topian Gestation," is the development of the impregnated ovum outside its normal locality. To trace out the pathological conditions existing, one must of necessity refer to histology and physiology. The functions of the tubes, it is generally agreed, are to transmit the ovum from the ovary to the uterus, and permit the passage of spermatozoa from the uterus in the direction of the ovary. The ciliated epithelium lining the tube and the peristaltic action of its walls aid in this matter. In regard to this, Michael Foster, in his "Text-Book on Physiology," says: "The spermatozoa find their way into the Fallopian tubes, and here in its upper part comes in contact with the ovaries. In some of the lower animals, impregnation may take place at the ovary itself."

Lusk says: "After coitus the spermatozoa make their way through the Fallopian tubes to the pelvic cavity, and *it is possible*, therefore, for the ovum to become impregnated at any time on the way from the ovary to the uterus." It is a well-known fact, and one not to be forgotten, that *spermatozoa* move by *inherent force* at a rate variously estimated. Henle says, "they move an inch in seven and one-half minutes." Sims calculates that "they move their length in a second," nor are their movements easily interfered with, for Robin states, "they push out of their way epithelial cells or crystals ten times their size."

The inherent power of the spermatozoa is made manifest in those cases where women have become pregnant with an almost imperforate hymen, or with atresia vaginæ so nearly complete that there was only a small fistulous tract leading to the uterus, or in that remarkable case where the spermatozoa reached the uterus through the bladder, having to pass through the urine. Kœberle reports a case "where the uterus had been amputated two years before for fibroid tumor, but a fistula was present in the cicatrix of the cervix through which spermatozoa passed into the abdominal cavity, and pregnancy resulted. That when one tube being closed, the ovum may become impregnated by spermatozoa from the other tube is shown by the experiments of Leopold. He tied the right Fallopian tube in rabbits in two places, and exsected a portion of the tube between the ligatures, the left ovary was carefully removed and the abdominal wound closed. After recovery the rabbits were put to the male. In two such cases pregnancy resulted."—(*Arch. f. Gynäc.*, vol. xvi., page 24.)

That the spermatozoa *may* and *do* find their way into the abdominal cavity Bischoff has proven beyond a doubt; both he and Parry have seen them on the ovaries. Of this Leishman says: "The ovum, as has been shown, is developed within the ovary in the Graafian vesicle; while yet it occupies that position, even before rupture of the vesicle has taken place, impregnation may occur."

Parry in his work on "Extra-Uterine Pregnancy" does not think it difficult to conceive of the rupturing of the Graafian follicle and the ovum remaining, and thus affording a better opportunity for the spermatozoa fecundating the egg in its very shell. He says: "When we remember the process by which the ovum escapes from the Fallopian tubes, it may occasion no surprise that it should be sometimes retained even after rupture of the vesicle of De Graafe has occurred."

Regarding the functions of the tubes and ovaries, Mr. Tait has proven conclusively that ovulation *can and does take* place *before, during*, or *even after* menstruation ceases, and that the change at puberty of greatest importance is in the functional movement of these accessory organs—that is, the "grasping," so to speak, of the ovary by the fimbriated extremity of the tube at only stated times or during the menstrual epoch. Ovulation and menstruation are not always coincident; the passage of an ovum does not always take place, though the fimbriated extremity is grasping the ovary, since it frequently happens that at such times no ripe ovisac present. If, then, as has been shown, ovulation continues inter-menstrually when the tubes are quiescent, the question arises, what becomes of the ovum when the sac ruptures? There is only one place it can go, and that is into the peritoneal cavity, where it perishes and is absorbed.

Mr. Tait, in his work on "Diseases of the Ovaries," says: "I believe that the ovum falls into, and perishes in, the peritoneal cavity in by far the greater number of cases, and that the passage of it into the uterus occurs in only a small percentage."

The ovule is short-lived, and if not vivified in the tube by contact with the male element, degenerative changes will destroy its vitality before it reaches the uterus. Charpentier and other recognized observers claim that after it passes the outer third of the tube it is covered by a layer of albumen which the spermatozoa cannot pierce. Many other facts could be given to prove that impregnation does not occur in the uterus.

Regarding other than normal pregnancy, Tait's amended classification is probably the best yet devised, as given in the *Lancet*, Sept. 1st, 1888. He divides the different forms of gestation into:

I. *Ovarian*—not yet proved, though possible.

II. *Tubal*—In free part of tube, and is contained in tube up to 14th week, at or before which time primary rupture occurs, and then the process of gestation is directed

Either into abdominal or intra-peritoneal gestation, uniformly fatal either from