the coagulation times, we observe that in the main there is very little difference between them:

Group.	Average Coagulation Time in Minutes.	Shortest.	Longest.
I. Albuminurics:			
(a) Pregnant	5.60	4.70	7.5
(b) Puerperal	7.00	5.60	10.0
II. Eclampsias:			
(a) Pregnant	7.40	4.50	9.0
(b) Puerperal	7.00	4.50	9.5
III. Normal puerperal	7.30	4.75	9.5
IV. Healthy pregnant women...	7.40	5.00	9.0
V. Healthy non-pregnant women ...	7.75	5.00	10.0

Looking at the last six lots, we see that the average, the shortest, and the longest coagulation times are very near one another, the average periods being 7.0, 7.4, 7.0, 7.3, 7.4, and 7.75 respectively. A healthy pregnant woman and a pregnant woman with eclampsia show almost identical times, and there is not much difference between either of them and the healthy, non-pregnant women. There is nothing at all, so far, to support the theory of an increased coagulability in this special class of cases. When we turn, however, to the albuminurics in pregnancy, we do find that the time is shortened as compared with the other groups, being only 5.6 minutes on an average. But when the 6 cases that make up this class are scrutinized more carefully, it is found that 2 are cardiac cases and 1 hemiplegic, leaving only 3 as possible albuminurics of pregnancy and possible eclampsias. As a matter of fact, none of these 3 did develop convulsions.

I think, therefore, that we are entitled to say from these observations that there is little difference in the coagulation time of healthy pregnant and puerperal women and of eclampsia before and after delivery, and that there is nothing, as far as a study of the coagulability of the blood goes, to support the contention that the thrombi found in certain organs in fatal cases of eclampsia are due to an increased coagulability in these cases.

In conclusion, I should like to express my indebtedness to Dr. Robert Jardine and Dr. Munro Kerr, the Visiting Physicians of the hospital, for their kindness in permitting me to examine their cases.

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LEPROSY IN SOUTH AMERICA.—In a report from the United States Minister, Mr. Beaupré, from Bogotá, under date November 5th, 1903, reference is made to the prevalence of leprosy in Colombia. He says this is one of the gravest questions now confronting that commonwealth. The disease has invaded the country to an alarming extent, and extraordinary measures have become necessary to check its spread. He encloses a copy of a law enacted by Congress, under which lazarettos are to be established in each department of the republic, in which all the lepers are to be confined. Various other provisions are made, but the central idea is to isolate all those who are suffering from the malady. The department of Antioquia already has a lazaretto which has been erected at an expense of more than 3,000,000 pesos, and much other good work has been done in various districts by private efforts and contributions.

TWO CASES INVOLVING THE QUESTION OF THE SITE OF IMPREGNATION.

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IN spite of the careful and valuable work which in recent years has been done upon the early history and development of the fertilized ovum, and in spite of the light which Peter's observations have thrown upon many previously obscure pathological conditions, we are still in ignorance of the site at which impregnation normally occurs and of all details of the journey of the ovum from the ovary to the uterus. The following two cases, which have occurred in the practice of St. Bartholomew's Hospital, have some bearing upon these points and are therefore worthy of being placed on record.

CASE I.

TUBAL GESTATION AFTER COMPLETE REMOVAL OF THE OVARY ON THE SAME SIDE.

B. D. was admitted into St. Bartholomew's Hospital on January 10th, 1903, under the care of Dr. Champneys, complaining of pain in the lower part of the abdomen and haemorrhage from the vagina. She had previously had five pregnancies, four children (the last of whom was born in January, 1902), and one miscarriage in 1898. Menstruation had always been regular; the periods commenced when she was 14 years of age; they recurred every 28 days, lasted four days, and the amount lost was not excessive. The last period ceased on November 9th, 1902. The patient stated that she underwent an operation in 1899, when Mrs. Scharlieb removed an ovarian tumour.

History of the Present Condition.—After the cessation of menstruation in November, 1902, there followed a period of six weeks' amenorrhoea. In Christmas week of that year the patient commenced to suffer from pain situated chiefly in the right iliac fossa; this pain came on suddenly, but without any symptoms of collapse; at the same time she noticed haemorrhage from the vagina. The pain and haemorrhage have persisted since that date, the haemorrhage being sufficient to necessitate the use of six diapers a day.

Condition on Admission.—A scar was seen reaching from the pubes to the umbilicus. On the right side of the hypogastrium, situated $2\frac{1}{2}$ in. above the pubes, was a fixed indurated mass the size of an orange. On vaginal examination the cervix was found to be displaced downwards, forwards, and to the right, so as to lie a fingerbreadth behind the right pubic ramus; behind this and occupying the rest of the pelvis was a fixed tumour partly solid, partly fluid and elastic. On bimanual examination the uterus could be felt lying behind the right Poupert's ligament, and not appreciably enlarged. The tumour itself reached to a point midway between the pubes and umbilicus. On examination by the rectum the tumour was observed to lie entirely in front of the bowel. The uterine sound passed, with its concavity forwards, for a distance of 4 in. in front of the tumour.

Operation.—On January 21st abdominal section was performed by Mr. Harrison Cripps. An incision 5 in. in length was made, nearly in the middle line and just to the right of the scar of the previous incision. A quantity of old blood clot was found in Douglas's pouch, and the right Fallopian tube was expanded and ruptured. No trace of the right ovary could be seen. The tube was drawn up into the wound (after separating adhesions) and the broad ligament transfixed and secured as a pedicle. The distended tube was then cut away. Nearly a pint of old blood clot was removed from Douglas's pouch. Careful search failed to reveal any trace of a right ovary.

After-history.—The patient made an uninterrupted recovery and was discharged on February 21st, 1903.

Microscopical Examination.—Sections of the tube wall and of portions of the clot found in the tube show the presence of numerous well-formed chorionic villi, so that there can be no doubt whatever that the case was one of tubal gestation.

Note by Mrs. Scharlieb.—I removed from Mrs. D. a right-sided ovarian tumour on May 9th, 1899. It contained much grumous material and a little coiled up hair. It was the size of a fetal head at full term. The uterus and appendages of the left side were healthy. The patient made a good recovery and went home on June 2nd.

The chief interest in this case centres in the fact that it affords clear proof of the possibility of gestation in a Fallopian tube after the ovary of the same side has been removed.

At the operation described above a careful search was made, but no trace of the organ could be discovered; further, the condition found at the previous operation—a dermoid cyst—renders it very improbable that any portion of the oöphoron could have been left behind. What was the source, then, of the ovum which gave rise to the tubal gestation? Was there an accessory ovary on the right side? This is improbable; the presence of a third ovary is one of the rarest abnormalities met with in the human body, if indeed it ever occurs. Cases have been recorded from time to time, but of

those which have been subjected to thorough examination very few have stood the test. Small pedunculated tumours attached to the surface of the ovary, small fibro-myomata of the ovarian ligament, and corpora fibrosa have all been described as accessory ovaries, until submitted to microscopical examination, when their real nature became revealed. A very interesting case has been recently reported by Baldwin.¹

On July 15th, 1893, he removed both ovaries and tubes by abdominal section from a woman, aged 32. She had for some years suffered from menorrhagia, but the reasons which led him to perform this operation are not very clearly given. He states, however, that no adhesions were encountered, and that the recovery from the operation was uneventful.

In spite of this treatment the menorrhagia persisted, and eleven months later the patient was curetted, but without benefit. "In November, 1894, careful examination revealed a small mass of tissue to the left of the uterus. When this was pressed upon a sensation was experienced similar to that caused by pressure upon an ovary." The abdomen was again opened, and "this mass of tissue, which was between the layers of left broad ligament and apparently just below the remains of the ovarian ligament, was identified and removed. It was about the size and shape of a small lima bean, and presented all the characteristics of ordinary ovarian tissue."

The situation of this structure "just below the remains of the ovarian ligament" suggests very strongly that the ovary was not completely removed at the first operation. Doran has pointed out that this is precisely the spot at which removal is likely to be incomplete.

Thumin² has recently fully reviewed and criticized the recorded cases of third or accessory ovaries, and he gives instances which apparently must be admitted; but in these cases there has been present a third Fallopian tube in communication with the uterus.

Doran³ has examined a number of instances in which pregnancy has occurred after double ovariectomy. In all the cases he has investigated the operation was undertaken either for cystic disease or for inflammatory conditions of the ovary, and under circumstances which rendered it extremely probable that portions of ovarian tissue had been left behind. This could be demonstrated in some instances by examination of the specimens, whilst in others the description of the operation indicates the impossibility of absolute certainty of the removal of the whole organ. Where, however, we have to deal with a dermoid, a clearly circumscribed and pedunculated tumour, its complete removal is a much easier matter, and it seems improbable that any oöphoretic tissue would be left. We are therefore driven to the conclusion that the ovum was derived from the ovary of the opposite side.

It is not easy to understand how the ovum after its escape from the Graafian follicle finds its way into the tube. The fimbria ovarica is the only portion of the abdominal ostium which is in close anatomical relation with the ovary, and it is impossible to imagine that it can apply itself to each successive portion of the surface which presents a ripe follicle. It seems that the discharged ovum must pass directly into the peritoneal cavity, and subsequently through some agency imperfectly understood as yet, be directed into the tube. There is experimental evidence in support of the theory that the active agents are the cilia of the epithelium upon the abdominal ostium, that by their action they give rise to currents in the capillary layer of fluid between the pelvic viscera, and that by these currents the ova are wafted towards one or other tube.

Lode⁴ injected the ova of ascarides into the peritoneal cavity of animals and found that they made their way to the pelvis, enter the tubes, traversed the uterus, and eventually appeared in the vagina. Whitridge Williams⁵ states that this experimental evidence is reinforced by the fact, that in certain amphibians large tracts of the peritoneum become covered by ciliated epithelium shortly before the time of ovulation.

The possibility that an ovum may enter the Fallopian tube of the side opposite to the ovary from which it was shed was long ago suggested; and to this journey of the ovum across the peritoneal cavity the term "external migration" has been applied. The case we have just recorded appears to be of this nature. Two similar cases are on record; one is reported by Küstner,⁶ the other by Howard Kelly.⁷

Küstner operated upon a woman for tubal gestation on the right side, and after he had removed the tube, finding that the left ovary was cystic he removed that organ also. Two years later the patient again became pregnant; the pregnancy on the occasion was intrauterine. Küstner subsequently performed the same operation upon several rabbits, removing the ovary on one side and the tube upon the other; these animals repeatedly became pregnant after the operation but the pregnancy was always intrauterine.

Kelly's case was very similar. He found it necessary upon one occasion to remove a diseased left ovary and a diseased right tube. Six

months afterwards the woman became pregnant, and was delivered at term of a healthy child—seventeen months later pregnancy occurred in the left tube, and rupture necessitated its removal by abdominal section.

Further proof of the external migration of the ovum is furnished by the study of the situation of the corpus luteum of pregnancy. Whitridge Williams⁸ has examined six cases in which the corpus luteum was found in one ovary, and the pregnancy in the opposite tube, and Opitz⁹ in eighteen cases of tubal pregnancy found the corpus luteum in the opposite ovary in three. We have ourselves found this condition in one out of the three last cases operated upon at St. Bartholomew's Hospital.

Although the matter does not admit of positive proof, there can be little doubt that we have here an instance of external migration of the ovum, but in what part of its course the ovum became impregnated we cannot say; possibly, as suggested by Sippel,¹⁰ impregnation occurred in the abdominal cavity, and the subsequent gestation was tubal, because the development of the trophoblast had reached such a stage that the ovum was able to bore its way into the tubal mucosa and gain an implantation before it reached the uterine cavity.

CASE II.

CASE OF PREGNANCY AFTER REMOVAL OF A PORTION OF BOTH TUBES.

History.

In 1884, being then 24 years of age, the patient commenced to suffer from palpitation of the heart, and from attacks of breathlessness. She noticed that these symptoms were always worse at the time of her monthly periods, indeed not infrequently on the first day of the flow she was obliged to keep her bed on account of the violent beating of the heart.

In 1888 she became pregnant; for the first part of the pregnancy she remained in her usual health, but towards the end of the fourth month the palpitation and breathlessness became much more marked; in due course she was delivered, and after the birth of the child the symptoms rapidly abated.

Between 1889 and 1893 she became pregnant three times; in each of these pregnancies the same course of events occurred, but with each succeeding gestation the exacerbation of the symptoms appeared earlier and was more severe.

In 1893 enlargement of the neck and prominence of the eyeballs were noticed, and the patient came to St. Bartholomew's Hospital.

In 1895 she again became pregnant, and on October 9th of that year was admitted as an in-patient under the care of Dr. Champneys. Previous to this there had been amenorrhoea for four months. On admission the pulse was 120, the cardiac impulse and pulsation of the carotids were very forcible, the eyes were prominent, and the thyroid was markedly enlarged. The hands were tremulous, but neither Von Graefe's nor Stellwag's sign was present. There was marked dyspnoea, so much so that at first it was difficult for the patient to lie down in bed. The physical characters of the uterus corresponded with a four months' gestation. After ten days complete rest in bed she showed a decided improvement, and left the hospital much better in every way.

On February 5th, 1896 (in the eighth month of her pregnancy) she returned, and her condition at this time was so grave that labour was at once induced. This procedure was followed by immediate recovery, the improvement being marked within 24 hours. At the end of a fortnight she left the hospital, only to return again in November, 1897; this time two and a half months pregnant. The symptoms were so severe as to call for the immediate emptying of the uterus, and therefore a tent was put into the cervix and abortion induced. The same rapid improvement followed.

In July, 1898, she was again admitted, six weeks pregnant; at this time in a state of great distress, quite unable to lie down, and suffering intensely from the beating of the heart and throbbing of the arteries. The uterus was again emptied, and Dr. Champneys expressed the opinion that steps should be taken to prevent further pregnancies.

Ligature of Fallopian Tubes.

Mr. Harrison Cripps ligatured the Fallopian tubes on September 7th, 1898. The abdomen was opened in the middle line by an incision 1½ in. in length situated midway between the symphysis pubis and the umbilicus. The left tube and broad ligament were then drawn up into the wound, a silk ligature passed by means of a pedicle needle through the two layers of the broad ligament immediately beneath the tube, and the tube ligatured near its fimbriated end; the right tube was then dealt with in a similar manner, excepting that the ligature was passed nearer to its uterine extremity. The patient made an uninterrupted recovery, and left the hospital on September 24th.

Subsequent Pregnancy and Further Operation.

She was readmitted on June 25th, 1899, and stated that after leaving the hospital she was in good health, and her menstruation was perfectly regular until April, 1899. Since that time the catamenia had been absent, and the train of symptoms from which she had suffered in her former pregnancies had returned. On examination she was found to be two months pregnant, and abortion was again induced.

On October 6th (in the absence of Mr. Cripps) a second operation was performed by Mr. Bruce Clarke. The abdomen was reopened in the middle line, and the left tube drawn up into the wound; at the site

where it had been previously ligatured the tube was completely divided, and the two ends separated by a distance of about $\frac{1}{4}$ in. No trace of a ligature could be seen. The right tube was then drawn into the wound; it appeared in every way natural, there was no solution of continuity and no trace of the ligature. A loop of each tube in turn was drawn up into the wound, a ligature passed through the mesosalpinx between the two sides of the loop, and the whole tied as a pedicle with a Staffordshire knot. The knuckle of tube on the distal side of the ligature was cut away. The abdominal wound was then closed. The recovery was uninterrupted.

Subsequent Pregnancy.

In January, 1901, the patient was again admitted suffering from an incomplete abortion. The cervix was dilated and the uterine cavity explored with the finger. Portions of placenta were removed.

Cases of pregnancy after ligature of the Fallopian tubes have been from time to time reported, and the following instances throw some light upon the method of passage of the ova along tubes whose lumina have been apparently occluded:

A case is reported by Horrocks¹¹ "in which a patient had been sterilized after Caesarean section by ligaturing the Fallopian tubes. In spite of this she became pregnant again, and the uterus ruptured along the line of incision when near full term, the child and a portion of the placenta escaping into the abdomen. Dr. Galabin removed the uterus, and the specimen is now in the Guy's Hospital Museum. The ligature on one side had cut through the tube, and the severed ends lay about half an inch apart. On the other side the tube and ligature looked as if the tying had only just been done, but on experimenting it was impossible to force a coloured liquid through the tube. Still, it was thought that in all probability the ovum, which had become impregnated, had got past the constriction produced by the ligature, and had so entered the uterus."

Galabin¹² reports a case in which, after performing Caesarean section, he tied the tubes with kangaroo tendon, and the patient became pregnant again within a year or so.

Taught by the experience of these cases, he continues, I have since then adopted the plan of cutting a piece out of the tube between the two ligatures, then pulling out the stump on each side as far as possible and cutting it off, so that the open lumen was left at the bottom of an inverted case of cellular tissue. None of the patients so treated have become pregnant again, and I am inclined to regard this as a reliable method.

That removal of portions of the tube wall alone, however, is not a reliable method is shown by the case we have just recorded.

Fig. 1.

Doran has suggested that the ligature may perhaps ulcerate through the tube, which then heals behind it without causing stricture of its canal. It is well known that sometimes a ligature which has been applied to the cut end of the ureter after nephrectomy, may subsequently be passed from the bladder, and the following case shows that the same thing is possible in a Fallopian tube.

Fig. 2.

In 1898 Blaud-Sutton removed an ovarian cyst, its slender pedicle was tied with thin silk; the recovery was uneventful, but for many weeks afterwards the patient complained of cramp-like pains on the side from which the cyst had been removed. The pains gradually

passed away and ten months later, during menstruation, the patient accidentally noticed on her napkin, a tiny loop of silk. This proved to be the loop of silk used to secure the Fallopian tube; it had ulcerated into the tube, and had been very slowly conducted into the uterus and so escaped.

The occurrence of pregnancy after removal of portions of the tubes is more difficult to understand. It can hardly be that the severed ends of the tube have become reunited, and the canal again patent; but it is possible that a process of absorption may have occurred in the walls of those parts of the tube which were in contact with one another. The process ultimately leading to the formation of a fistula between the two portions, so that the continuity of the canal once again becomes established.

There is another point of both clinical and pathological importance to be noticed; in all the cases quoted the lumen was either completely obstructed or narrowed—in Horrocks's case coloured fluid could not be made to pass the obstruction—yet in none of them was the subsequent pregnancy a tubal one.

These two cases taken together may perhaps add something to our knowledge of the causation of tubal gestation. In Case I we have an instance of tubal gestation with external migration of the ovum, but with no occlusion of the lumen of the tube; in Case II the lumen of the tube on one side was completely obliterated, and on the other must have been considerably narrowed, but the pregnancy was uterine.

We wish to tender our thanks to Dr. Champneys for permission to mention these cases.

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ON VENTRIFIXATION OF THE UTERUS.

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In a large proportion of the cases of old standing chronic backward displacement of the uterus our ordinary methods of treatment do not give satisfactory results. When the body of the uterus has become considerably enlarged after backward displacement, or when even the slightest tubal and ovarian complications exist, what could be expected from more or less forcible turning forward of the body, and the insertion of a pessary, in the consulting room? There is an element of levity in this method of dealing with a flexion producing symptoms.

When the patient is persuaded to take to bed, and remain as long as if she had to undergo an important operation, some good can usually be done. The congestion of the body of the uterus can be relieved by tampons and douches, the amount of relief being measured by the diminution of the tenderness to touch and certain changes in the visible portion of the uterus. When the uterus has been restored by tampons almost or altogether to its normal position, then is the time for the introduction of a pessary. In some uncertain proportion of even old chronic cases this treatment gives sufficient relief to satisfy the patient, and a small number of cases are actually cured in time. As a general rule it may be stated that the older the patient the more suitable the palliative treatment.

But in married women at the child-bearing time of life, and in many single women who cannot, or will not, lead restful lives, the treatment by mechanical support is unsatisfactory in many ways; and something more must be done.

Schultze's process may be dismissed with a word or two. It has never done positive harm to any patient of mine as far as I know, but upon the whole it has given no satisfaction.

Schücking's operation and similar timid and dangerous proceedings I have never tried, and never will.

Alexander's operation of shortening the round ligaments obtained great favour for many years, and still holds its place as a valuable method of treatment in a certain limited class of cases. The eagerness with which it was adopted by gynaecologists throughout the world was a fair measure of the universal dissatisfaction with the mechanical treatment of displacements of the uterus. We may also now consider