8934 P

## Effect of Progestin and Progesterone on Ovulation in the Rabbit.

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Although the post partum rabbit (oestrus) uniformly ovulates after coitus, the pregnant or pseudopregnant rabbit does not ovulate after coitus. This failure of post-coital ovulation in the pregnant or pseudopregnant rabbit, as well as the absence of spontaneous ovulation during pregnancy in other species, has been attributed to some inhibitory influence of the corpus luteum. It is obvious that this inhibition could be effected either by rendering the ovarian follicles refractory to the normal concentrations of the gonadotropic hormone, or by interfering with the normal supply of this hormone to the ovarian follicles.

To determine the mechanism of this inhibition, post partum rabbits were injected daily with varying doses of progestin* or progesterone† for 5 days. At the end of the fifth day an attempt was made to mate the treated animals. Those animals which refused the male were immediately injected with one minimal ovulating dose of pregnancy urine extract‡ which had just been closely assayed by the rabbit method.[1, 2] Laparotomy was performed 18-24 hours later to determine whether or not ovulation had occurred.

Of the 24 females which had been injected with corpus luteum preparations, 9 accepted the male. In not a single instance did coitus provoke ovulation. The remaining 15 females were injected with the P. U. extract, and this was followed by ovulation in 10 animals. From these results it is clear that post-coital ovulation in the oestrous rabbit is prevented by the daily injection of corpus

* Progestin—A relatively pure extract made from sow corpora lutea by the method of Allen and Meyer (1933).

† Progesterone—Crystalline hormone, synthesized from stigmasterol. A portion of this material was obtained through the courtesy of Dr. Erwin Schwenk of the Schering Corporation.

‡ Pregnancy urine extract—Antuitrin S, a relatively stable benzoic acid extract of pregnancy urine, was obtained through the courtesy of Dr. Oliver Kamm, of the Parke Davis Co.

1 Friedman, Maurice H., *J. Pharm. and Exp. Therap.*, 1932, **45**, 7.

2 Rowe, L. W., Simond, A., and Nelson, W. O., *J. Am. Pharm. Assn.*, 1934, **23**, 882.

luteum preparations in amounts equal to, or greater than, the quantity necessary to sustain pregnancy in the castrate rabbit.[3] It is equally clear that this inhibition of ovulation is not effected by altering the sensitivity of the ovarian follicle as measured by the response to P.U. If we may accept our injections of crystalline progesterone as a satisfactory hormonal substitution for the corpus luteum of pregnancy or pseudopregnancy, we might then conclude that the corpus luteum hormone suppresses ovulation not by any direct action on the ovarian follicles, but by some interference at a site more central in the chain of the ovulation-provoking mechanism.

## 8935 C

## Periphytic Habits of Some Marine Bacteria.

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In studying the factors which influence the increased bacterial activity[1] during the storage of samples of sea water collected for bacteriological analysis, ZoBell and Anderson[2] noted that multiplication occurs more rapidly in small volumes than in large volumes of the water. Similar observations were made on fresh water by Whipple[3] who reported that after 24 hours' storage there were 300 bacteria per cc. in a gallon, 7,020 per cc. in a pint and 41,400 per cc. in 2 ounces of water which initially contained 77 bacteria per cc. Whipple attributed the difference to the oxygen content of the water, but in sealed receptacles ZoBell and Anderson[2] found that oxygen was not the controlling factor. They noted a direct relationship between the area of solid surface exposed to the stored water and the bacterial activity in it.

In continuing these studies, freshly collected sea water was filtered by gravity through a Buchner 4G sintered-glass filter into a 50-liter bottle. After shaking the bottle to mix the water and to insure its complete oxygenation, the water was siphoned into glass-stoppered bottles varying in capacity from 10 cc. to 10,000 cc., which were stored in a waterbath at 16°C. The bacterial population

[3] Allen, W. M., and Corner, G. W., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 403.

[1] Waksman, S. A., and Carey, C. L., *J. Bact.*, 1935, **29**, 531.

[2] ZoBell, C. E., and Anderson, D. Q., *Biol. Bull.*, 1936, **71**, 324.

[3] Whipple, G. C., *Tech. Quart.*, 1901, **14**, 21.