

that there is a local factor that influences the growth of the uterine tissues during pregnancy in the cat. This local factor is of considerable consequence since it causes the occupied horn to grow to dimensions double that of the unoccupied one which is presumably subjected to the same hormonal changes. This growth is accomplished by an approximate relative increase in each of the component tissues of the uterine horns as is shown by the fact that the percentage content of the longitudinal and circular muscle layers, endometrium and connective tissue (between muscle layers) on the 2 sides shows only slight variations which are probably within the error of our method. The growth of the muscle at the implantation sites might be attributed to a work hypertrophy but this cannot explain the greater growth in the portions between the implantation sites of the left horn. This latter is easily seen by a comparison of microscopic cross sections of the right and left horns (between implantation sites) where the latter is considerably larger. This difference was further shown in our direct measurements. This local factor is being studied in greater detail in the rabbit.

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Pregnancy Following Bilateral Section of the Cervical Sympathetic Trunks in the Rabbit.*

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The ovulation which follows coitus is known to depend upon the activity of the anterior lobe of the hypophysis. This activity must depend upon the central nervous system. However, at the present time the efferent pathway to the anterior lobe of the hypophysis is only a matter of conjecture as to whether it is direct or indirect. The tractus supraoptico-hypophyseus passes from the nucleus supraopticus to the posterior lobe (Greving¹). The only innervation which is known for the anterior lobe is from the carotid plexus. If the pathway from the central nervous system to the anterior lobe

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¹ Greving, R., 1931, p. 188, in L. R. Müller's *Lebensnerven und Lebenstrieb*, 3rd Edition. Julius Springer, Berlin.

of the hypophysis is a direct one, it is conceivable that it may pass to it by way of the carotid plexus. Cannon and his coworkers² showed in one cat that conception and delivery could take place following complete removal of the thoracolumbar sympathetic outflow from the central nervous system.

In a series of 8 adult rabbits which had been isolated for 3 weeks, the cervical sympathetic trunk was sectioned bilaterally below the superior cervical sympathetic ganglion. In one of the animals, the superior cervical sympathetic ganglion was removed bilaterally. The animals were bred about one week after the operation. Each of them became pregnant and delivered an average litter of 7 plus young. Autopsies were done to control the operations. The observations show that the pathway through the superior cervical sympathetic ganglion is not essential for ovulation in the rabbit. While the possibility must be recognized that there may be some slight contribution to the carotid plexus from the other cervical sympathetic ganglia, by far the greatest portion of this plexus is derived from the superior ganglion.

When this evidence in the rabbit is combined with that of Cannon in the cat, it seems that there are only 2 other possibilities for efferent pathways to the anterior lobe of the hypophysis: either there are contributions to the carotid plexus from cranial nerves such as Cobb and Finesinger³ and Chorobski and Penfield⁴ have described from the greater superficial petrosal nerve or the pathways from the hypothalamus must activate the posterior lobe of the hypophysis which in turn may exert an influence on the anterior lobe by hormonal transmission.

² Cannon, W. B., Newton, H. F., Bright, E. M., Menkin, V., and Moore, R. M., *Am. J. Physiol.*, 1929, **89**, 84.

³ Cobb, S., and Finesinger, J. E., *Arch. Neurol. and Psychiat.*, 1932, **28**, 1243.

⁴ Chorobski, J., and Penfield, W., *Arch. Neurol. and Psychiat.*, 1932, **28**, 1257.