Words are always reproduced more clearly and intelligibly from the nerve. Those from the brain stem, while often intelligible, are always somewhat blurred. There is some doubt as to whether the upper limit of pitch is as high for the brain stem as for the nerve.

We believe that the above evidence indicates that we are dealing with true action currents in the auditory pathways. It demonstrates the possibility of direct study of the activity of individual tracts within the central nervous system, by such methods as have been employed for peripheral nerves and the cerebral cortex.

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THE EFFECT OF HYPOPHYSECTOMY ON GESTATION IN THE RAT[1]

EXPERIMENTAL work on the functions of the pituitary gland has dealt largely with the effects of extirpation of this gland on growth and on the development of the reproductive organs, and, with the exception of the early work of Aschner on pregnant dogs, no further studies seem to have been carried out on the effects of hypophysectomy on the maintenance of pregnancy in mammals. It seemed of interest, therefore, to see what effects, if any, removal of this gland would have upon the course of gestation in the rat.

A total of 43 pregnant rats were operated on for the removal of the anterior and posterior lobes of the pituitary gland. The age of the rats at the time of operation ranged from 92 to 247 days, the average being 126; while the day of pregnancy varied from the eleventh to the twentieth, most being within the twelfth to the sixteenth.

Of the 43 operations, 21 resulted in the incomplete removal of the gland, for at necropsy it was easy to find under a dissecting binocular small pieces of anterior lobe, or of anterior and posterior lobes, *in situ*.

In all the foregoing 21 rats, gestation ended in parturition, the young in most cases being alive. In 18 of these rats the gestation period was of normal length, and all the newborn were living and were suckled. Pregnancy in the other 3 animals was prolonged. One mother gave birth to 2 living young and 3 dead on the twenty-fifth day, one of the litter showing signs of having milk in its stomach. On necropsy a very small piece of the anterior lobe was found to have been left. The second mother gave birth to one dead and one living young at 11 A. M. on the twenty-fourth day of pregnancy. Three hours later two more living young were found in the cage. The following morning all were dead, apparently without having been suckled by the mother. The mother was killed the same day and was found to contain *in utero* one macerated foetus, and at the site of the pituitary a small piece of the gland. In the third case, on the twenty-fifth day one was found born alive. Necropsy revealed no others *in utero,* although there was evidence of others probably destroyed after birth. Traces of pituitary tissue were found.

Twenty-two of the 43 pregnant rats used in the experiment retained none of the pituitary. Microscopic findings will be reported later. In all these the period of pregnancy was lengthened by from 3 to 4 days. With two exceptions, noted below, the mothers died without being able to give birth to their young. One of the two exceptions was sacrificed on the twenty-sixth day in order to secure good necropsy material. In the other exceptional case, the young were removed by caesarian section on the twenty-fifth day, the result of which was that the mother recovered. At necropsy a month later, the former site of the pituitary showed no traces of the gland, and the ovaries, uterus, thyroid and adrenals exhibited all the characteristics of a completely hypophysectomized animal.

The evidence at hand thus shows that complete removal of the pituitary is followed by death at the end of a prolonged pregnancy, unless, as in one case, the mother's life is saved by removal of the foetuses from the uterus.

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