

ing in 2 cats with negligible damage to the brain necessarily raises the question as to what part the anesthetic may play in the development of decorticate panting.^{2, 3}

We are unable to offer a satisfactory explanation of the effects of ether and urethane upon the panting mechanism. It is possible that they may produce a release from inhibition or they may cause a chemical excitation. Whatever the nature of their action, it is important to bear this action in mind whenever these anesthetics are used in experiments on thermal or decorticate panting.

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Post-Rotatory Nystagmus Following Decerebration in Guinea Pigs with Unilateral Cerebellar Lesions.

A. R. BUCHANAN. (Introduced by S. W. Ranson.)

From the Institute of Neurology, Northwestern University Medical School.

Bauer and Leidler¹ reported that they could elicit nystagmus after removal of all parts of the cerebrum as far down as the corpora quadrigemina. Wilson and Pike² could not confirm the results of these workers. They found that, as a general rule, complete removal of the cerebral hemisphere on the side of the slow deviation abolished all except a small rotatory component of the quick phase of nystagmus, while complete removal of the cerebral hemisphere of the side toward which the quick component is directed has but little effect on the quick movement.

Ivy³ performed a series of cerebral ablations in frogs, turtles, pigeons, rabbits, kittens, cats, pups, and dogs. He found, in most of these animals, that complete decerebration did not abolish the quick component of the post-rotatory nystagmus and that there was an actual increase in the nystagmus in most cases. He considered the conclusion warranted, on the basis of his findings, that the quick component of eye nystagmus is not due to the integrity of a cerebral reflex arc, as was held by Wilson and Pike, but is a lower

² Bard, P., *Am. J. Physiol.*, 1928, **84**, 490.

³ Lillenthal, J. L., Jr., and Otenasek, F. J., *Bull. Johns Hopkins Hosp.*, 1937, **61**, 101.

¹ Bauer, J., and Leidler, R., *Monatsschr. f. Ohrenh.*, 1911, **45**, 937.

² Wilson, J. G., and Pike, F. H., *Arch. Int. Med.*, 1915, **15**, 31.

³ Ivy, A. C., *J. Comp. Neurol.*, 1919, **31**, 1.

type of reflex, over which the cerebrum exercises an inhibitory influence.

Lesions were produced in the right half of the cerebellum in 9 guinea pigs by means of an Horsley-Clarke stereotaxic instrument. The lesions involved, in varying degrees, the lingular cortex, the lateral and medial cerebellar nuclei, the ventral spino-cerebellar tract, the restiform body, the brachium pontis, the uncinate fasciculus and the flocculo-nodular fibers. The right medial vestibular nucleus was also partially destroyed in 2 animals.

Following the production of the cerebellar lesions, post-rotatory nystagmus was studied, and was found to be essentially normal in rate, duration and direction. The method utilized in rotation of the guinea pigs has been described in a previous report;⁴ rotation to right or left around the basi-occipital axis resulted in horizontal nystagmus directed (quick component) toward the opposite side or forward in the ipsilateral eye and backward in the contralateral one. Increase in the intensity of the nystagmus, as described by Bauer and Leidler following destruction in the vermis, was not observed.

As a terminal procedure, the guinea pigs were decerebrated, utilizing the transection method described by Hinsey, Ranson and McNattin.⁵ The level of the transection was through the superior colliculi dorsally and the mammillary body ventrally in 5 animals, and in the remaining 4 was through the habenular trigone dorsally and the mammillary body ventrally.

After allowing time for the animals to recover from the narcosis, rotation on the turn table was again carried out. Rotation to right or left elicited after-nystagmus in the usual direction and of normal intensity in 6 animals. In one, no nystagmus appeared following rotation to the right (side of the cerebellar lesions), and in another none was elicited by rotation to the left. The remaining animal gave a somewhat reduced response following rotation to right or left which was of indeterminate direction.

Since the cerebellar lesions did not modify the nystagmus elicited by rotation previous to decerebration and most of the animals showed normal nystagmus following decerebration, it is probable that the abnormal responses in 3 animals were due to hemorrhage in and about, or trauma to the part of the brain stem remaining.

Conclusions. Post-rotatory nystagmus is still elicitable in guinea pigs with the cerebral hemispheres and thalamus removed. Neither

⁴ Buchanan, A. R., *Laryngoscope*, in press.

⁵ Hinsey, J. C., Ranson, S. W., and McNattin, R. F., *Arch. Neurol. and Psychiat.*, 1930, **23**, 1.

the slow nor the quick components of the nystagmus were disturbed by decerebration at a level which passed through the superior colliculi dorsally and the mammillary body ventrally. The direction and intensity of the nystagmus remained within normal limits.

Lesions in the right half of the cerebellum did not modify the post-rotatory nystagmus, either alone or in conjunction with decerebration.

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Epinephrine Secretion in Hypophysectomized Dogs.

J. M. ROGOFF,* E. NOLA NIXON, GEORGE N. STEWART AND E. MARCUS.

From the Physiological Laboratory, University of Chicago.

Our investigation arises from the supposed relation of the adrenal glands to the etiology and pathology of diabetes and of hypertension. This report concerns the probable interrelated functions of the adrenals and the hypophysis, in relation to these conditions.

Anatomic changes have been found in the adrenals after hypophysectomy and in the hypophysis after adrenalectomy. The adrenal cortex undergoes marked atrophy following hypophysectomy although the medulla shares but little, if at all, in this change. Extracts of the posterior lobe of the hypophysis have been reported to be capable of inducing hyperplasia of the adrenal cortex.¹ An interrenatotrophic principle, capable of affecting the adrenal cortex, has been obtained from the anterior lobe of the hypophysis and an adrenotropic action of hypophyseal extracts, affecting the medulla, has also been reported. It has been claimed² and also denied^{3, 4} that the hypertensive action of posterior pituitary extract depends upon free circulation of blood from the adrenals.

If an adrenal medullotropic function is performed by the hypophysis, it seems probable that hypophysectomy would result in a diminished rate of liberation of epinephrine from the adrenal glands. It might also be expected to affect the production or storage of epinephrine in the adrenals, as a result of loss of the hypophyseal

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¹ Hallion, L., et Alquier, L., *Compt. rend. Soc. Biol.*, 1908, **65**, 5.

² Képinov, L., *Compt. rend. Soc. Biol.*, 1920, **83**, 1134.

³ Hoskins, R. G., and McPeck, C., *Am. J. Physiol.*, 1913, **32**, 241.

⁴ Houssay, B. A., *Compt. rend. Soc. Biol.*, 1921, **85**, 35.