

Dr. Ashby.—I have had cases similar to Dr. Williams. I have been surprised at the frequency with which menstruation returned after apparent removal of both ovaries and tubes. One of the first cases upon which I operated, was one of hystero-epilepsy. I thought I had removed all the ovarian tissue, but found subsequently, that I had not. She began to menstruate about eight months after the operation, and afterwards suffered from metrorrhagia. Three years later I examined her under chloroform and found a small tumor. I operated and removed a small portion of an ovary. She recovered promptly and has not menstruated. Her health is good and there has been no return of the hystero-epilepsy. I have had other cases in which some parts of the ovaries had been left behind. These women continued to menstruate. In those cases where I have succeeded in removing the ovaries entirely, I have not observed the return of menstruation.

Dr. B. B. Browne.—I attended a woman a few years ago who had had seven children and had never menstruated. She was married before menstruation began, and had had children very frequently. I think superfetation does occur. It certainly does occur in uterus septus. The removal of the ovaries has little to do with the cessation of menstruation, but the tubes have much to do with it, and it is when a portion of the tube remains behind that menstruation continues. Metrorrhagia will occur when the tube is closed at the outer extremity. When a part of the ovary is left, of course a part of the tube is left also.

Dr. W. E. Moseby.—My experience has been such as to make me believe that menstruation does not depend upon the presence of the Fallopian tubes, nor is it independent of the ovaries. Eighteen months ago I opened a lady's abdomen for a severe case of chronic pelvic peritonitis with double pyosalpinx. Both tubes were tied close to the uterus and secured, but after a diligent search no trace of either ovary could be found. Dr. W. H. Welch, to whom the specimens were shown, expressed the opinion that the ovaries had probably been destroyed in the inflammatory process. The patient made a good recovery after very prolonged drainage, made necessary by the sloughy condition of the pelvic contents and the fecal fistula, which persisted for several weeks. This patient for months has been menstruating regularly and freely every three weeks. In all probability some portion of ovarian tissue escaped destruction. In another case in which I took special pains to remove every particle of each ovary and both tubes on account of severe hæmorrhage, the patient has not had a show during the last twelve months.

Dr. Ashby.—Mr. Tait has maintained the position of Dr. Browne for several years. In one case the patient had been suffering from hæmorrhage or tubal

origin; I removed both tubes and one ovary. The other ovary having undergone cystic degeneration it was impossible to remove all the ovarian tissue. This patient has been cured of her metrorrhagia, but still menstruates.

Dr. Opie.—It seems quite well established by *post-mortem* results, that all cases of menstruation following oöphorectomy, are not due to failure on the part of the surgeon to completely remove the ovaries.

The utero-ovarian ligament, however, is sometimes very short, and the button-like section beyond the ligature, which, in such cases, contains ovarian stroma, may keep up a dominating influence. Again, the anatomical shape of the ovary gradually sloping off into the ligament, causes a part of the ovarian tissue to be left on the uterine side of the ligature in spite of the utmost care on the part of the operator.

The rule after child-birth seems to be that menstruation is in abeyance for a variable number of months, but cases have doubtless occurred in the experience of most obstetricians, when it has been uninterrupted during lactation. I have met with a number of cases when women have conceived during lactation, when there was no accompanying monthly flow. Dr. Tait thinks that during, and even after, the menopause, ovulation goes on, though the mucous membrane is disqualified for securing a fecundated ovule. Ovulation may be going on during lactation, but the mucous lining of the uterus may not be well qualified for menstruation or fecundation.

Dr. Burk, of New York, who has a dairy farm, has been performing some interesting experiments, to find out the mode of securing the best quality of milk. He has determined that the heifer, after the removal of the ovaries, can be made a perpetual milker, and that the milk is of better quality than in cows subject to ovulation and impregnation.

Dr. Brinton.—With reference to menstruation after the removal of the ovaries, we have the statement that one or two per cent. of women have supernumerary ovaries, and possibly the return of the menstruation is due to the presence of the third ovary.

Dr. Mittenberger.—Dr. Browne laid much stress upon the fact that menstruation continued when obstructed tubes were present. Menstruation has nothing to do with the passage of the ovule along the tubes, but is due to the immaturation of the ovule. Therefore the tube may be obstructed as much as you please and there will be no results. Battey and Engelman have reported a number of cases of pregnancy after the ovaries were apparently removed by skillful operators. In other cases the ovaries, supposed to be removed, have been found *post mortem*.

Dr. Browne.—In most cases where the ovary and tubes are removed the lumen of the tube is obstructed by the ligation.