7459 C

The Genital-Pituitary Pathway. Non-Effect of Stimulation of Superior Cervical Sympathetic Ganglia.

H. O. HATERIUS.

From the Biological Laboratory, New York University.

It is well known that ovulation normally occurs only as a result of coitus in the rabbit, and abundant proof exists concerning the necessity for the activity of the anterior hypophysis in this response.[1] It is well established also that the pituitary → ovary effect is a hormonal one, but it is a matter for speculation as to the nature of the genital → pituitary stimulus, *i. e.*, whether the first phase of the genital → pituitary → ovary mechanism is nervous or hormonal in nature, and, if nervous, the specific path involved. The fact that artificial insemination[2] does not induce ovulation would indicate a nervous mechanism. The problem is an attractive one, but attempts at solving it have so far been singularly unproductive, although Fee and Parkes[3] appear to have ruled out any local vaginal reflex through anesthetization of the vagina and vulva.

The meager anatomical evidence available would indicate that the nerve supply of the anterior hypophysis is derived, in part at least, through the carotid plexus. If a nervous pathway is involved in the genital → pituitary phase of postcoital ovulation, it seemed possible that a positive reaction (*i. e.*, ovulation) might be elicited through direct stimulation of the superior cervical sympathetic ganglia. On putting this to experimental test, however, uniformly negative results were obtained. In the course of the experiments,

TABLE I.
Non-effect of Stimulation of Superior Cervical Ganglia.

Animals	Anesthetic	Stimulus	Result
I-3	'Nembutal'	10 sec. at 30 sec. intervals One bilateral; 2 unilateral	Negative
II-4	Ether (light)	30 sec. at one min. intervals for 3 min. 2 bilateral; 2 unilateral	,,
III-2	,, ,,	5 sec. at 30 sec. intervals for 3 min. Bilateral	,,
IV-5	,, ,,	10 sec. in rapid succession for 1 min. 3 bilateral; 2 unilateral	,,
V-6	,, ,,	5 min. continuous stimulation Bilateral	,,

[1] Fee, A. R., and Parkes, A. S., *J. Physiol.*, 1929, **67**, 383.

[2] Hammond, J., Reproduction in the rabbit, 1925, Edinburgh.

[3] Fee, A. R., and Parkes, A. S., *J. Physiol.*, 1930, **70**, 385.

20 rabbits (previously isolated for at least 4 weeks) were submitted to electrical stimulation. For this purpose an interrupted tetanic current was employed, using bipolar electrodes of fine Nichrome wire, insulated to the finely pointed tips and the latter spaced one millimeter apart. In most instances the strength of stimulus was adjusted to give a maximal constriction of the ear vessels. Variations in procedure are shown in Table I. In all instances exploratory operations were made 18 to 24 hours after stimulation. The animals, in addition, were re-examined 2 to 4 weeks later to determine the condition of the ovaries. One animal in each series was then sacrificed and the pituitaries were examined histologically. They did not differ in appearance from those of control animals.

In the first series 'Nembutal' (pentobarbital sodium) was used for anesthesia. Since some barbiturates apparently exercise an inhibiting effect both on the parasympathetic and the sympathetic systems,[4, 5] light ether anesthesia was used in subsequent series with, however, no difference in results.

While these experiments were in progress, Hinsey and Markee[6] reported that section of the sympathetic trunks or ablation of the superior cervical ganglia failed to prevent subsequent ovulation and pregnancy—an observation which the writer has had opportunity to confirm. Their results, as well as those reported here, seem definitely to show that the nervous pathway, if, indeed, there is a nervous pathway, is other than through the ganglia in question.

7460 C

Further Studies on Loss of Sensitivity to Anterior Pituitary-Like Hormone of Pregnancy Urine.

H. SELYE, C. BACHMAN, D. L. THOMSON, AND J. B. COLLIP.

From the Department of Biochemistry, McGill University, Montreal, Canada.

It is well known that both the anterior pituitary sex hormone and the anterior pituitary-like hormone of pregnancy urine (A.P.L.) lose their ovary-stimulating effect after a certain time, if given daily over a long period. Hisaw[1] has recently been able to show that this

4 Stavisky, G. W., *J. Pharm. and Exp. Therap.*, 1931, **43**, 499.

5 Clark, G. A., *J. Physiol.*, 1931, **73**, 297.

6 Hinsey, J. C., and Markee, J. E., PROC. SOC. EXP. BIOL. AND MED., 1933, **31**, 270.