

antiprotein factors since, as far as we could determine these had been removed by absorption.

In testing the action of antophysin antiserum on pituitary extract, 1 cc. of the antiserum was incubated 1 hour with 1/3 cc. of the extract and the mixture injected into a female rabbit. There was no ovarian stimulation 48 hours later. A similar result was obtained when follutein antiserum was tested against pituitary extract. The pregnancy urine *antiserum* inhibited the gonadotropic action of pituitary extract as well as P.U.; whereas pituitary antiserum (as shown above) inhibited the gonadotropic action of only the pituitary extract. We feel that there was not sufficient gonadotropic "antihormone" developed to inhibit the hormone action of P.U.|| Our assay of pituitary extract for gonadotropic hormone revealed 20 R.U./cc.; thus the rabbits injected with pituitary extract received only a total of approximately 1750 R.U. of gonadotropic hormone.

The fact that our P.U. antiserums, after treatment with human serum proteins, will still inhibit the hormone action of P.U. is a significant finding; and since these antiserums will also inhibit the hormone action of pituitary extract derived from bovine source, it thus appears that the antihormone (inhibitory action) is not due to an anti-human protein phenomenon *per se*, but to the presence of another antagonistic but specific substance.

8906 P

Cataleptic Symptoms Following Bilateral One-Stage Removal of Frontal Cortex in Cats.

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The author wishes to present a brief report concerning a peculiar group of symptoms, in many ways suggestive of catalepsy, which has been observed in 8 cats following a one-stage operation in which both frontal lobes of the cerebral cortex were removed. These operations were done with every precaution to secure good hemostasis and prevent hemorrhage from complicating the interpretation of the subsequent observations. Careful autopsies revealed that in no instance was there any sign of hemorrhage at the base of the brain

|| Recent unpublished experiments show that the pituitary antiserum as well as P.U. antiserums will inhibit the gonadotropic action of pregnant mare serum.

or of blood in the ventricles. The observations on animals (cats) were made on relatively acute preparations. Cats 5, 6, 7, 8, 9, 10, 11, and 12 survived for 28, 3, 19, 2, 8, 13, 6 and 15 days, respectively. Animal 9 died after a laboratory accident; animal 6 of pneumonia, and animal 8 of an infection contracted post-operatively. All others were sacrificed.

These animals all showed a remarkable plasticity of the muscles of the limbs and back. Such plastic tonus was especially well observed if the animals were placed in a supine position in a wooden trough-like structure. The limbs of these animals were usually rigidly extended when in this position. If they were passively flexed by the observer, there was considerable resistance, and the limbs remained flexed for exceptionally long periods of time, hours in many instances. When passively extended, there was likewise considerable resistance, and the limbs remained extended for very long periods. Furthermore, these animals made little or no effort to escape when in the supine position, but would lie quietly, breathing regularly. They were neither moribund or comatose. Moving objects placed before the eyes elicited a following movement of the eyes. Sounds caused a twitching of the ears.

These animals could walk within a day or two after the operation. All could stand 24 to 36 hours after operation. The general behavior of these animals was distinctly abnormal. All required feeding by tube in the early survival period, and in one instance (cat 12) tube-feeding was always necessary. These animals were apparently oblivious to such painful stimuli as severe pinching of the tail during the early survival periods. Such "reflex" responses, as hair erection or alteration of the respiratory rate were never observed in any of the animals no matter how severe the pinching of the tail might be. Pupillary dilatation of a moderate degree could be produced only in the later survival periods and at this stage only very weak movements of a defensive character could be produced by severe pinching of the tail.

A rather surprising characteristic of these animals was their great deficiency in the ability to right themselves when dropped from either side or back into an outstretched hammock. Such a reaction when present was never normal, but always delayed and incomplete. This is indeed peculiar in view of the remoteness of the labyrinthes and their sub-cortical neural pathways from the area of cortical injury.

One might suspect that many of the above symptoms as briefly mentioned here were due to an involvement of brain-stem structures; but although such an opinion is plausible, it is not likely that

this explanation is a valid one in view of the absence of any observable hemorrhage in this region or within the ventricles. Only 8 animals were operated; all 8 showed the same qualitative symptoms, there being only a slight quantitative difference. If such symptoms were due to hemorrhagic involvement of the brain-stem, it would seem remarkable that such a similar group of symptoms could be produced in 8 consecutive animals, without any evidence whatever of other symptoms such as rigidity of a decerebrate type or impairment of the respiratory mechanism. Furthermore, the nature of the symptoms was a constant finding in all animals regardless of their period of survival, although quantitatively there was some diminution in later stages.

8907 C

Stimulation of Birth-mechanism in Experimentally Monotocous and Oophorectomized Rats.

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It was demonstrated recently¹ that ovarian ablation in the rat during the last third of pregnancy need not interrupt this condition, providing the litter being carried has been surgically reduced to one fetus and that the placentae of the fetuses removed have been allowed to remain intact. Under these circumstances, however, the animals fail to deliver and the young, to be obtained alive, must be recovered by operative procedure; retention *in utero* much beyond the normal time of parturition serves progressively to compromise their viability. It seems improbable that failure of birth is due to the manipulations involved since control animals, receiving similar treatment save for retention of one ovary, will litter at the usual time. In failure of the birth mechanism the rat appears to differ from other species reported to carry to term following upon oophorectomy; the guinea pig, for example, spayed during the latter half of pregnancy, frequently continues to term and to normal delivery;² substantially the same situation prevails for the mare³ and, as is well known, for the human being.⁴

¹ Haterius, H. O., *Am. J. Physiol.*, 1936, **114**, 399.

² Nelson, W. O., *Endocrinol.*, 1934, **18**, 33.

³ Hart, G. H., and Cole, H. H., *Am. J. Physiol.*, 1934, **109**, 320.

⁴ Ask-Upmark, M. E., *Acta obst. et gynec. Scand.*, 1926, **5**, 211.