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. Teichmann, 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

the confusion which still seems to exist in the mind of the most recent writers on this subject.

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

The strangest thing of all to me is that, in the enormous experience I have now had of tubal pregnancy, I have never but once been called upon to make an examination until the rupture had occurred, and in that case there was neither history nor symptoms which enabled me to do more than determine that there was tubal occlusion; not, indeed, until the rupture occurred and the abdomen was opened was a diagnosis possible. Under these circumstances, I think I may be excused for maintaining a somewhat sceptical attitude concerning the correctness of the diagnoses of those gentlemen who speak so confidently of making certain diagnosis in cases of tubal pregnancy before the period of rupture, and who speak with equal confidence of curing the cases by a puncture either simple, medicated, or electrolytic.

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

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

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

If we were to assume that in such a case as this a diagnosis could be made, much ingenious speculation might be indulged in as to what would have been best to do for the patient. If a correct estimate of the relation of parts could have been made, clearly what ought to have been done was to dilate the cervix, divide the septum freely, and empty the cornual cavity. To have attempted to destroy the child would not have benefited the patient one bit. The placenta would have gone on growing; and, even if it had not, putrescible material would have been left, which must have burst into the peritoneal cavity. At the time of rupture, if surgical assistance could have reached the woman with sufficient promptitude, she might have been saved by a hysterectomy; and, from the appearances at the *post-mortem* examination, there is no doubt that this could have been easily accomplished.

THE VIENNA MEDICAL FACULTY.—The prospectus of the Vienna Medical Faculty for the summer semester shows that 192 lectures, courses, and demonstrations will be held during this semester by 19 ordinary professors, 36 extraordinary professors, and 70 *dozenten* and assistants. During the past semester, there were 6,157 students in the different faculties, distributed as follows:—(1) Theology, 225 ordinary and 17 extraordinary students; (2) law, 1,927 ordinary and 256 extraordinary students; (3) medicine, 2,287 ordinary and 836 extraordinary students; (4) philosophy, 438 ordinary and 353 extraordinary students. A comparison of these numbers with those of the winter semester of last year shows an excess of students in the law faculty and an increase among the extraordinary medical students. The number of the ordinary medical students, on the other hand, shows a slight decrease. The extraordinary students were this year, for the most part, foreigners, of whom 109 were Americans, 39 Russians, 36 Englishmen, 28 Prussians, 11 Swiss, 16 Roumanians, 12 Belgians, 7 Greeks, 5 Australians, and 4 Turks.

AN ADDRESS ON THE VALUE OF PRACTICAL STUDIES.

Delivered at the opening of the Summer Session in the School of Practical Physiology, Edinburgh, May 1st, 1888.

By WILLIAM RUTHERFORD, M.D., F.R.S.,
Professor of Institutes of Medicine in the University of Edinburgh.

GENTLEMEN,—Before proceeding to the ordinary work of the session, I should like to direct your attention to some ideas regarding the value of Practical Studies. A short discussion of that subject may be of service to you who are still on the threshold of a life of study. It may help you to perceive the principle that has led your teachers to develop methods of practical study, and to extend them in all the departments of natural science and in those of medicine.

We can acquire a knowledge of Nature in two ways: in a direct way by observing Nature by means of our own senses, and in an indirect way by listening to and by reading an account of the observations of others. All natural science springs from the observation of Nature. To assist our observation various instruments have been invented, and various experimental methods devised to induce Nature to reveal her secrets. The facts so discovered and the laws deduced from them have been marshalled in the orderly array that forms the characteristic feature of science.

The first and obvious duty of the student is to gain a knowledge of what is already known. He is not immediately concerned with the advancement of science, but with the attainment of a knowledge of its facts and principles, and the methods by which a scientific knowledge of Nature has been gained. The old method of instruction in too many departments of natural and of medical science consisted in the mere absorption of statements made by lecturers and authors, without production of the necessary evidence of their truth, and with imperfect illustration and explanation of the methods by which the evidence has been obtained. The result of such modes of teaching could not be satisfactory. The student's interest in the subject was not sufficiently awakened. The knowledge he gained was superficial, as, indeed, it could not otherwise be on a method so imperfect. The mode of instruction now aimed at in all departments of natural science is to bring the student as directly as possible into contact with Nature, so that he may have not a mere description or exposition such as may be found in a book, but may, as far as possible, study phenomena directly by the use of his own senses, so that when an object is described he may, if possible, see it with his own eyes, touch it with his own hands, listen to it with his own ears, and, if necessary, smell it and taste it. On such a method of instruction the student is not treated as a mere absorber of the statements of others, but as an independent observer, requiring a demonstration of the truth of what is said, expecting that structure will be shown to him, that the properties of things will be revealed by experiment, that methods of observation and experiment will be demonstrated and explained, and that he will, as far as possible, be allowed to observe and experiment for himself. This practical study of Nature is attractive to all, but especially so to young minds. The mind at any age, but especially in youth, is apt to grow weary of abstract statements, and to lose sympathy with a subject so treated. The young mind is enthusiastic, it is eagerly expectant, and keenly on the outlook for new impressions. It is not satisfied with mere descriptions of phenomena. It desires to realise them by direct inspection. Such desire is so natural that one can only wonder why so many years elapsed before a serious effort was made to satisfy it. This method of studying Nature by contact with it inspires a confidence that is not otherwise attainable. The mind feels the solid support given by the direct study of phenomena; it feels itself on solid ground, and can advance with firm step. When by this method the student criticises and tests anew the observations made by others, they become to him living impressions printed on his mind in a way they never can be by merely listening to, and still less by reading descriptions of them. The student soon comes to feel that this practical method of study is the surest way to acquire definite