and parturition are not interfered with in the hypophysectomized cat, although lactation is impossible. Pencharz and Long,[3] working with rats, stated that pregnancy is not interrupted by removal of the hypophysis, but the process of parturition becomes impossible and the foetuses die *in utero* after a somewhat prolonged gestation period.

Repeating these experiments on rats we were able to confirm the statement that pregnancy is usually prolonged (up to 26 days). If the pituitary is removed between the tenth and fourteenth day of gestation, death and resorption of the foetuses may occur; but when the pregnancy proceeded normally until term, in 22 out of 24 cases the mechanism of parturition was not interfered with, and the litters were born alive; in the 2 exceptional cases hemorrhage occurred at term and the foetuses died *in utero*. We further established that the milk secretion always sets in normally at birth, but stops after a few hours, so that the hypophysectomized mother is unable to nurse her young.

As has been pointed out previously,[4] milk secretion will also stop immediately if the pituitary is removed in various stages of lactation.

These experiments indicate that the endocrine functions of the pituitary are not indispensable during the second part of pregnancy and parturition in the rat. Milk secretion can also begin in their absence but stops a few hours after the litter has been born.

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## Effect of Prolonged Administration of the Anterior Pituitary-Like Hormone on Pituitary and Thyroid.

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Changes in the anterior lobe of the pituitary after administration of the anterior pituitary-like hormone (A.P.L.) of pregnancy urine or placenta have been observed by numerous investigators,[1, 2, 3] but

[3] Pencharz, R. I., and Long, J. A., *Science*, 1931, **74**, 206.

[4] Collip, J. B., Selye, H., and Thomson, D. L., *Nature*, 1933, **131**, 56.

[1] Baniecki, H., *Arch. f. Gynäkol.*, 1928, **134**, 693.

[2] Zondek, B., and Berblinger, W., *Klin. Wochschr.*, 1931, **10**, 1061.

[3] Zondek, B., *Hormone des Ovariums unde des Hypophysenvorderlappens*, Berlin, 1931.

their results are contradictory, both as regards the histological nature of the changes thus produced and the effectiveness or ineffectiveness of A.P.L. in the male.

Zondek[3] found that when prolan is given to female rats over a long period the ovaries, which have increased in size in the beginning, will become smaller again. These observations have been confirmed in this Department, and it has also been found that the same retrogression in size takes place in the sex organs of the male if A.P.L is given over a very long period.[4]

We thought that this decrease in sensitivity to A.P.L. which sets in gradually in chronic experiments might be at least partly responsible for the discrepancies in the results of those investigators who studied the effect of A.P.L. on the pituitary. Our experiments seem to confirm this view. We found in several series of experiments in which injections were given from the 27th to the 67th day of life, that the size of the pituitary runs parallel to the size of the ovaries in the A.P.L. treated female rat. In 16 rats observed at the time when the enlargement of the ovaries was most conspicuous (0.547-0.616 gm. as compared with 0.032 in the untreated control females of the same age) the pituitary was also at its maximum size (0.0115-0.012 gm. as compared with 0.004-0.0045 gm. in the control animals). This increase in weight is due solely to the enlargement of the anterior lobe. No pituitary enlargement was found in the A.P.L.-treated male rats (11 animals). We found, further, that the thyroid was also very much enlarged (200-300%) and showed histological signs of hyperplasia in the females at the time when their ovaries attained their greatest weight, whereas no thyroid enlargement could be produced in the male. A.P.L. also had no effect on the thyroids of hypophysectomized rats, either male or female.

These experiments indicate that a very definite enlargement of the pituitary and thyroid can be produced in the female rat by prolonged A.P.L. administration; the enlargement of both these organs running approximately parallel to the weight increase of the ovaries.

[4] Collip, J. B., Thomson, D. L., McPhail, M. K., and Williamson, J. E., *Canad. Med. Assn. J.*, 1931, **24**, 201.