tumour began to grow smaller; her menses returned, and fair health was experienced, the only complaint being of a feeling of weight in the abdomen. At the autopsy the tumour was found to fill the lower pelvis, and to be attached to the bladder, rectum, and uterus. The tumour weighed three-quarters of a pound, and was about the size of a man's head. It was covered by a yellowish membrane. The left tube and ovary seemed to be growing from the tumour, the uterus being pushed from the right. The fœtus was of female sex; the head was much drawn to the right, and bent upon the thorax. The skull was markedly compressed, the bones overlapping; calcification was present, but not uniformly. The various organs and muscles were not distinguishable, being changed to a fatty mass, which contained hæmatoidin crystals.

“CASE 9 is reported by Dr. Bossi, *Sitzmeister d. Vereins d. Aertze in Steirmark*, xi., p. 37:—

In this case a lithopædion was diagnosed in 1868. During the years 1869 and 1870 abortion was induced several times. The operation was repeated in 1872, with a fatal result, peritonitis following. The autopsy revealed a pear-shaped tumour about the size of a man's head, covered with a capsule, which was very thick and hard (calcified). Portions of the fœtus were in a natural condition, and portions were changed to adipocere, some of the bones being entirely denuded. The tumour communicated with the rectum by a small opening. The uterus and tubes were normal. Right ovary atrophied, left one adherent to tumour.

“CASE 10.—‘Tübingen Inaugural-Abhandlung,’ von Wilhelm Keiser.

The lithopædion was found in a woman ninety years of age, in 1720. In 1674 she had all the symptoms of pregnancy, fetal movements being very noticeable. At the expiration of nine months labour-pains started up; the membranes ruptured. Pains continued for two weeks, and then gradually disappeared; the fœtus having apparently escaped into the abdominal cavity, after rupture of the uterus. Two children were subsequently born. The autopsy revealed a large tumour, 13.5 c.m. in diameter, covered with a capsule so hard that a knife could not cut it. The stroma contained an exudation in lime-salts were deposited, The skin of the fœtus was well preserved, covered by epidermis more or less calcified. The muscles could not be recognised, having been changed to a ‘soft substance’ (adipocere). The brain was a blackish-brown mass, which was pulverulent and easily melted; the membranes were of a leathery consistence. A citron colour was diffused throughout the entire structure. The reports concerning the position of the tumour are not trustworthy.

“CASE 11 is reported by Smellie in his ‘Collection of Cases and Observations in Midwifery,’ vol. ii., p. 65:—

The patient was pregnant in 1731, with the usual signs. At the sixth month fetal movements ceased, as the result of a fright. Under treatment she discharged a mass, which was thought to be a part of the placenta, as well as a small amount of fluid. There was no decrease in the size of the abdomen. In July, 1733, two years and two months from her first pregnancy, labour-pains returned, with an apparent rupture of membranes. At this time the child was found in the abdomen. In January, 1734, she became pregnant, and was delivered, October 28th. She was again delivered, October 22nd, 1735, also October 9th, 1738, and June 17th, 1741. She was admitted to Guy’s Hospital October 14th, 1747. She died November 7th, 1747. The autopsy showed the abdominal contents to be nearly in their natural state. In the right pelvis was a child, attached to the ilium and neighbouring membranes by the peritoneum, in which the tube and fimbriae were apparently lost. The fetal integument had become partially calcified.

“CASE 12.—In giving the history of this case I hoped to quote from the record books of the physician in attendance at the time of the accident, who, as I understand, took extensive notes, but I am unable to do so owing to his death a few years ago, and the subsequent destruction of his records. I am fortunate, though, inasmuch as such information as I have of the case comes from a twin sister, who is still a remarkably vigorous woman, both

mentally and physically, and whose statements, as far as they go, are undoubtedly correct. Mrs. A—— was married September 24th, 1844. She never had any miscarriages. She was delivered of a perfectly healthy child, January 29th, 1848. Early in January, 1856, she became, as events proved, pregnant again, though her condition at the time was merely surmised, as menstruation continued to be present, and, in fact, existed, with more or less regularity, throughout her entire pregnancy. It was not until the middle of May that the attending physician made a positive diagnosis of pregnancy, basing his opinion on fetal movements, which became manifest at that time. Early in March, while visiting friends, she fainted, vomited, and complained of epigastric pain. There was no flowing at this time. The following day she rode home, a distance of four miles. Directly after this she had three "inflammatory fevers," characterised by abdominal pain, excessive tympanitis and uncontrollable nausea and vomiting. During one of these attacks an abscess formed just above the pubes, which opened, but did not discharge much, if any. Counting from the middle of May, when fetal movements began, October 1 would be the probable date of confinement. About that time the physician was summoned, not on account of labour pains, as she never had them, but on account of excessive and painful movements of the child. These were always very marked, and caused her the utmost inconvenience. As she expressed it, she felt more life with this child in two hours than during her entire previous pregnancy. October 13 the physician was again summoned for the same reason as before. At this time "something was rubbed on the abdomen," after which the movements grew less and less, and finally ceased. For the following ten years she was an invalid, though nothing very explicit could be obtained as to her condition. She was generally miserable, and had a number of attacks of abdominal pain at irregular intervals, sometimes accompanied by icterus. During this period the tumour very gradually decreased in size, finally remaining stationary, and causing no trouble other than a feeling of weight when standing or walking too long. Her health was fair until 1883, when a malignant growth attacked her larynx, which eventuated in her death December 24, 1886. The autopsy was performed December 26, 1886, Drs. Bill and Metcalf assisting. The body was very much emaciated. The tumour was apparently situated in the median line, with its most prominent point at the umbilicus, but on palpation it was found to extend downwards and to the left. On making the incision it was found to be adherent to the abdominal walls, and it seemed as though it would have soon made its way through, either from pressure or ulceration, so thinned had the structures become at the point of its adherence. The position of the tumour may be best described by borrowing

the obstetric expression, sacrum, left anterior, though it was entirely out of the pelvic cavity, the base of the skull being on a level with the umbilicus. It was almost lying loose in the abdominal cavity, the only points of attachment being the one just referred to, to the abdominal wall; what was probably the umbilical cord, and some small adhesions to the intestines. These were ranged round the tumour, none in front of it, and were one mass of adhesions, forming, with the abdominal wall, a cavity, as it were, containing the tumour. The umbilical cord (?) passed directly downwards, enclosing the uterus, and then gradually fading out into the peritoneum. Nothing that would answer for a placenta, or the remains of one even, could be found. Roughly speaking, the parts of the fœtus were normally disposed, the thighs and arms being flexed on the abdomen and chest respectively. The left leg was rotated slightly outwards, as well as extended, and the forearms, instead of being crossed, were more or less parallel with the long axis of the body, the hands being placed well up beside the head. The tumour weighed $2\frac{3}{4}$ lbs., was $8\frac{1}{2}$ inches long, and $12\frac{1}{4}$ inches in circumference. The cross section showed it to consist of a fœtus and its envelopes, the process of calcification being especially marked in the membranes. The uterus, Fallopian tubes, and ovaries were also removed, but furnished no points of importance. The autopsy suggested an extra-uterine pregnancy of the abdominal variety; but the history points rather to one of the tubal variety, primarily. To epitomise the various dates:—

Mrs. A—	was married in	...	...	1844.
	First child	...	...	4 years later.
	Second pregnancy	...	...	8 " "
	Probable rupture of cyst and peritonitis	...	...	at the third month.
	Death of fœtus	...	...	at the ninth "
	Period of ill health	...	...	10 years.
	Period of health	...	...	27 "

Death from cancer of larynx invading the lung, at the age of 67."

We are quite justified in concluding from such records that Campbell and Parry are correct in their belief that a "quiescent lithopædion" is a very rare occurrence, and that a woman with the remains of an ectopic gestation sac in her abdomen or pelvis had far better have them removed.

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