the water (Sprague, *Electricity*, 1884). When we are dealing with mixed electrolytes, such as the substances composing animal tissue, the decompositions which take place are still more complicated.

It is difficult, in the present state of our knowledge, to say how many secondary electrolyses take place in the passage of the current through the body. That it meets several elements presenting different states of polarity towards each other is certain, but whether chemical change takes place at the points of junction of each of these heterogeneous bodies it is at present impossible to determine. As a rule, electrolysis does take place between any two substances of different electro-chemical polarity at the point where they touch one another, if they are capable of conducting electricity. If in the treatment of a uterine fibroid we use an external potter's-clay electrode, a water rheostat to regulate the current, and an intra-uterine electrode, we know that electrolysis takes place at four points: (1) in the cells of the battery; (2) in the water in the rheostat; (3) between the clay and the skin of the patient; and (4) at the point where the internal electrode touches the mucous membrane of the uterus.

That electrolysis does take place in the tissues is probable from the fact that storage of electricity takes place in a patient subjected to the electrolytic treatment. The patient becomes a secondary battery, and is capable of giving off a current in an opposite direction to the one used from the battery. We have demonstrated this to be the fact on several occasions at St. Bartholomew's with patients under treatment for uterine fibroids. Immediately after the application of electricity has been discontinued we have disconnected the rheophores from the battery and united them to each other, still keeping them connected to the electrodes in contact with the patient; a reverse current has immediately been shown on the galvanometer, at first about 12 milliampères, but rapidly decreasing to 8 and 4. No storage of electricity could take place unless some decomposition of the fluids contained in the tissues electrolysed had taken place. The liquids bathing the cell elements of the tissues must have become split up, and their constituents accumulated on the opposite surfaces of contiguous tissue cells. It is this only which could produce a polarisation current. Becquerel and Faraday have shown that polarisation results from the depositions caused by the passage of the currents.

This possibility of converting the human body into a secondary battery was demonstrated by Dr. Stone in his Lumleian Lectures before the Royal College of Physicians in 1886. He charged the porter of St. Thomas's Hospital by placing his feet in a foot-bath containing a leaden electrode, and passing through him a constant current; he then disconnected him from the battery, and showed that he (the porter) gave off a constant current in a reverse direction to that given by the battery from which he was charged, and Dr. Stone asserted that he would continue to give off such a current, gradually diminishing in intensity, for about four hours (see *JOURNAL*, vol. i, 1886, pp. 812, 813).

In the recent discussions on the electrolysis of fibroid tumours it has been asked: If the passage of an electric current has an effect upon the tumour, how is it that the normal structures, such as the bladder, muscles, skin, adipose tissue, etc., which are included between the two electrodes, are not also affected? It is quite possible that they are affected; that in them the normal tissue-changes always in progress are accelerated, and that assimilation or "progressive metamorphosis" is encouraged. This from analogy would appear to be the case; for when a galvanic current is applied frequently to an atrophied and palsied muscle very often its nutrition is improved and its bulk increased; and Dr. Apostoli has drawn attention to the extraordinary increase of subcutaneous adipose tissue which takes place in the abdominal walls of patients subjected to the electrolytic treatment.

Dr. Poore has said,¹ "it is probably impossible to pass a galvanic current through animal tissues without setting up some electrolytic action, and we are unable to say what part such action may play in the ordinary phenomena caused by the galvanic current." I have elsewhere said,² "it is probable that changes are induced in the ultimate tissue cells of a part exposed to a constant current of electricity, analogous to the chemical action produced in the electrolysis of water. If the current is weak, the process does not go so far as splitting up the watery parts of the cells into oxygen and hydrogen, but produces some sort of activity in the

cell not present there before. It increases or alters the character of the secretion of the cells composing secreting glands, as evidenced by the increase of saliva and metallic taste in the mouth, produced by the application of a continuous current of electricity anywhere in the neighbourhood of the salivary glands. This probable increased cellular activity, the quickening of the building up and destruction of cells neverceasingly going on in the living body, is sufficient to account for the increased demand for blood required for these changes, and the resulting increased supply afforded by the dilatation of the capillaries. The capillaries do not dilate by any power possessed by the constant current to cause muscular relaxation, but secondarily through nervous influence excited by the demand produced in the cells for more blood. The action of the constant current upon muscular tissue, if anything beyond, besides inducing these probable changes in the ultimate muscular elements leading to increased activity in the ultimate cells, increased nutrition, and therefore increased tone (as it is called), is probably to induce contraction rather than relaxation. In considering these changes in the cellular elements of the body and in the blood-supply, the osmotic power of electricity must not be forgotten. It has been found that if two fluids of different densities be divided by a porous diaphragm and an electric current be made to pass through them, osmosis takes place in the direction of the current." That is from the positive to the negative pole. "If the current passes from the lighter to the denser fluid the natural osmotic action is increased; but if the current passes in the reverse direction, the osmotic action is reversed; the denser fluid passing through the diaphragm into the less dense. The osmotic power of electricity probably explains the influence of galvanism in causing the absorption of fluid effused into joints, or serous cavities, when applied in such cases."

The theory suggested by Dr. Inglis Parsons, that the electric current has a modifying influence on the cells of tumours which from their lower vitality could not recuperate themselves so well as the normal cells of the body, is also not altogether improbable. In fact, it may be that in the tumours subjected to a current of electricity a "retrograde metamorphosis" is set up.

The tumours do not disappear so rapidly or so completely as we have been led to expect, or perhaps as British gynaecologists supposed would be the case. I do not think that the electrolytic treatment will supplant the necessity for abdominal section or removal of the uterine appendages in such cases as those in which these operations would be appropriate, but I do think that in the use of electricity we have a means of treating fibroid tumours which is superior to any we have formerly employed, short of their entire removal. I have treated a large number of cases, and in nearly all the symptoms have been relieved, in many the tumours have decreased in size, and in some the decrease has been considerable. The hæmorrhage has usually been arrested; the dysmenorrhœa has been relieved; the pain and discomfort have decreased; the rectal and bladder troubles have also been lessened, and the patients able to get about and walk with much less difficulty. All these favourable symptoms are probably due to the relief from pressure caused by a slight diminution in the size of the tumour. Nearly all the patients I have operated upon have expressed themselves as feeling better—better in health and better in spirits. In those whose tumours were accompanied by menorrhagia no doubt the improvement in health was greatly due to the arrest of the hæmorrhage. That adventitious tissue does decrease and get reabsorbed under the electrolytic treatment I feel sure, and have been able to observe it in several cases of stricture of the urethra.

NOTES OF A CASE OF HYDROSALPINX; A NEW MODE OF ELECTRICAL TREATMENT.

By G. APOSTOLI, M.D.,
Paris.

THE case of which I am about to give the particulars seems to me to be of great interest. It opens up a new question in therapeutics, and will serve as a prelude to a complete memoir which I shall shortly publish on the electrical treatment of salpingitis. In this paper I confine myself to a full and exact report of the case and a statement of the conclusions that may be drawn from it.

¹ *Electricity in Medicine and Surgery*, by G. V. Poore, M.D., p. 233. 1876.

² *Electricity and its Manner of Working in the Treatment of Disease*, by W. E. Stevenson, M.D., pp. 24, 25. 1884.

SUMMARY OF CASE.

Patient, 25 years old, general good health. Three full natural pregnancies; abortion at two months on September 21st, 1887, twenty days after a violent fall on the back, followed by incessant pain, excessive menorrhagia, general derangement of health, with sharp pains in the right iliac fossa; no antiseptic precautions. Came to clinic on October 27th, 1887, with indications of a threatening pelvic peritonitis. Swelling of the whole upper part of the vagina, with fluctuation on the right side.

On October 27th first galvano-puncture, negative, on the left side, vaginal; 100°; 5 minutes. Remained in bed for forty-eight hours, with some relief on the following days.

November 8th. Second galvano-puncture, negative, vaginal, in the *cul de sac*, right side, one centimètre; 140°; 5 minutes. Two days later spontaneous opening of a cyst, and discharge of fluid, without either pus or blood. Cessation of all pain and diminution of swelling.

November 18th. First appearance of menstruation since abortion; flow continued freely for three days; pain on left side only. Since then local condition has become natural, and all symptoms have disappeared. The periods of December and January natural; health good, and allowing of regular work at the sewing machine.

DETAILS OF CASE.

Mrs. T., domestic, aged 25, came to the clinic of Dr. Apostoli on October 22nd, 1887.

History.—Native of the Vosges, was married when 20, came to Paris a year afterwards, and has lived there since. No account of hereditary disease; no disease during childhood; menstruated at 12 years; no infantile leucorrhœa. Menstruation has since been regular, but painful, the pains preceding the flow, continuing the whole time, and then disappearing; quantity moderate; time three days, and no leucorrhœa. Had no illness before her marriage, and was always able to do her work regularly. Has had three children, with natural labours, at full term, at 21, 22, and 23½ years. Each time kept her bed for ten days after delivery, but had no milk for her children. Menstruation recommenced six weeks after the first two confinements, but not till three months after the last. During the time of marriage menstruation has not deviated from its natural characters, and has been less painful. Her good health has been uninterrupted; she has carried on her work regularly up to the month of July, 1887, has had no leucorrhœa, and conjugal relations have caused no suffering.

In July of 1887 her fourth pregnancy began, and for the first time gave her trouble, from severe pain in the body, though not causing her to give up work. On September 2nd, at the second month of pregnancy, she had a violent fall in the street, on her back, after which she had constant pains in the back and lower parts of the body. This pain increased day by day till September 21st, making her work very difficult. A little discharge of blood was seen on the 19th and 20th, and on the 21st there was an abortion. The patient affirms that there was no other cause for this accident, and it was evidently owing to the fall twenty days before. The pains lasted for three hours. The expulsion of the contents of the uterus was complete, and followed by profuse hæmorrhage. She had no medical assistance, and took no antiseptic precautions. She kept her bed for eight days, rising only occasionally for a short time, and used injections of warm water. There was a pretty copious bloody discharge for four days, and this was supplanted by profuse leucorrhœa, which lasted for a month. On October 5th she began again to attend to her household duties, and continued them till the 20th. Immediately after the miscarriage, for the first time in her life, she felt a severe pain in the right iliac fossa. This confined her to bed, and prevented her from doing any work for a fortnight. After a short respite the pain became worse, and she was obliged to give up on the 20th. The pain never ceased, but there were moments of exacerbation, brought on especially by sitting down. It spread over the whole of the right hip, but was never felt on the opposite side, nor in the lumbar region.

The patient lost flesh, strength, and appetite; her countenance showed how much she endured, and, on October 20th, she was so overpowered that she sought relief at the clinic.

Actual Condition, October 22nd, 1887.—Woman somewhat under the medium size, very pale, with a distressed look; walks with difficulty, and complains of severe pain in the right side of the body. Lymphatic temperament, without hysteria. She is in a state of feverish excitement, with high temperature. On eight

successive evenings has had a rigor about bedtime, and lasting for an hour. There is complete sleeplessness, loss of appetite, constipation, and foul tongue.

The abdomen is tender under pressure, especially on the right side, where, in the region of the broad ligament, there is evidently a phlegmonous deposit.

Local Examination.—The uterus is very low down, almost touching the vaginal orifice. The anterior *cul de sac* only is normal, all the others being obliterated, and the parts very tender to the touch. The uterus has on each side a large exudated mass. These encroach upon the posterior *cul de sac*. Though apparently the result of the same inflammatory action, they are in some respects different in character. On the right side the projection into the vaginal space is more marked, more tender, and more elastically resistant than on the left. It has almost the form of a hen's egg, with a rounded surface, the least pressure upon which causes intolerable pain. The evidence of fluctuation on the right side is very clear. The swelling on the left side is less defined, less prominent, and not so painful. It is not so elastic and resisting as the tumour on the right side. Both swellings are amalgamated with the body of the uterus, and the whole mass seems to be adherent to the walls of the pelvis, for no movement can be made of any part.

The condition of the patient is serious, the symptoms indicating the setting up of an acute pelvic peritonitis. I therefore put off any local operative treatment.

October 24th. The patient is worse, and eagerly demands relief. It was, however, decided that we should wait before making any application, but by the 26th the pain was so much increased that the patient had been rolling on the floor; walking was nearly impossible, and it was with difficulty that she was conveyed to the clinic.

October 26th. *Diagnosis.*—There is no sign of general peritonitis being really present, but it seems imminent. Taking into consideration the accession and increase of pain, the local conditions, the manifest renitency on the right side, together with the unmistakable fluctuation and the high temperature (38.5° C.), there can be no doubt as to the existence of a peri-uterine phlegmonous supuration.

Treatment.—At the urgent request of the patient, I with some hesitation decided upon the treatment by galvano-puncture in its most modified form. Hoping that it was not too late to expect an arrest of the threatening inflammation by this means, I proposed to make the slightest possible tentative puncture on the left side, so that I might judge by the effects there produced whether it would be possible or proper to do the same thing on the right side.

October 27th. After chloroform and a vaginal injection of weak solution of sublimate, I made a vaginal negative galvano-puncture on the most prominent point of the swelling of the left side, in the lateral *cul de sac*, with a very small steel trocar, entering only 1 centimètre, with a current of 100 milliampères, for five minutes. The trocar was one specially made for the purpose, and not larger than the point of a subcutaneous injecting syringe. The puncture caused no bleeding. I again used the antiseptic irrigation, and placed a tampon of iodoform gauze in the vagina. The patient was put to bed at the clinic, and there she remained for two days.

During this time she was in a state of great excitement, almost constantly delirious, moaning incessantly, with green vomiting and a temperature varying between 38 and 39° C. The delirium had all the characteristics of that produced by chloroform, with alternations of agitation and quiet, during which she was scarcely conscious.

By the evening of the 28th, the delirium had all passed away. She slept well during the night, and woke up in the morning of the 29th refreshed and better. There was a complete transformation. She got out of bed without assistance to be examined and dressed, stood up and walked about free from pain and difficulty. The abdomen was much less tender, and bore such pressure as would have been intolerable the day before.

The vaginal tampon was not stained. On examination, no change was found in the state of the right side, but on the left side there was a great change for the better, less tenderness, less swelling, and the space was freer. Contrary to advice, the patient was imprudent enough to return home on foot, a distance of three kilomètres (about two miles). On arrival she was obliged to go to bed, and all the night suffered much pain in the right side. The next morning she was easier and returned to the clinic,

walking with less difficulty. The pain was less, the tampon was clear, and there was no unusual discharge from the vagina. The injections were continued, and for several days she remained under observation, with gradual amelioration.

November 8th. On this day I made a second vaginal galvanopuncture, under chloroform, with the same trocar, to the depth of a centimetre and a half, in the centre of the right *cul de sac*, and used a current of 140° for five minutes. In order to insure the coaptation of the tumour with the wall of the vagina, and to give myself the certainty of making my puncture exact, I caused an assistant, during the whole time of the operation, to press downwards slightly with his hand in the right iliac fossa. There was no escape of fluid after the puncture, and the injection and tampon were used as before.

As on the former occasion, the patient remained in bed for two days at the clinic. There was no delirium, but she suffered some sharp pains in the right iliac region. They were sufficiently bad to prevent sleep, but she could take some nourishment, and was less feverish than before.

November 10th. Since the morning the patient has become more calm, and the shooting pains are less frequent. In making the vaginal toilet, which has not been done since the operation, the tampon was found dry and unstained. The abdominal tenderness has subsided, and there is no trace of distension. Examination shows that structural retrogression is going on; the vaginal sensibility remains much the same. The dressings were replaced as usual.

In spite of remonstrance she persisted in going to her home, and was much fatigued by the journey. Unable to keep about, she was obliged to lie down, and, while quiet in her bed, she suddenly found herself drenched by a fluid, clear and transparent as water, which ran from the vagina, without being accompanied with any pain. The patient says this liquid was without smell, unmingled with blood, somewhat serous, and continued flowing for several minutes without washing away the tampon. From this moment she found complete relief. Her former pains ceased, and she had no more suffering. A good night followed, and in the morning she felt so well that she rose and dressed without fatigue, and was not in any way inconvenienced when driving down to the clinic.

November 12th. There is a great change in her appearance, her complexion is clearer and she declares herself well in all respects. She has no further symptomatic troubles. Locally the transformation is not less remarkable; two facts are especially to be noted. The sensibility of the two *culs de sac* has disappeared to such a point, that this woman, who two days ago could scarcely bear to be touched, particularly on the right side, can now submit to a thorough vaginal examination, accompanied with external pressure, without a word of complaint. The anatomical change is quite as complete, for in place of a resistant tumour as large as a fowl's egg, there is nothing now remaining on the right side but a fibrous substance, a little irregular on its surface, not one third of the original size, unresisting, not at all tender, and fixed to the uterus.

The conditions, both symptomatic and anatomical on the left side, have undergone a similar change. The tampon, which had been in place since the 10th, on being removed before examination, had no blood stains upon it, but was found saturated with about two spoonfuls of serous fluid. A new light was thus thrown upon the question of diagnosis: the tumour, supposed to be a collection of pus, was after all a serous cyst of the Fallopian tube.

November 15th. The patient goes on improving both locally and generally, she walks easily, and all the functions are regular. Absorption has taken place, and the *culs de sac* have their natural depth. The punctures, made on either side on the same horizontal line, are now only to be found near the centre of the posterior *cul de sac*, in consequence of the general contraction of the vaginal mucous membrane. The uterus, although attached behind, is in some measure movable. Same local treatment.

November 17th. The improvement continues; though she cannot resume her full outdoor occupation, she manages to do her household work.

November 24th. Her visits have been suspended because menstruation began on the 18th, for the first time since September 21st. The appearance was preceded by two hours of sharp pain. The flow continued for three days, freer than usual, and the pain lasted all the time. Comparing the present period with those of early years, she finds that instead of having pains all over the abdomen, they are now confined to the left iliac region, with none

on the right side. A feeling of weariness obliged her to lie down occasionally during the three days. But, since the cessation of the period, she finds herself as well as before it began. She thinks she is a trifle fatter, and she looks well. There is some tumefaction of the upper part of the vaginal mucous membrane, and the points of puncture have resumed their original place in the lateral *culs de sac*.

November 29th. Much the same; but though her strength is returning, and she is gradually mending, she cannot manage more than her home work.

December 3rd. Examination shows:—1. That the uterus is higher up, and that the neck is slightly turned forward. 2. Diminution of the bilateral peripheral exudation, and complete absence of tenderness under pressure. 3. The two punctures are no longer found on the sides of the uterus, but are actually in the posterior *cul de sac*. 4. The hinder part of the uterus is attached to the sacrum. The sound passes for 6½ centimetres, and causes a little pain.

The patient is completely free from all the symptoms caused by her malady; has no pain, walks well, has no sensation of weight in the body, eats well, digests perfectly, grows fat, and has regained her strength and healthy look.

December 27th. Menstruation came on, for the first time without pain, on the 20th. The duration was five days, and the quantity rather more than usual. She has resumed conjugal relations, interrupted since September 1st, without inconvenience. For the last fortnight she has worked five hours a day at her sewing machine, with one pedal for the right foot; and, though the movement fatigued her, she was not obliged to give it up.

January 15th, 1888. Since the 1st of this month she has worked all day at the machine, and, notwithstanding the extra exertion, has not been in any way troubled.

January 27th. This month the period was rather later than usual, but she had no difficulties, and was able to do her machine work regularly, though away from her home in a factory. Menstruation lasted three days, less abundantly and without pain.

February 10th. Since the last report the patient has been free from all troublesome symptoms. Independently of her declarations—and she is generally very truthful—the following fact is a clear proof of her full restoration to health: she has been able to get through her day's work at the machine, from 7 o'clock in the morning till 7 in the evening, regularly and without fatigue or interruption, even during the last two menstrual periods, in December and January. In fact her condition is so satisfactory that she declares herself better than before her last pregnancy, and free from the little miseries which she then had to endure.

Local Condition.—1. No reasonable pressure on the abdomen gives her any pain.

2. The uterus is natural as regards form and consistence, a little low down, and retroflexed; the neck of right form and without ulceration.

3. The vagina is everywhere in its natural state, and there is no peri-uterine swelling.

4. The uterus is still adherent by its posterior surface, but it admits of some movement.

5. Under strong pressure the sides and back part of the uterus show a little sensibility, especially when the finger touches a deep-seated nodule, about the size of an almond, lying to the right side and a little behind the organ. This is probably the tube slightly hypertrophied.

With the finger in the rectum, pressure on the back of the uterus is not painful, and, even in spite of the retroflexion, it is easy to trace the form and the upper border. On either side the tube and ovary may be made out distinctly a little enlarged, more so on the right than the left side. Both sides are a trifle more tender than natural. The ovary on the left side is very plainly felt; that on the right side forms a conglomerate mass with the Fallopian tube.

Conclusions and Observations.—Without anticipating the extended memoir which I intend to publish on the electrical treatment of salpingitis, I may sum up in a few words my observations on this case. Other facts, to be produced at a future time, will give full confirmation.

1. In gynaecology fever and inflammation are not to be regarded as absolutely contraindicating the methodical and proper application of the galvanic current.

2. Inflammation of the uterus and its appendages, when not in the stage of suppuration, may be advantageously treated by the galvanic current. This current, though admissible in the first

stages of congestion and inflammation, I consider ought not to be used when suppuration exists, unless it be brought into action in the form of an electrical cauterisation, for the purpose of making a safe and certain outlet for the matter through the vaginal wall.

3. A galvano-caustic puncture is a valuable means by which we may gain two ends: first, to check the outbreak of inflammatory action or to stop its progress; secondly, to give an easy exit to a collection of fluid, by the falling of an eschar, in any case where the cavity containing such fluid is accessible through the upper part of the vaginal wall.

4. Every inflammatory exudation presenting itself in the vaginal *cul de sac* may be treated by means of the galvano-puncture, except under the condition which I shall hereafter mention.

5. This method may be easily and harmlessly employed for the treatment of certain cases of salpingitis and hydrosalpinx, on account of the close relation between the tumours and the vaginal wall.

6. In making every galvano-puncture, all the rules which I have hitherto laid down concerning the seat of the puncture, its depth, the size of the trocar, the antiseptic precautions, the repose of the patient, etc., must be scrupulously observed.

7. Two negative galvano-punctures, vaginal only, were sufficient in one case of hydrosalpinx to bring about very quickly an important anatomical change, and complete symptomatic cure.

A CASE IN WHICH RUPTURED TUBAL PREGNANCY OCCURRED TWICE IN THE SAME PATIENT.

By LAWSON TAIT, F.R.C.S.,

Professor of Gynaecology in Queen's College, Birmingham; President of the Birmingham and Midland Counties Branch.

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 anemic. 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 foetus 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 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 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 foetus 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 this septum and the rest of the uterine cavity is lined by hypertrophied mucous membrane (decidua). The stump of the right Fallopian tube 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 the 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 Fallopian tube, on the contrary, communicates with the cavity in which the foetus and placenta lie, and the rupture has taken place in the upper and back part of the left uterine corner. 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. 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 am about to indicate 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 in 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 my Ingleby Lectures, 1887). This secondary rupture probably also explains such an occurrence as that in Jessop's 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