This blood was at first interpreted as due to slight trauma arising from the act of copulation. However, this explanation soon appeared faulty, since the trace of blood was sometimes found in the largest females mated to a smaller male or was absent from small females mated to a larger male. Again, the blood would be absent from a given female soon after mating and appear one or two days later. Since, finally, the erythrocytes were consistently absent in the early and late interval, present only between the eleventh and the eighteenth day of the cycle, another explanation had to be sought. The blood could hardly originate, as in dogs and cows in proœstrum, from a congested uterus, since the red blood cells were recovered only for a very short time—one or two or at the outside three days—whereas the premenstrual congestion increases progressively towards the succeeding menses. This leaves only one other important event occurring in the interval, namely ovulation.

Of twenty mature females menstruating regularly, ten showed the ovulatory bleeding during the past month. Two animals showed the sign on the eleventh day of the cycle; one of these also on the thirteenth day. Four females had a few red cells in the specimen on the twelfth day and of these one also on the fourteenth day. Three females gave the positive test on the sixteenth day and one other on the eighteenth day. Examination of the animals was made only every other day; hence it is possible that some of the other females belonged really to the ovulating class.

Theoretically the explanation here given for the appearance of slight traces of blood in the mid-interval is logical, for during ovulation there is always a hemorrhage, variable in extent though usually slight. While minute in volume, this blood may nevertheless contain millions of red blood cells, which, if distributed through the tube, uterus and vagina, should be recoverable from the vagina by an appropriate method.

To put the theory to a test, laparotomies were performed on two females (Nos. 39 and 43), both of which, judging by their brilliant sex color, the drop in leucocyte count, and the favorableness of the time in the menstrual cycle, gave equal promise of ovulation and fertile mating. Both were mated during the night of Oct. 1–2, No. 39 on the 10–11th day of the cycle, No. 43 on the 12–13th day. Active spermatozoa were recovered in both cases on Oct. 2, a few red blood cells in the case of No. 43, none in the case of No. 39. The former showed a few red blood cells also on Oct. 4, the latter none at any time. Laparotomies done on the afternoon of Oct. 4 disclosed a young corpus luteum in No. 43 that had shown the sign and no corpus luteum but only a small atretic follicle in the case of No. 39 in which the ovulatory sign had been absent.

That the test will be found to apply to women is entirely reasonable; the matter is therefore being studied in the human species also. It need scarcely be pointed out that the method may prove of use in the diagnosis of causes of sterility; for a positive test is at once a proof of ovulation and of the patency of the fallopian tubes.

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OCCURRENCE OF FAINT BLEEDING ON A DEFINITE INTERMENSTRUAL DAY IN MAN

KNOWING that we were at work on a study of the vaginal smear in man, notice of the preceding article by Professor Hartman was sent one of us (H. M. E.) in a personal letter under date of October 23, 1928, and prompts the following note.

We have only occasionally observed the occurrence of even slight numbers of erythrocytes in the human vaginal smear or any intermenstrual day, but one patient in whom for a year of careful study this was not seen has subsequently for almost two years exhibited with great regularity the phenomenon of sharply circumscribed faint bleeding on a definite day of the intermenstruum. The case (G. P. B., aet. 32, a graduate student at this institution) is that of an individual in excellent vigor and health save for the unexplained sudden incidence of a slight leucorrhea lasting the particular twenty months during which time the bleeding noted was detected. Coincident with the finding of traces of brownish blood on this particular day there was always an increase in quantity and in the irritating character of the vaginal secretion. The phenomenon was limited to two days at most and usually characterized a single day of the intermenstruum and occurred at times in different cycles varying between day fifteen and day nineteen of the period.

It remains, of course, to be seen whether in this exaggerated case we have had the fortune to detect for the first time in man an occurrence almost certain to be overlooked if extraordinary care to detect it be not exercised. Even in the case here noted, only the early morning lochia were blood-tinged (brown), and we would consequently emphasize the value of examinations made immediately on rising if the transitory sign is to be found.

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