

It is evident from these results that the reproductive cycle cannot be determined accurately by means of the vaginal smear during periods of hormone treatment if small amounts of oestrin are present in the extracts administered. This must be taken into account, for example, in evaluating the results of those who have at various times attempted to inhibit the vaginal cycle with corpus luteum extracts, which when not fully purified contain small amounts of oestrin.

*Conclusions:* (1) Daily treatment with oestrin (Progynon-B) in very small doses ( $\frac{1}{4}$  to 2 r.u.) disturbs the vaginal cycle by inducing periods of continued anoestrous smears, or sometimes continued oestrous smears. (2) The ovarian cycle is also disturbed, the incidence of ovulation being reduced; and the weight of the ovaries is reduced.

We wish to express our appreciation to Dr. George W. Corner for his many helpful suggestions and criticisms.

#### 8814 P

### Migration of Nuclei in Uterine Epithelium of Monkey Following Prolonged Estrin Injections.\*

MILTON D. OVERHOLSER AND WARREN O. NELSON.

*From the Department of Anatomy, University of Missouri.*

Eight *Macacus rhesus* monkeys received subcutaneous injections of estrin in oil solution (Amniotin<sup>†</sup> or Theelin<sup>‡</sup>) over time periods ranging from 6 to 24½ months. The total estrin dosage ranged from 36,400 to 73,400 rat units. Two of the animals were ovariectomized, 5 were normal, and 1 was depancreatized. Two ovariectomized animals were used as uninjected controls.

The migration of nuclei in the cells of the uterine epithelium (Fig. 1) occurred in 6 of the 8 injected animals. Of these, 3 were normal, 2 were ovariectomized, and 1 was depancreatized. The 2 negative cases (animals 14 and 59) were animals receiving the lowest dosages (36,400 and 44,150 r.u.). The ovariectomized controls were also negative. The nuclear migration is brought

\* Aided by a grant from the Committee on Scientific Research of the American Medical Association to Dr. M. D. Overholser.

† Supplied by Dr. J. A. Morrell of E. R. Squibb and Sons.

‡ Supplied by Dr. Oliver Kamm of Parke, Davis and Co.

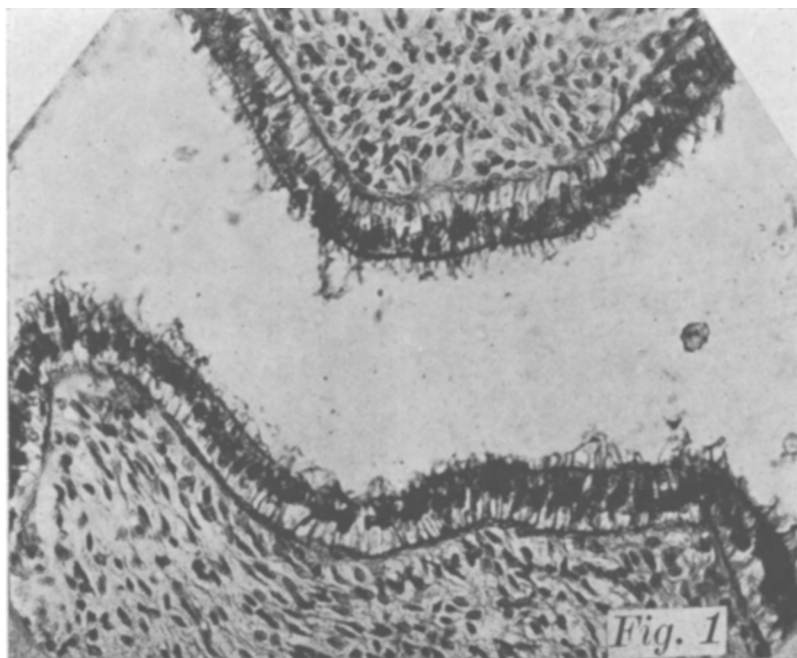


FIG. 1.

Uterine epithelium from ovariectomized animal 22, after receiving 300 R.U. of estrin daily over a period of 6 months. Total dosage 54,600 R.U. Migration of nuclei in epithelium. x 300.

about by the appearance of secretion at the bases of the epithelial cells. This causes the nuclei of the cells lining the lumina of the uterine cavity and glands alike, to be pressed toward the apices of the cells. Hisaw<sup>1</sup> (1935) and Lendrum and Hisaw<sup>2</sup> (1936) have noted this phenomenon as occurring regularly in the cells of the uterine epithelium of the monkey following injections of corporin, and have shown that it is due to an accumulation of glycogen beneath the nuclei. They state that the presence of glycogen is a characteristic feature of the endometrial response to the administration of corporin, but that minute traces of glycogen may be found occasionally in the basal ends of some cells following prolonged treatment with large doses of estrin. In our material the phenomenon occurred in ovariectomized and normal animals alike following the administration of estrin only. Our total estrin

<sup>1</sup> Hisaw, F. L., *Am. J. Ob. and Gyn.*, 1935, **29**, 638.

<sup>2</sup> Lendrum, F. C., and Hisaw, F. L., *Proc. Soc. Exp. Biol. and Med.*, 1936, **34**, 394.

dosages were much greater than those of Lendrum and Hisaw. In other respects the endometrium showed a simple estrin response, the glands being straight with no cystic or "swiss cheese" effects. No stratified squamous cells were associated with the columnar uterine cells, although, with the exception of animals 14, 59 and 5 marked epidermization occurred in the cervix of the injected animals.

### 8815 C

#### **Studies of Prolactin in the Fowl Pituitary. I. Broody Hens Compared With Laying Hens and Males.**

WILLIAM H. BURROWS AND THEODORE C. BYERLY.

*From the National Agricultural Research Center, Beltsville, Maryland.*

Riddle, Bates, and Lahr<sup>1</sup> have shown that the injection of prolactin into the fowl will produce broodiness. It seems to be a logical assumption that the pituitaries of broody hens would have a higher prolactin content than the pituitaries of laying hens or males. The present investigation was undertaken to ascertain if these differences in prolactin content of fowl pituitaries actually exist, and, if so, what their magnitude might be.

The pituitaries of broody hens, laying hens and males were implanted over the crop glands of 8- to 10-weeks-old White King pigeons (age computed from time of conception) according to the method of W. R. Lyons as described by McQueen-Williams<sup>2</sup> and the extent of local stimulation of the crop gland was accepted as a relative measure of the prolactin content of the pituitaries.

In all instances the pituitaries were implanted in pairs, *i. e.*, the pituitaries of two birds, either a broody hen and a laying hen or a broody hen and a male, were implanted into one pigeon; one over the right crop gland and one over the left crop gland.

In all but one of the pairs of implants in which a broody hen and a laying hen were represented, the reaction indicated that there was more prolactin in the pituitary of the broody hen than in that of the laying hen. The reactions were observed and graded with plus signs; 2 pluses being given where the reaction was regarded as being

<sup>1</sup> Riddle, O., Bates, Robert W., and Lahr, Earnest L., *Am. J. Physiol.*, 1935, **3**, 352.

<sup>2</sup> McQueen-Williams, M., *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **33**, 406.