symphysis and it is difficult to disengage it. The head is therefore delivered with forceps in its extended position, as if it were an inverted face. Draw the body forward over the patient's abdomen, apply forceps over the lowest part, the occiput, and deliver by bringing the forceps towards the abdomen. By this method the vertex is swept through the hollow of the sacrum and the chin remains, as it were a fulcrum, over the symphysis until the occiput has escaped.

Posterior positions of the head can be avoided, even if the position is originally sacro-posterior, if care is taken to keep the back of the foetus facing the side of the mother after the breech is born, for at this time the head is free in the uterus and follows the rotation of the rest of the foetus. If it occurs forceps delivery will probably be necessary.

In conclusion the principal points to which attention is drawn are:—

1. On account of their high foetal mortality all breech presentations should be regarded as abnormal and should be diagnosed during pregnancy.
2. Doctors without exceptional opportunities for gaining experience in difficult breech cases should turn all they can during pregnancy.
3. Doctors with large experience can conduct breech labours without greater risk to the child than in vertex presentations.
4. The motto "*non vi sed arte*" bears with peculiar application upon the conduct of breech labour.

CAESAREAN SECTION.

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The operation of Cæsarean Section dates from very olden times, but the original operation was performed on women after death in an advanced state of pregnancy, in the hopes of extracting the child before it succumbed. The operation owes its name to Numa Pompilius who was Emperor of Rome some time after the death of Julius Cæsar. During his reign a code of laws was written called the *Lex Cæsarii*, one of which rendered it incumbent on attendants of a woman who died advanced in pregnancy, to open her belly after death and extract the child. Julius Cæsar was not born by this method and the name of the operation is not actually connected with him.

During the Middle Ages the operation was carried out in scattered isolated cases on living women most of whom succumbed, although the possibility of obtaining a living child was recognised, certainly by William Shakespeare, who, in the play "*Macbeth*" endows Macbeth with a charm that he will never be slain "by man born of woman" and when things come to the end and he is engaged in mortal

combat with Macduff, he tells Macduff that he has this charmed life, but Macduff completely upsets Macbeth's equilibrium by stating that he was not born of woman but "from his mother's womb untimely ripped"—obviously a Cæsarean Section!

In the eighties, when antiseptics and anæsthetics had made modern surgery possible, Porro devised the idea of opening the abdomen in cases of obstructed labour and removing the child from the uterus, but it did not occur to him that the wound in the uterus might be sutured, or, if it did occur to him presumably he considered it too dangerous as he left the uterus outside the abdominal cavity and proceeded to strangle it off tightly with a serenoïd.

In 1882 Sanger suggested that the uterus might be sutured and returned to the abdomen and to him we owe what is now called the "Classical operation". In 1907 Frankl was struck with the idea that the uterus could be approached in its lower portion without opening the peritoneal cavity, and he reflected the peritoneum, unopened, from the anterior abdominal wall to the side of the bladder and off the front of the lower segment. This operation is very little practised nowadays as so much cellular tissue is opened and the bladder is in danger of injury.

This operation however, was modified, particularly by Monro Kerr who attacked the lower segment via the peritoneal cavity and who is largely responsible for the popularity of the modern Lower Segment Cæsarean Section. In this operation the abdomen is opened and the loose peritoneum covering the front of the lower segment of the uterus is incised and reflected together with the upper edge of the bladder. The uterus is then incised and the child extracted, and the incision in the uterine wall is sutured and completely covered by the peritoneal flap. It is not my intention to give any detailed description of operative technique in this paper as these details are well described in many textbooks on operative midwifery.

The indications for Cæsarean Section are traditionally defined in Absolute and Relative, Absolute indications being conditions in which there is no possibility of getting the child out either whole or piecemeal except by Cæsarean Section. The Absolute indications are very few. A pelvis so deformed that the anterior diameter is two inches or under and the transverse diameter three inches or under, is one. A pelvis deformed by osteomalacia so that a tri-radiate pelvis is produced is another. Bony tumours filling the pelvic cavity yet another. But here our list ends.

Relative indications are legion, and in almost any abnormality it may be considered whether the risks to the mother and child by attempts at delivery per vias naturales offer greater risks than does Cæsarean Section, and in the Relative cases many points must be taken into consideration, and perhaps, first and foremost, I would place the skill and experience of the operator and the conditions under which he has to operate. An operation in any fully equipped hospital theatre is a vastly different affair to the same operation in an ill-lit bedroom with inadequate assistance. Perhaps the greatest Relative indication is disproportion between the head of the foetus and the bony pelvic canal. This disproportion may be such that a small puny infant can be extracted after premature labour has been

induced, and one has to balance the risks to the child against the increased risk of Cæsarean Section. For there is an increased risk in Cæsarean Section. The best figures, that have ever been produced for a large series of premeditated Cæsarean Section, show a maternal death rate of about one and a half per cent. The death rate for labour, normal and abnormal, in England and Wales is somewhere about five per thousand, and if we could divide labour up into normal and abnormal labour, we should find that the death rate from normal labour was somewhere about two and a half per thousand, so that on this calculation Cæsarean Section is six times as risky for the mother as *normal labour*. But having taken a calculation this way round we must now consider it the other way round; what do we estimate that the death rate is in abnormal labour? In complete absence of any statistics one can only guess, but to take a few isolated cases. Embryotomy—and by this I do not mean simple craniotomy but removal of the child piecemeal—in cases of obstructed labour has a maternal mortality of nearly fifty per cent.

Again, in those cases in which carcinoma of the cervix complicates pregnancy it is possible to extract the child alive but the risks to the mother from hæmorrhage, sepsis, and dissemination of the growth are very great indeed.

Disproportion as an indication is, in most cases, an indication in the interests of the child. It is very rare to find a pelvis, in England, so deformed that embryotomy is necessary, but in many cases delivery can only be effected after the head has been collapsed by craniotomy, or in less severe cases where the trauma to the head will result in death of the fœtus, and in these cases it is a point for consideration and judgment whether or not Cæsarean Section is justified. This point is sometimes made easier by the fact that the mother has already had one or two stillborn babies, as a result of the difficult labours, and when in such a case the mother is particularly desirous of a living child Cæsarean Section is justified even though the clinical evidence of disproportion is only slight. In primigravidæ of 40 or over the indication is even clearer. These cases—elderly primigravidæ—are always a problem. At least five out of six will have an unexpectedly easy labour and will deliver themselves without any trouble at all. But there seems to be no half-way house, and if they do not deliver themselves easily after a short labour it is most likely that things will end disastrously for baby, mother, or both, and it has been my axiom for many years that if all seems normal with an elderly primigravida, she should be allowed to go into normal labour, but as soon as it is evident that she is not going to deliver herself in under 20 hours, that normal labour should be abandoned and Cæsarean Section performed, and I always strongly advocate that a primigravida of 40 should make arrangements for her labour to take place in surroundings in which it is an easy matter to arrange a Cæsarean Section at short notice.

Often, five or six hours of labour is sufficient to demonstrate that she will not complete it in the prescribed time. It may be that the pains are feeble, or that the cervix is not dilating as readily as it should, or that the head is not descending into the pelvic cavity. If an elderly primigravida has any abnormality, particularly disproportion, or a malpresentation such as breech, I advocate Cæsarean Section at the time of election before labour starts.

Cases of deformed pelvis, the deformity being due to congenital maldevelopment, rickets, tubercular disease of the hip or spine, or osteomalacia, do not offer much difficulty. An examination of the pelvis reveals at once that the deformity is such that a living child is unlikely to pass through the bony pelvis and that Cæsarean Section is strongly indicated.

I am convinced that Cæsarean Section has a place in certain cases of placenta prævia. Placenta prævia offers more varieties of treatment than any disease in the whole of surgery or medicine. When, as a student, I was Clinical Clerk in the Medical wards to Sir James Kingston Fowler, I remember him saying on many occasions "Whenever there is a multiplicity of treatments for one disease you can be perfectly certain that not one of them is any good". Perhaps this does not apply entirely to placenta prævia because there are very different degrees of severity, and a central placenta prævia in primigravidæ with a fairly large child and a very small vagina is obviously a totally different proposition to a lateral placenta prævia in a multigravida with a couple of 5 lb. twins in her uterus; and it seems to me that many of the treatments of placenta prævia are of value in spite of their multiplicity, because they are indicated in different degrees of placenta prævia, and in different circumstances and facilities for carrying out any particular treatment. To obtain a successful series of results of Cæsarean Section for placenta prævia several factors are necessary. First among these is the skill of the operator, particularly in regard to the time he is going to take over the operation, because during most of the time the operation is in progress the lower segment is kept on the stretch and is prevented from retracting, and is therefore bleeding. Further, if the uterus is prevented from retracting, it appears to have a tendency to become permanently atonic, and it is only by retraction that bleeding is stopped. So it follows, of necessity, that if the patient is bleeding all the time during which the uterus is being sutured, and if this part of the operation occupies 10 minutes or more, the loss of blood may be so great that the patient does not recover. It is therefore evident that not only must the surgeon be experienced, but that he must have efficient assistance, not only for the operation itself but also in the person of the anæsthetist, and in the general theatre staff. The particular indications that I lay stress upon as indicating Cæsarean Section are, first of all, central placenta prævia; second, a primigravida; third, an undilated cervix; fourth, a patient not in labour; fifth, a large foetus; and sixth, profuse loss. If any two or more of these factors are present I consider Cæsarean Section necessary. Thus, in a primigravida with a large child, not in labour, Cæsarean Section is, in my opinion, the best treatment even with a lateral or marginal placenta prævia; and with an obviously central placenta prævia after a profuse loss I should advise a Cæsarean Section in a multigravida.

Cæsarean Section is sometimes performed on women who have serious heart disease. In my experience Cæsarean Section is more strain on the diseased heart than a normal labour, and I only do Cæsarean Section in heart disease when I have reason to suspect that labour will be prolonged and difficult; or when the indication is not to allow any further pregnancies, owing to the risk of further damage to the heart, and therefore when the indication is to sterilise at the same time as doing the operation; and in both these cases I will undertake Cæsarean Section only if the heart is not actually failing. Cæsarean Section in acute heart failure is courting disaster.

Another great indication for Cæsarean Section is where a pregnancy is complicated by the presence of an ovarian cyst impacted in the pelvis below the gestation. Here again, it is a Relative indication as there are other possibilities. In fact, an ovarian cyst obstructing delivery offers quite a multiplicity of quite legitimate treatments. An ovarian cyst is often diagnosed ante-natally and it can be removed then, and the pregnancy allowed to continue to term. This operation carries a risk of bringing on labour, and statistically it appears that labour comes on within a week of the operation in about 30 per cent. of the cases. The operation is therefore better postponed until the last week or two of pregnancy. It may sound rather barbarous to subject a woman to an abdominal operation with the knowledge that within a week she will go into labour, but in practice it is quite inexplicable how painless the labour is when it does come on. In fact the patient and nurses are usually quite unaware that anything is happening until the head appears at the vulva. As an alternative the patient can be left to go into labour, in the hopes that the cyst will be drawn up into the abdomen and allow the child to pass. Should this happen we are not very much better off, as during involution it is almost certain that the cyst will twist on its pedicle, and will therefore require an abdominal operation for its removal within a week of labour. Should it not rise out of the pelvis the patient can be anæsthetised when the cervix is fully dilated, the abdomen opened, the cyst removed and the abdomen closed, and, under the same anæsthetic, delivery completed by forceps. I have tried all these methods, and my conclusion is that the most comfortable for the patient is the removal of the cyst and Cæsarean Section at one operation. After all, the greatest risks at Cæsarean Section are those attending the opening of the abdomen. Subsequent rupture of the uterine scar is mainly the result of mild uterine sepsis, and the premeditated Cæsarean Section offers the greatest safeguard against this risk.

I will now consider the other extreme—a very Relative indication. I have already mentioned that a breech in the primigravida of 40 is, in my opinion, a definite Relative indication. Now, statistics at Maternity Hospitals show that in breech deliveries there is a foetal mortality of over 30 per cent. We have no statistics of the foetal mortality in breech deliveries in private practice but I have no doubt that it is fairly high, and that it is high enough to warrant the consideration of performing a Cæsarean Section in the case of breech presentation which defies efforts at external version, and in which the baby is large in proportion to the mother, especially in primigravidæ, irrespective of their age.

I think in this Article I have made it clear that the Relative indications for Cæsarean Section are nowadays very wide indeed, and I wish here again to emphasise that the operation carries with it a risk six times as great as normal labour, and to make it clear that every case should be considered in all its aspects and the operation should not be lightly undertaken. It must always be carefully borne in mind that the loss of a young mother is an irreparable disaster, and if that loss has occurred as a result of an unjustified Cæsarean Section it is trebly disastrous.

Cæsarean Section has a well-established place in modern obstetrics and it should never be abused.