

its effectiveness in the treatment of the disease. It would seem worth while in the light of these results for the clinician to study the value of normal sera, known to neutralize virus, in the therapy of poliomyelitis. Zingher,⁸ using untested normal serum, has already demonstrated the possible usefulness of such measures.

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Further Observations on the Pregnancy-Response of the Uterus of the Cat.

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We have previously found¹ that injections of corpus-luteum extract into non-pregnant cats even after ovariectomy change the response of the uteri so that the latter, like uteri of pregnant animals, contract when the hypogastric nerves are stimulated. If such animals are untreated or receive injections of extracts containing only oestrin, their uteri always relax in response to hypogastric nerve-stimulation, thus behaving like non-pregnant uteri.

In a new series of experiments we have injected into cats and kittens sterile urine of pregnant women. The amount injected daily was approximately 10 cc.; the period of injection was about 10 to 14 days prior to a crucial experiment in which we recorded the movements of the uterus *in situ*. Such urine contains oestrin as well as another substance causing precocious sexual maturity with corpus-luteum formation and thought by some to originate in the *pars anterior* of the pituitary body.

Injected into ovariectomized cats, pregnancy-urine caused no change in uterine-response. When such injections were made into unoperated non-pregnant cats or kittens we always observed a marked follicular development, frequently with corpus-luteum formation. Only in animals the ovaries of which contained corpora lutea, did the uteri exhibit a pregnancy-response. This fact we believe constitutes further evidence that the pregnancy-response of the uterus of the cat depends at least in part on a substance elaborated by the corpus luteum.

⁸ Zingher, A., *J. Am. Med. Assn.*, 1917, lxxviii, 817.

¹ VanDyke, H. B., and Gustavson, R. G., *J. Pharm. Exp. Ther.*, 1929, xxxvii, 379.

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Basal Metabolism and Other Observations Following Oestrin Injections.

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Preparation and Assay of Female Sex Hormone. The hormone used in this experiment was obtained from human pregnancy urine according to the following procedure:

Urine, made acid to Congo Red, was extracted with butyl alcohol in a continuous extractor for 48 hours. The alcoholic extract was taken to dryness, the residue dissolved in ether and the ether extracted 3 times with a saturated solution of sodium bicarbonate. The ether was removed by distillation and the residue dry-distilled under reduced pressure at 160°C. to remove butyl urethane. The residue was redissolved in ether, cooled to -12°C. and filtered through cotton. The ether solution was taken to dryness and the residue leached out thoroughly with a 5% solution of sodium hydroxide. The alkaline solution was cooled to -12°C. and filtered, acidified till very faintly alkaline to phenolphthalein and extracted 6 times with ether. This solution was assayed and made up for injection by pouring into olive oil and removing the ether by evaporation on a steam bath.

Assay. The method used was the vaginal smear test of Allen and Doisy. For the purpose of this experiment no smear was considered positive unless there was a complete replacement of leucocyte cells by squamous epithelial cells. The unit used is the one regularly employed in these laboratories on routine assays, namely, that amount of material which will bring 3 rats into complete oestrus providing the next higher dosage used does the same for 3 other animals. This preparation assayed as follows:

0.1 mg., E, E, E; 0.08 mg., E, E, E; 0.06 mg., E, E, E; 0.04 mg., E, E, E; 0.02 mg., E, EL, EL.

Repeat: 0.06 mg., E, E, E; 0.04 mg., E, E, E; 0.02 mg., E, E, E.*

Therefore we consider 0.04 mg. of this material as equal to one rat unit.

Experimental Procedure and Results of Oestrin Injections in Female Dogs. The oestrin prepared and assayed as above was injected subcutaneously into 4 bitches weighing 10 to 12.6 kilos. Two of these were normal and 2 were completely castrated dogs. The

* "E" signifies a positive reaction, "EL" a mixed smear with epithelial cells predominating, "LE" a mixed smear with leucocytes predominating.