the observations of Boyd and Brown,[2] they have further demonstrated the fallacy in the interpretation of these authors that light depresses the uptake of water in frogs injected with an extract of the posterior hypophysis.

Conclusion. The greater uptake of water by frogs injected with extract of the posterior hypophysis in the dark room observed by Boyd and Brown[2] has been shown due to the decreased circulation of air in the unventilated dark room rather than to darkness. There is no evidence to date that light has any effect upon this property of posterior pituitary extracts.

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Gonadotropic Action of Testosterone Propionate on the Immature Mouse Ovary.

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Vaginal introitus and estrus have been produced in the normal infantile rat with testosterone.[1, 2, 3] Little consideration has been given to the effect of this hormone on the ovary. Hohlweg[4] reported that luteinization without estrus resulted with large dosages in the rat. Recently, Salmon[5] demonstrated a gonadotropic effect with this hormone on the immature rat ovary by means of a single injection of 1 to 5 mg. Follicle stimulation resulted as the initial effect in 60 to 72 hours and corpora lutea were found after 96 hours. It was, therefore, of interest to investigate a possible gonadotropic effect of single injections of testosterone propionate on the immature mouse.

In these experiments, 148 albino mice of the "Hygenic Strain"[6] were used, of which 29 were controls. Litter-mate controls were used in all instances. Mice between 18 and 21 days of age were injected subcutaneously with dosages of 0.5, 1.0, 1.5, and 2.0 mg of

1 Butenandt, A., and Kudszus, H., *Z. physiol. chem.*, 1935, **237**, 75.

2 Tschopp, E., *Arch. int. Pharm. et de Therap.*, 1936, **52**, 381.

3 Deanesly, R., and Parkes, A. S., *Brit. Med. J.*, 1936, **1**, 257.

4 Hohlweg, W., *Klin. Wchnschr.*, 1937, **16**, 586.

5 Salmon, U. J., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 352.

6 Starkey, W. F., and Schmidt, E. C. H., *Endocrinology*, 1938, in press.

testosterone propionate dissolved in sesame oil.* In some cases on the larger dosages, the hormone was injected at 2 different sites to avoid loss. The mice were sacrificed at 48, 72, 96, and 120 hours after the initial injection. The ovaries, uterus and vagina were re-

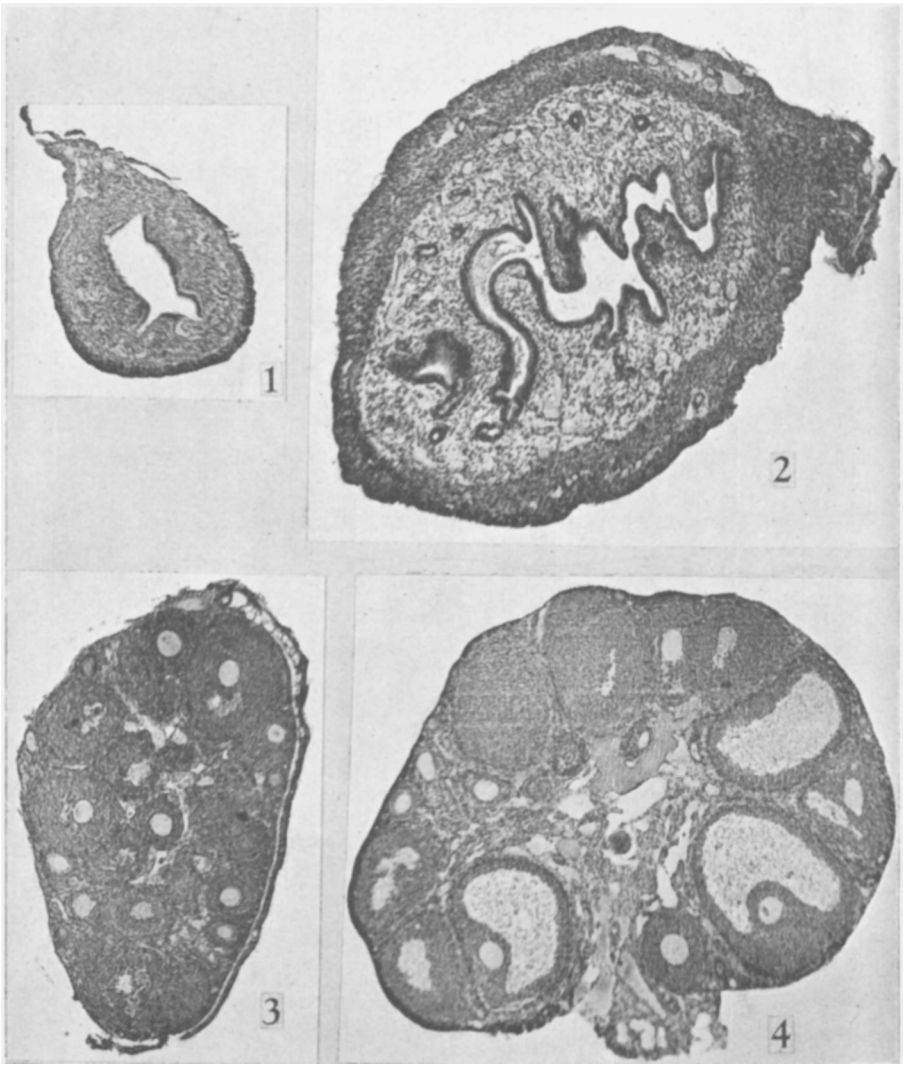

FIG. 1. Normal immature mouse uterus. × 50.
FIG. 2. Uterus of immature mouse 96 hours after single injection of 2.0 mg of testosterone propionate. × 50.
FIG. 3. Normal immature mouse ovary. × 50.
FIG. 4. Ovary of the mouse as described under Fig. 2. × 50.

* Supplied through the courtesy of Dr. Max Gilbert, Schering Corporation.

moved and examined histologically. Groups of 7 to 17 animals were employed at each time interval and dosage.

Although Salmon found the vagina to be open in all of his rats at 72 hours after injection, the vagina remained closed in virtually every case in our mice regardless of dosage or time interval. It cannot be stated that the few cases of vaginal opening observed were due to hormonal effect as the possibility of rupture, due to handling, cannot be excluded.

Hypertrophy of the uterus was observed at 48 hours and reached a maximal state at 72 hours. The myometrium was definitely thickened and the endometrium was "stringy" in appearance. A regression from this condition was noted after 72 hours. Mucification was observed in the uterus beginning at 72 hours and in the vagina at 96 hours.

Salmon observed follicular stimulation in 60 to 72 hours with the rat. In these experiments, follicular stimulation was evident at 48 hours with 72 hours being the time of maximum response. The ovarian stimulation was observed either as a general increase in size and number of follicles or as a marked enlargement of a few follicles. At 96 and 120 hours, good sized follicles were present in the majority of cases. Although the presence of corpora lutea in the rat ovary after 96 hours was reported,[5] lutein tissue was not observed in any case in the mouse up to 120 hours. Certain observations indicate that follicles of the immature mouse do not normally respond to luteinizing hormone.[7] Our observation, therefore, does not necessarily indicate its absence provided this difference in the reactions of mice and rats as to the formation of lutein tissue does exist.

Doses of 1.0 to 2.0 mg gave practically identical response. Animals treated with 0.5 mg responded but not to as great a degree as with the larger doses. The regression of the uterine and vaginal condition toward the normal was also more rapid after the smaller dose.

Summary Single injections of testosterone propionate produced a gonadotropic effect on the mouse ovary. Follicle stimulation resulted but lutein tissue did not form. Other investigators have suggested that the ovarian response to this hormone is dependent on the pituitary.[7]

[7] Parkes, A. S., and Zuckerman, S., *J. Physiol.*, 1938, **93**, 16P.