conservative Cæsarean section were performed, the child being saved as well as the mother.

13. Pregnancy and cancer.

Reismann (*Centralb. f. Gynäk.*, No. 38, 1897) discussed the duty of the obstetrician in respect to the management of the later stages of pregnancy where uterine cancer, too far advanced for operation, existed. He had under his care a woman, aged thirty-six, in her tenth pregnancy, and subject for some time to fœtid vaginal discharge and hypogastric pain. He found the cervix extensively cancerous and the parametrium infiltrated. Considering the dangers of delivery by the natural way, and the abdominal section, Reismann intended to wait till labour set in, and then to perform Cæsarean section.

Bitásko related a case where birth occurred spontaneously, and the cancerous mass was torn in half during delivery. The puerperium was normal.

Von Rézmárszky stated that he had operated on a case of this kind, but without waiting for labour pains. The child died in two days; the mother survived for two months. He was against the practice of waiting till labour commenced, and found that the uterus contracted well enough before the puerperal process had actually set in. What was essential was a sufficiently patulous state of the os to admit of the free escape of the lochia after operation.

III.—EXTRA-UTERINE GESTATION.

1. Extra-uterine pregnancy.

John Taylor (*Lancet*, May 28, June 4, 18, 25, 1898), in a series of lectures, gives us what is known of this subject, and puts forward his views, based on previous records and his own observation.

After making some introductory and historical remarks, he says that no proof exists that an impregnated ovum can be arrested in the ovary; that arrest in the abdominal cavity between ovary and tube is probably always immediately fatal to the ovum; that arrest between the tube and the uterus may be regarded as arrest in the uterine part of the Fallopian tube, and that we have to deal with one kind only, viz., tubal pregnancy. All other varieties are secondary, and he divides them into:—(1) tubo-abdominal, in which there is secondary invasion of the abdomen; (2) tubo-ligamentary, in which there is secondary invasion of the broad-ligament and sub-peritoneal tissues; and (3) tubo-uterine or interstitial, where the uterus is invaded.

Taylor classifies the earlier disturbances of Tubal Pregnancy

as follows:—(*a*) Early rupture of the tube from a pregnancy of two to six weeks' standing—an accident in which there is no warning of danger. There are often no physical signs, there is no symptom before that of sudden and copious bleeding, and history of pregnancy is either wanting or only represented by an account of menstruation delayed for one week or even less. The most usual seat of rupture is close to the uterus. In nearly all the cases there is some amount of non-development or atrophy of the tube. (*b*) The "Tubal Mole," where hæmorrhage occurs between the amnion and chorion, injuring or destroying the embryo. The "mole" in a few cases is extruded into the abdominal cavity, but in the majority remains firmly attached to the inner surface of the tube. Repeated hæmorrhages occur, though the abdominal ostium partially restrains the flow of blood into the peritoneal cavity. The enlarging tube falls usually behind the uterus and gradually fills the pelvis, displacing the uterus. The formation of an intra-peritoneal hæmatocele is then described. (*c*) Later rupture of the tube may take place from the first month onward, but is most common from the second to the fourth month. The hæmorrhage is not so immediately fatal as in the very early rupture, though more rapid than in cases of "tubal mole," where the outer layer of blood has time to consolidate, and form in some measure a "capsule."

(1) *Tubo-abdominal pregnancy.*—Taylor believes that the protection of an unruptured amnion is indispensable for the uninterrupted development of the fœtus, and describes fully a case in which he found a transparent membrane surrounding the fœtus, and protecting it in every direction. The membrane was very thin and not capable of separation or differentiation from the peritoneum except when it passed from one viscus to another, or from one coil of intestine to another. There are four different relations of the placenta to the main gestation-sac. In the first group the placenta is practically within the sac and covered by reflexions of the amnion; in the second, it has a fœtal and maternal surface of nearly equal dimensions, the fœtal surface being covered by the amnion and in immediate relation to the sac, while the maternal surface is growing from the spread-out remnants of the tube and from the peritubal tissues; in the third, the placenta remains within the tube and the maternal attachments are confined to the tube itself; in the fourth group the placenta is attached to the upper wall of a broad ligament sac outside the peritoneum, and the cord passes to the child through a hole in the ligament.

(2) *Tubo-ligamentary pregnancy.*—Fig. 3 represents a case of

tubal pregnancy of four months' growth, which terminated by secondary rupture into the peritoneal cavity.

The tubo-ligamentary pregnancy may go on to full term, but owing to the higher position of the placenta and its liability to detachment, the patient is in a much more precarious condition than with a tubo-abdominal pregnancy. In both varieties the period of the third or fourth month is especially dangerous. He divides advanced tubo-ligamentary pregnancies into two classes: anterior-ligamentary or sub-peritoneo-pelvic, and posterior-ligamentary or retro-peritoneal.

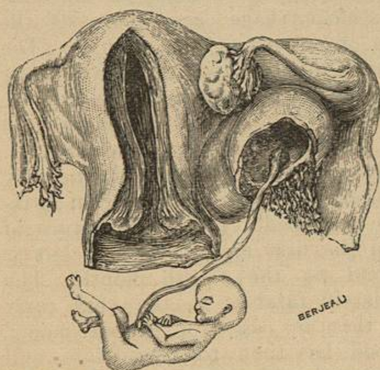

Fig. 3.—Tubo-ligamentary pregnancy.

On the question of diagnosis, Taylor goes on to say that in the case of early rupture with profuse hæmorrhage, the symptoms (of internal bleeding) are on the whole most reliable, that the history is of vast importance, and that physical signs are uncertain and practically wanting.

The elements which go to form a diagnosis of extra-uterine pregnancy before and during intra-peritoneal bleeding and hæmatocele formation are:—(1) A patient in whom pregnancy is possible; (2) she has recently been in good health; (3) it is more likely than not that several years have passed since her last pregnancy, if she had one; (4) there is a history of some amenorrhœa accompanied or followed by (5) irregular uterine hæmorrhage, dark in colour, moderate in amount, and persistent in its course; (6) with this there may be the history of the passage of some membrane; (7) on examination, pulsatory vessels may be felt in the side of the uterus in the vaginal vault; (8) on this side also, and closely investing the back of the uterus, there is nearly always a tubal tumour (exceptionally this may have a different situation); (9) the tumour enlarges markedly and suddenly by recurrent hæmorrhages and by the formation of a hæmatocele directly continuous with the original tubal tumour; (10) these hæmorrhages are signalised by sudden spasms of severe abdominal pain and by transient attacks of peritonitis; (11) the uterus is displaced by the hæmatocele at first backwards, afterwards to the opposite side of the pelvis, and sometimes forwards; (12) the uterus throughout, although slightly enlarged, may be proved to be empty.

On the subject of treatment, Taylor says that the aim of the operation at full term in tubo-abdominal pregnancy is the treatment of the placenta. He is of opinion that in all cases of true tubo-abdominal cases it is wise to remove the placenta: wherever the placenta is, there is the Fallopian tube from which it receives the greater portion of the blood-supply. In the tubo-ligamentary cases he recommends leaving the placenta in most cases, and sewing the sac to the abdominal opening.

An exhaustive table of cases is added.

2. Tubal gestation.

Dührssen (*Archiv f. Gynäk.*, vol. liv., pt. 2, 1897) has compiled a valuable monograph on this condition, based upon operative experience and anatomical research. He feels sure that the most frequent cause of tubal gestation is gonorrhœa, through the catarrhal salpingitis which that disorder sets up. He also shows, from a specimen, that polypus of the tube may likewise cause the same phenomenon. He figures a tubal sac, on the uterine side of which is a small polypus which obstructed the lumen, so as to prevent the fertilised ovum from passing into the uterus. The ostium is very patulous. A less familiar condition is held by Dührssen to be the cause of tubal pregnancy when evidence of inflammation or mechanical obstruction is absent: he finds that in seven of his cases the abnormal followed within a year a normal pregnancy; he carefully examined the tube in one of these cases, and found the most definite evidence of atrophy of its walls; this puerperal atrophy damages the peristaltic action of the tubes, and as the lumen is dilated, the entry of spermatozoa is favoured; the weakened tube then fails to propel the fertilised ovum into the uterus.

3. Primary peritoneal pregnancy.

Picqué and **Rochard** (*La Médecine Moderne*, Oct. 30, 1897) claim to have observed a genuine example of this disputed type of ectopic gestation. A woman, aged 25, was suspected to suffer from salpingitis, and abdominal section was performed. A sessile tumour was found in the iliac fossa, and was extracted without much difficulty. The tube and ovary on the same side were normal, and on the strength of this fact it was concluded that the tumour, which bore a small embryo, was a primary gestation sac. **Hartmann**, in discussing this case, said that he had once examined a peritoneal or abdominal pregnancy, and found on strict scrutiny that it had been grafted on the peritoneum by a little pedicle which was a fimbria of the Fallopian tube. He suspects, therefore, that many cases of so-called primary abdominal or peritoneal pregnancy originally developed on a tubal fimbria,

afterwards lost or transformed beyond recognition. Rochard further related a case of what he termed an abdominal fœtal cyst of tubo-ovarian origin. He diagnosed uterine fibroid, and did not know the true nature of the disease till he had opened the abdomen. A dead macerated fœtus filled the cyst, in the walls of which was the ovary.

4. The history of pain and the menstrual history of extra-uterine pregnancy.

Barton Cooke Hirst (*Amer. Journ. of Obstet.*, April, 1898) has analysed 22 cases of extra-uterine pregnancy, to elucidate the value of the history of pain and of menstruation for diagnosis. He gives three cardinal symptoms: (1) Pain, characteristic in nature, manner of occurrence, and situation; (2) irregularity of menstruation, often with the discharge of what the patient calls "pieces of flesh"; (3) the following physical signs: for the first two or four weeks a swelling in the tube, no bigger than the end joint of one's thumb, and unadherent; later, an exquisitely sensitive mass fixed in the pelvis by thick velvety adhesions.

Pain has been the most helpful symptom in guiding the author to a diagnosis. It may be defined as a pain described by the patient in the strongest terms; occurring in paroxysms with free intervals; appearing at any time from a few days to months after a normal menstruation; situated often in the groin, though often referred to the lower abdomen, and sometimes shooting down the leg or up to the epigastrium, and so severe as to occasion profound systemic disturbance, such as syncope and excessive shock, which the author attributes to pain rather than hæmorrhage. The characteristic menstrual history of extra-uterine gestation is one of irregularity, and often not of cessation at all. In 27 per cent. of Hirst's cases there was no cessation, in 18 per cent. more a menstrual period was only delayed ten to twelve days. Prolonged uterine bleeding, on the other hand, preceded or followed by the discharge of decidua, is the almost universal rule at some period in the history of a tubal pregnancy.

5. The tubal mucosa in tubal gestation.

Clarence Webster (*Amer. Journ. of Obstet.*, Sept., 1897) like Fraenkel and Abel, claims to have detected a true decidua in the tube in cases of tubal pregnancy. Bland Sutton denies that a tubal decidua exists. Webster insists that Fraenkel, Abel, and himself did not endeavour to prove that a decidual foundation might develop in the gravid tube, but, on the contrary, discovered decidual tubes in examining tubes purely with the object of defining their histology. Pavy's theory, on which Sutton's views are based, is a mere hypothesis and there is no

reason to believe that he ever examined a section of pregnant tube through the microscope. Webster further maintains that if the placenta be examined in the case of an early pregnancy where escape into the peritoneal cavity has occurred, it presents appearances much the same as those found in the placenta of a miscarriage from uterine pregnancy, the maternal surface being covered with the thin superficial layer of the decidua serotina, irregular in its thickness and distribution. This irregularity is more marked in the case of the tubal than in the uterine placenta.

IV.—OPERATIVE DELIVERY.

1. The obstruction of labour by ovarian tumours in the pelvis.

McKerron (*Obstet. Soc. of London Transactions*, 1897 and 1898) had a paper dealing only with those cases where the ovarian tumour occupied the pelvis during labour. He had collected 183 instances of this complication, which he arranged in 9 tables, according to the treatment adopted. Two unpublished cases were detailed.

McKerron refers to the various publications on the subject, and points out that considerable divergence of opinion still exists as to the most satisfactory treatment. He says that the mere comparison of deaths and recoveries following an individual treatment tends to lead to erroneous conclusions. In many of the fatal cases the untoward result is to be ascribed, not to the operative measures, but to the preceding exhaustion from delay, which, as their history shows, might in many have been avoided. The infrequency with which the existence of any abnormality was suspected during pregnancy is surprising. In 33 only, or 18 per cent., was ovarian disease discovered previous to the onset of labour. It follows that radical measures during pregnancy were possible in only a small percentage of cases. As to the character of the tumour, in 70 cases the evidence is insufficient to form a reliable opinion. In 113 the nature of the tumour is comparatively certain; in 49 the enlargement was a simple or multilocular cyst, while it was a dermoid in 46, in one of which the other ovary, enlarged and cystic, also occupied the pelvis; in 9 the tumour was malignant; in 5 a fibroma; in 2 colloid; in 1 fibro-cystic, and in 1 a cystic adenoma. In 49 cases where the ovary was cystic, 10 deaths occurred; while in 46 cases of dermoid, 18 deaths are found—a mortality almost double. The total number of maternal deaths is 56, or 30·5 per cent. The mortality in the earlier cases, however, was greater than in more recent years; since 1876, in 48 cases, the mortality was only 12·5 per

cent., while in the 135 earlier cases the mortality was 37 per cent. This difference is not only due to the introduction of antiseptics, but also to the earlier resort to treatment, and the greater frequency with which reposition has been attempted and effected. Rupture of the cyst occurred during labour in 15 cases, death resulting in 9; in 5 the cyst ruptured spontaneously.

In 5 cases there occurred what Playfair terms "natural ovariotomy," the tumour prolapsing through a rent in the recto-vaginal septum.

Of the 183 cases, the termination of labour was left to the natural powers in 35, with a fatal result to the mother in 12.

Reposition was effected in 41 instances, with only three deaths attributable to the treatment, 3 other deaths being due to accidental causes; 7 children were still-born, and 6 not recorded.

Puncture or incision of the tumour was resorted to 43 times, resulting in the deaths of 8 mothers and of 24 children. The convalescence of the mothers was also much less satisfactory.

In 17 cases version formed the sole treatment, with a maternal mortality of 6.

In only 14 cases was the forceps alone relied on; with the death of 8 of the mothers.

In 18 cases labour was terminated by embryotomy alone, with the recovery of 10 mothers.

On 10 occasions Cæsarean section was performed, when only 2 mothers recovered.

Abdominal ovariotomy was performed twice *intrapartum*, and both mothers made excellent recoveries.

In 3 cases the ovary was removed per vaginam with successful results.

McKerron continues that the diagnosis presents, as a rule, little difficulty, the important point being to be aware of the possibility of an enlarged ovary occupying the pelvis. Diagnosis should at once be followed by an attempt at reposition, which should not be delayed till the membranes are ruptured; pressure should be steady and continuous to avoid as far as possible the danger of rupturing the tumour, as the proposition that forcible reposition, even though rupture be induced, is safer than puncture from the vagina, cannot be entertained. Where all attempts at reposition fail, active intervention is in all cases imperative, as the risks involved in leaving the case to nature are very great. Where the tumour is entirely cystic, puncture per vaginam, with a good-sized trocar is, on the whole, the safest method of treatment, though there is the risk of infection. Fritsch prefers incision to puncture of the cyst. He makes an incision $1\frac{1}{2}$ inch long, and in the mesial line, beginning at the posterior lip of the os uteri, and at once secures the cyst wall to the vagina by a suture. The incision is then enlarged and the edges of the cyst united with the edges of the vaginal wound.

Version, forceps, and ovariotomy are contra-indicated as the means of treatment; the two latter may follow reposition, puncture, or ovariotomy when the obstruction has been removed, but version should never be performed.

Briefly, the indications for Cæsarean section are an irreducible tumour which puncture has failed to remove completely, which does not meet the conditions for vaginal ovariotomy, and which, on abdominal section, is found to be extensively adherent in the pelvis. The operation should be performed as early in labour as possible.

Two successful cases of *intrapartum* abdominal ovariotomy have been recorded by Sir John Williams, which demonstrate the utility and safety of this method. The cases, however, to which the operation is applicable are limited, as in the majority of cases when reposition has been found impossible, pelvic adhesions exist which render the removal of the tumour in the presence of a full-term uterus a measure of the greatest difficulty.

Extirpation of the tumour per vaginam is a procedure still on its trial. Hande defines the cases for which the operation is suited as being those where a tumour lies wholly and deep in the pelvis, is movable, pedunculated, with no, or but slight, adhesions, and whose upper limit is accessible from the vagina. McKerron agrees that in certain circumstances the operation affords the readiest and safest means of terminating labour.

As regards the after-treatment, McKerron gives the following conclusions:—(1) Where the delivery has been effected by Cæsarean section the tumour should, if possible, be coincidentally removed. (2) Where the cyst contents are proved or strongly suspected of being infectious, or where the tumour has been subjected to long-continued pressure, abdominal ovariotomy should be performed immediately, or within a few hours, after delivery. (3) Where the tumour has been subjected to considerable pressure before reposition, and is believed to be adenoid, its removal should be effected at the end of the first week of the puerperium. (4) Where reposition has been successful early in labour, or where puncture reveals the tumour to be a simple cyst, expectant treatment should be adopted, but the supervention of severe inflammatory symptoms should at once be followed by laparotomy.

McKerron concludes with a detailed analysis of the 183 cases.

In the discussion on the paper, **Herman** said he thought that Fritsch's method of treatment deserved fuller consideration and commendation—viz. the making an incision into the cyst from the vagina, and stitching the opening in the cyst to the margin of the vaginal incision. In this way the emptying of the cyst contents outside the peritoneum was secured. If the cyst were a dermoid, simple tapping was attended with much danger of the cyst contents escaping into the peritoneal cavity and setting up peritonitis. He did not advise this procedure for tumours that could be pushed up; nor for those in circumstances suitable for ovariotomy. The time when reposition became impossible was in the second stage of labour, when the tumour was driven down by the advancing presenting part; then prompt treatment was necessary, and incision and suture the best course for an inexperienced accoucheur. If the tumour was driven down into the pelvis there was usually tension of its pedicle calling for extreme care in its ligaturing, for if hæmorrhage resulted there would be great difficulty in stopping it by vaginal treatment.

Playfair thought removal of the cyst by the vagina was preferable to vaginal incision and suturing. Reposition was risky if the tumour had been long subjected to incarceration and contusion. He recommended aspiration in cases where the tumour was jammed down by the presenting part.

Horrocks was of opinion that abdominal ovariotomy was preferable to the original operation, and that if the abdominal operation were not possible, incision and suturing were preferable to aspiration.

Spencer thought that ovariotomy was the proper treatment when practicable. If incision *per vaginam* was made (tapping usually would be of no use), he was not in favour of stitching the cyst wall to the vaginal opening; it would be most difficult to perform owing to the head coming down; he advocated plugging the cyst, as a temporary measure, with iodoform gauze, and removing the tumour as soon as possible after the labour, either by vagina or abdomen.

2. The use and abuse of forceps.

Milne Murray (*Brit. Med. Journ.*, Aug. 20, 1898) at the annual meeting of the British Medical Association opened a discussion on the use and abuse of the midwifery forceps. He summed up their misuse as follows:—(1) The forceps are often used at the wrong time; (2) they are sometimes not used at the right time; (3) they are often badly used at both times. Their dangers were: (1) the mother's parts may be bruised, lacerated, or otherwise injured by mechanical violence; (2) the too sudden emptying of the uterus may be followed by imperfect retraction and dangerous hæmorrhage; (3) the fœtal head may be unduly compressed, lacerated, or otherwise damaged. He said that a direct indication for the use of the forceps arises whenever—and only whenever—we are assured that the danger of interference has become less than that of leaving the patient alone. At the same time Milne Murray took up the position that the forceps lessened pain and minimised injury, and said that he would have no scruple, could he do so with safety, in abolishing every pain after the first, and reducing the duration of labour to a minimum, though, unfortunately, this was not practicable, as physiological labour consisted of phenomena which required time for their development; but if after dilatation of the os the advance of the head was blocked by the size of the head, the resistance of the canal, or the feebleness of the pains, he would not wait a moment before using the forceps.

After considering the general indications against their use, Milne Murray said he considered that forceps were abused by being badly used (1) by not employing the most efficient instrument, viz., the axis-traction forceps, which he advocated as by far the most efficient at the outlet, as well as in the cavity, and at the brim of the pelvis; and (2) by applying the forceps in the pelvis transverse without reference to the diameter of the head, instead of applying them to the biparietal diameter of the head, wherever situated.

W. S. Playfair took exception to the main thesis laid down at Montreal by Sinclair, that gynæcology had become so largely developed as the direct result of surgical intervention in midwifery. The introduction of the forceps had led to the practical disappearance of vesico-vaginal fistula and an enormous diminution in the number of cases requiring craniotomy. **Smyly** said that safety in the use of forceps lay in adhering as closely as possible to their employment under favourable conditions. The high forceps was not an operation to be taken lightly in hand, and the importance of time in moulding the head to the brim should not be forgotten. A head might come through with moulding which could not have been brought through with forceps at an earlier stage.

Fehling said that the chief mistake was to employ forceps in the absence of strict indications. In ordinary cases three points must be insisted on: the head must be under the brim, well rotated, and the os dilated. It was only justifiable to operate in the absence of these three conditions, if there were any danger for mother or child.

Munro Kerr protested against the teaching generally found in text-books, to the effect that as long as the forceps were applied in the transverse pelvic diameter, it did not matter how the head was grasped; the forceps should be applied with reference to the diameter of the child's head.

Byers agreed with the rule "wait until you can see what nature can effect; don't interfere till she fails."

Handfield-Jones thought it would be unwise to teach students that the forceps were to be applied simply with reference to the position of the fœtal head rather than in relation to the lateral pelvic wall, as in attempting such an application it was often difficult to lock the blades, and much harm might be done by efforts in this direction. In cases in which the cervix remained undilated it was most important to ascertain carefully the softness and distensibility of the lower uterine tissues, as when this was marked forceps might be much more safely and readily applied than in cases where the tissues were thickened and rigid.

3. The use of the high forceps operation.

Toth (*Arch. f. Gyn.*, vol. lv., part i., 1898) deals with this question, with special reference to the contracted pelvis. He refers to the fashions that prevail in the use of the forceps, the frequency in head presentations varying from 1 or 2 to 11 or 12 per cent.

In Buda-Pesth, among 7,775 births in 15 years, the forceps was used 155 times—that is, in 1·9 per cent. of the cases. Forty-four cases of high forceps came under the author's observation, falling into three groups: (1) with normal pelvis, 10 cases; (2) with contracted pelvis, 24 cases; (3) unsuccessful applications followed by craniotomy, 10 cases. In the first group, indications were uterine inertia, protracted second stage with danger to mother or child, undue stretching of the lower uterine segment, with risk of rupture of the uterus; 7 of the children were saved, 2 of the others weighing 11¾ lb. and 12¾ lb. respectively. In the second group 21 children were saved and 23 mothers. In the third group perforation was performed on the living child seven times, and on the dead child three times; one mother died of rupture of the uterus and peritonitis; in this case the assistant, contrary to the practice in vogue at this clinic, turned after the high forceps had failed, and then had to perforate the after-coming head. The indications were—delayed dilatation and failure of the head to engage, 2 cases; threatened uterine rupture from undue stretching of the uterine segment, 7 cases; embarrassed breathing with severe nephritis, 1 case.

After quoting and comparing many statistics, the author sums up in the following conclusions:—(1) The use of the high forceps is not so dangerous, either for the mother or the child, as commonly supposed; on the contrary, it gives undeniably better results for both than turning, especially from a head to a foot presentation. (2) In general, where labours must be terminated in the interest of the mother, then, if conditions are no longer applicable for turning, the high forceps should be tried before perforation of the living child is resorted to. (3) In cases of generally contracted pelves of the first and second degrees, where the narrowing especially affects the upper straits, the high forceps should have the preference over turning after a due period of waiting has shown that a spontaneous termination of labour is impossible. The same principle should guide us in those cases where the disproportion is due to a relatively large child, while the pelvis is of normal size. (4) In cases where the high forceps has failed, further waiting is not permissible, but perforation must at once be resorted to. Under favourable circumstances, symphysiotomy may be considered as an alternative, but turning (into a foot presentation) is contra-indicated, and must be decisively rejected. (5) The high forceps operation can be performed with any instruments of convenient length, but the author has been repeatedly convinced of the superiority of Tarnier's axis-traction over other high forceps.

4. Symphysiotomy.

Varnier (*Ann. de Gynéc, et d'Obstét.*, September, 1897) issued at the Moscow Congress a report of his conclusions in regard to this operation, based on 86 cases performed at Paris in six years. The momentary widening of the pelvis, arrived at after Pinard's method, reduces the rate of fœtal mortality in contracted pelvis to the rate of fœtal mortality after forceps delivery where the pelvis is normal. This widening does not cause hæmorrhage, nor any lesion of the sacro-iliac synchondroses liable to compromise the safety or health of the patient. Damage to the bladder or urethra is exceptional, and possibly due to the forceps and imperfect dilatation of the pelvis. With antiseptic precautions and a healthy patient free from previous sepsis, the momentary widening of the pelvis involves no more risk than other obstetric operations. Beyond accidental complications, independent of this method of intervention, the mortality of patients after symphysiotomy is chiefly due to puerperal septicæmia. The operation is followed by perfect restoration of functions, but not with any enlargement of the contracted pelvis. It causes no trouble in future labours and may be safely repeated. Varnier would extend the operation beyond cases of pelvic

contraction to cases of dystocia from great bulk of the fœtus, or from certain abnormal presentations (brow, etc.) in normal pelves.

Symphysiotomy should replace induced premature labour, the forceps and version in cases of contracted pelvis. Varnier continues that he does not add to this list of older obstetric operations many for embryotomy practised on the live child, as it is no longer advocated.

Symphysiotomy is the only effectual process for enlarging the pelvis. Walcher's "hanging position," which stretches the sacro-iliac synchondroses, is worthless, being all but impracticable on real patients, and experiments on the dead body show that the difference between the extreme of dilatation and compression of the synchondroses as affecting the conjugate diameter of the pelvis amounts to but six millimetres (or not quite a quarter of an inch or 0·234 in.) on an average. Symphysiotomy should be confined to the widening of the bony pelvis. It is dangerous to have recourse to this operation in order to facilitate dilatation of the soft parts. The widening of the pelvis should be momentary; when the soft parts are at fault it has to be kept open for some time. Varnier and Pinard admit that this happened in one of their own cases. Twelve hours were wasted, the wound suppurated, and the patient died of septicæmia. Symphysiotomy must not be attempted for dystocia caused by tumours of the soft parts. Ante-partum septic infection of the mother, and distinct evidence of death of the fœtus, are also contra-indications.

5. Cæsarean section followed by vaginal amputation of the artificially inverted uterus.

V. Duchamp (*Loire Méd.*, No. 9, September 15, 1897) has had an opportunity of giving effect to a proposal which he made eleven years ago. He has modified the Porro-Cæsarean section by artificially inverting the uterus into the vagina after having emptied it of its contents by the abdominal incision; with the aid of the elastic ligature the body of the organ is then amputated, and the abdominal cavity closed in front by suturing the walls, and below by the bringing into contact of the serous surfaces gathered together and united by the elastic ligature. The patient upon whom he was enabled to demonstrate the simplicity and ease of the operation was a primipara, aged forty-three years, with an irregularly-formed and slightly-flattened pelvis. After he had with some difficulty and by a large uterine incision emptied the uterus, he carried out its inversion as follows: a pair of long catch-forceps was introduced per vaginam through the cervical canal into the uterine cavity, and with this one of the margins

of the uterine incision was seized; a second pair of forceps was similarly introduced and attached to the other margin of the incision; and, finally, both pairs of forceps were drawn down into the vagina and the uterus was brought down with them in an inverted state. The rest of the operation was easy, and save for a slight attack of broncho-pneumonia the recovery was perfect. The infant was extracted alive. Duchamp claims for his modification that it excels Porro's in regard to the complete closure of the serous membrane, and that it does not expose to hæmorrhage as does a hysterectomy. Further, it can be performed by any practitioner, and requires no elaborate preparations such as are only possible in a large hospital.

6. The induction of premature labour by means of glycerine.

Heinrich Saft, in the *Deutsche medicinische Wochenschrift*, Jan. 20, 1898, has published an account of a method which he has devised for the induction of premature labour by means of glycerine. After enumerating various other procedures employed for this purpose, such as irrigation with hot water, introduction of bougies and indiarubber bags full of fluid between the uterus and the fœtal membranes, and the use of the colpeurynter, he says that they may require some days or even a week to produce the effect, and that glycerine is the most efficient substance at present known. Glycerine has a strong affinity for water, easily withdrawing it from the animal tissues and in this way irritating the uterine ganglia and nerves so that muscular contractions are produced. Its application is not free from danger, as it has been found to injure the parenchymatous substance of the kidneys and to cause hæmoglobinuria, destruction of the red corpuscles, shivering fits, and spasmodic dyspnœa. Various modifications have been suggested for the purpose of obviating these dangers.

Teilhaber used rods about four inches long, coated with a mixture of glycerine, gelatin, and tricresol. **Flatau** replaced these rods by elastic bougies. **R. A. Simpson** injected three ounces of glycerine into the undilated os uteri of a primipara suffering from eclampsia and subsequently packed the cervix and vagina with plugs soaked in glycerine; but labour did not ensue, and another injection had to be given. Small quantities of glycerine are useless, and large quantities are dangerous. Saft therefore endeavoured to devise a method by which a large amount of glycerine might be introduced into the uterus without more than a very small proportion of it being absorbed. He passed a catheter, covered with an empty animal-membrane bag, between the membranes and the

uterus: for the animal membrane he used the swimming-bladders of fishes fastened to the catheter by thread tied round its mouth. When in position he introduced the glycerine through the catheter. Saft succeeded in inducing labour by this method without any ill effects to the patients. Diffusion takes place through the swimming-bladder, the glycerine withdrawing water from the uterus and fœtal membranes, thereby stimulating the uterine nerves and ganglia so that labour ensues. At the same time some glycerine diffuses outwards through the membrane, but the quantity is too small to be productive of injury. The swimming-bladders are prepared by being freed from fat by treatment with ether and are afterwards sterilised with an alcoholic solution of corrosive sublimate. The quantity of glycerine injected is about 3½ oz. The bladder must not be pushed high up into the uterus, but must lie directly over the internal os, and, finally, the vagina is packed with iodoform gauze, which prevents the catheter from being pushed out. No ill effects to either mother or child were observed.

Of seven patients treated in this way four had injections of from 1½ to 2 oz. of glycerine, and the average duration of labour was about 108 hours; the other three had injections of 3½ oz., with an average duration of labour of fifty-two hours. Saft considers that glycerine exerts a specific influence in consequence of its affinity for water.

The Edinburgh Medical Journal for January, 1898, contains an account of a case in which 3 oz. of pure glycerine were injected into the uterus in the fifth month of pregnancy. The patient very soon had an intense rigor lasting more than forty minutes; her face was cyanosed and wore a frightened expression; her pulse was 45. These symptoms passed off, labour pains set in, the ovum was expelled entire, and the patient made an uninterrupted recovery.

V.—THE PUERPERAL STATE.

1. Serum-therapy in puerperal septicæmia.

Wallich (*Annales de Gynécologie et d'Obstétrique*, Nov., 1897) concludes an important report as follows: (1) From an experimental point of view, employing Marmorek's serum on animals inoculated (in their blood) with streptococci derived from puerperal infection, Wallich has not obtained regularly either preventive or curative results, especially with the serum used on women in 1896. (2) From a clinical aspect, Wallich fails to find sufficient modifications in regard to septicæmia, morbidity and mortality in the Baudelocque Clinic in 1896 to justify any definite opinion.

Marmorek's serum was there employed most methodically. A much longer experience is required. The value of preventive serum-therapy is absolutely unknown. Therefore, intra-uterine treatment, which has been well tried, must not be cast aside in favour of curative serum-therapy by anti-streptococcic serum. The bacteriological diagnosis of puerperal infection is as yet hard to make in any clinical fashion.

At the Obstetrical Society of London on October 5th, 1898, the question of anti-streptococcic serum in puerperal septicæmia was discussed. **J. Walters** related a case in which he attributed recovery to the use of serum.

Amand Routh said that of five or six cases treated by himself, one had recovered by the use of anti-streptococcic serum alone. He advised ascertaining the presence of streptococci before administering the serum, on which point **Eden** agreed. **Cullingworth** thought the serum should be administered without waiting for bacteriological examination. **John Phillips**, out of several cases, attributed recovery to one, in which, however, bacteriological investigation gave a negative result.

2. Premonitory symptoms of puerperal infection.

Ferré (*L'Obstétrique*, September 15, 1897) lays stress on the success of intra-uterine treatment for puerperal fever. This success stands in direct ratio to the earliness of intervention. Hence very careful clinical researches have been made in lying-in hospitals in order to detect true prodromata. The true rigor, local pains, and conspicuous pulse and temperature are known to all and, when combined, indicate more or less advanced infection. Ferré denies that these symptoms ever come on suddenly, though certain milder types of infection now observed may represent sepsis modified by antiseptic agents. These milder types, however, will assuredly develop into deadly septic infection if neglected. Ferré finds, after long clinical research, that even the severest form is preceded for a day or two by distinct elevation of temperature and pulse and by insomnia. An evening temperature of 100° in the axilla, with a fall of about a degree in the morning, without a corresponding drop in a somewhat rapid pulse, is a distinctly suspicious symptom. The rise in the pulse-rate often precedes the rise in temperature; the observer must therefore make sure that acceleration of the heart's action is accounted for even in a patient who seems otherwise convalescent. Reaction after the fatigue of labour, hæmorrhage, and emotions all send up the pulse. Insomnia, Ferré has noted, is often observed in the earlier stages of infection; distinct want of sleep without restlessness is usual for a day or two before bad septic