quite different from the condition found in the animals described and in the latter the region of greatest ciliary activity is in the upper part of the nose and the flow of mucus in the lower half and along the floor is very sluggish. This also is exactly opposite to the condition found in man and monkey.

The direction of air currents was then determined for the cat by plotting out the distribution of inhaled carbon and it was found that it differed to an equal degree from the plan of air currents as marked out in man by Paulsen.[2] Therefore it was concluded that the direction of air currents through the mammalian nose is a factor in the development of the pattern of mucous flow and that the two are inversely correlated.

7110 P

Histology of the Ovary of Hypophysectomized Rats Treated with Urinary Hebin.

NELSON J. WADE. (Introduced by W. D. Collier.)

From the Department of Biology, St. Louis University.

The treatment of hypophysectomized rats with hebin, the gonad stimulating substance from human pregnancy urine, indicates that the response is conditioned by the time intervening between hypophysectomy and the beginning of hebin administration and by the influence of hebin administration, immediately after hypophysectomy, upon a later treatment with hebin, after an intervening period of rest.

Female albino rats, weighing about 120 gm. when completely hypophysectomized by Dr. Smith's method,* showed the usual ovarian changes with atresia of follicles, almost complete absence of follicular development, granulosa atrophy, interstitial tissue hyperplasia and production of wheel cells described by Selye *et al.*[1]

In all cases one ovary, removed at some crucial period in the experiment, was compared histologically with the second ovary, removed at the end of the experiment.

---

[2] Paulsen, E., *Sitz. d. k. Akad. d. Wiss., Wien., Math-naturen*, 1882, **85**, 352.

* The writer wishes to express his gratitude to Dr. Smith for explaining some of the details of the operation and to Dr. H. B. Van Dyke for demonstrating the operation.

[1] Selye, H., Collip, J. B., and Thomson, D. L., *Endocrinology*, 1933, **17**, 494.

Urinary hebin† failed to inhibit ovarian degeneration or cause repair in 16 animals treated shortly after hypophysectomy. Serial sections from 5 of the animals showed that the ovary was converted into a lutein-like mass in which it was difficult to distinguish the individual component parts. Occasional small and medium sized follicles were found. The origin of the lutein is apparently from diverse kinds of cells but primarily from theca. The production of new corpora lutea reported by Leonard and Smith[3] is somewhat uncertain in our animals.

Other animals similarly treated and then allowed to rest for 12 to 20 days showed a return to the involuntary state as if no hebin had been administered. The previously luteinized theca changed over to the wheel cell type. A few luteinized follicles persisted but did not exceed in number those found in the ovaries of untreated hypophysectomized rats of comparable periods after hypophysectomy.

In 5 animals the terminal response to the injection of hebin after a 6 to 10 weeks interval after hypophysectomy was quite similar to the response to hebin administration immediately after hypophysectomy. The difference was that theca luteinization in delayed hebin administration occurred as a transformation of previously formed wheel cells into lutein cells while no such intermediate wheel cell formation occurred when hebin was injected immediately after hypophysectomy.

Twenty-one animals previously treated with hebin shortly after hypophysectomy and then allowed to rest for 12 to 20 days and then reinjected with large doses of hebin gave quite different reactions. Large doses did not produce any obvious change in the ovary. Thecal wheel cells persisted and in some cases seemed to increase in number with no increased luteinization of the ovary. The hebin used was active as checked in other experiments. Cornified vaginal smears were always produced after all hebin injections.

† Prepared by the method of Katzman and Doisy.[2]

[2] Katzman, P. A., and Doisy, E. A., *J. Biol. Chem.*, 1932, **98**, 739.

[3] Leonard, Samuel L., and Smith, Philip E., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 780.