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A preliminary note on the physiology of the uterine opening of the Fallopian tube.

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In an attempt to obtain evidence regarding Sampson's¹ theory for the etiology of adenomas of endometrial type found in the lower abdominal cavity, the cervical portion of the uterus in several bitches was occluded under aseptic precautions. It was hoped that the periodic sanguinous uterine discharge would thus be forced to find its way through the Fallopian tubes into the abdominal cavity. Then, if adenomas lined by Müllerian epithelium were found, it would be reasonable to believe that the uterine discharge contributed to their formation. However, successive laparotomies after the oestral period showed that the material did not leave the uterus, but simply distended that organ. Obviously the question arose as to the nature of that mechanism which allowed spermatozoa to pass at one time but prevented secretions from passing at another. Accordingly, injections with India ink were directed into the cornu of the uterus towards the Fallopian tube in the cat. It was found that when the uterus was small and the ovaries showed no large follicles, ink would pass into the tube but under great difficulty, a pressure of 280 mm. of mercury being frequently necessary. On the other hand, in the same animal, injections into the isthmus of the tube and directed towards the cornu passed easily into the uterus. However, when the uterus was large and swollen, and when relatively large follicles appeared in the ovary, then the passage from uterus to tube was easy. Experiments along the same lines on the dog and guinea pig have so far indicated the same general phenomenon.

The recent report of Rubin² on the various pressures necessary for transuterine insufflation of the tubes at various stages in the

¹ Sampson, J. A., *Surg. Gynec. and Obst.*, 1924, xxxviii, 287.

² Rubin, I. C., *J. Am. Med. Assn.*, 1925, lxxxiv, 486.

intermenstrual period of the same individual, is in harmony with the general principle obtained from work on the lower mammals. It is believed that the uterine end of the tube, through its varying degrees of patency, is to a great extent responsible for the differences in pressure he obtained. Furthermore, the material examined thus far indicates that the greatest patency occurs about the period of ovulation, probably a little before that time.

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The locus of the action of veratrin in the sciatic nerve of the frog.

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In a former paper¹ it has been pointed out that if the end of a sciatic nerve is immersed in a veratrin solution there results, after a widely variable latent period, spontaneous muscle twitchings in the gastrocnemius. If, at this time, the sciatic nerve is sectioned between the point of immersion in the veratrin solution and attachment to the muscle, the writing lever falls to the base line. It has also been shown that direct stimulation of the gastrocnemius, when the nerve is immersed, elicits a contraction with delayed relaxation. The question arises as to whether some of the veratrin solution actually travels along the nerve fiber to the muscle by capillarity and thus functionally affects the muscle fibers. If this should be the case, the wide range of latency might be accounted for by rapidity of transmission or length of nerve. Moreover, with this conception of the phenomenon, a nerve-block applied between the supply of veratrin and the muscle should not inhibit muscular twitchings due to chemical stimulation by veratrin, nor characteristic contracture of the muscle, following direct electrical stimulation. In order to test this theory experiments were made with nerve muscle preparations of the frog arranged as previously described¹ and using the same con-

¹ Wible, C. L., *J. Gen. Physiol.*, 1924, vi, 615.