

Summary. Infant rats can tolerate a low oxygen concentration (3.87%) at high altitudes (40,000 feet) longer than adults of the same species. This tolerance decreases with age and is probably associated with the lower cerebral metabolism of infant brain.² The diminution of metabolic rate of adult rats by thyroidectomy increases the resistance of these animals to high altitudes.³ The importance of the factor of aeroembolism in this differential survival has not been determined.

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Recovery of Pupillary Function in Cut Optic Nerves of Cats and Monkeys.*

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The question of structural and functional recovery of central nervous system tissue in mammals is still a moot point. There are many experiments dealing with regeneration of the optic nerve in fish but practically none in higher forms. Sugar and Gerard¹ studied regeneration of the spinal cord in the rat and found that "true anatomical and physiological regeneration can occur in the rat spinal cord."

We studied the recovery of the pupillary light reflex after sectioning the optic nerves in 3 cats and 4 monkeys by the pupillographic method as developed by Lowenstein.² The recordings were made in the dark with infra-red sensitive film. The film was then projected on a screen and pupillary diameter measurements made in tenths of mm. The time intervals were in tenths and seconds.

From 16 to 17 months after the (right) optic and ciliary nerves were severed just behind the globe, direct (of the operated eye) and

² Himwich, H. E., Sykowski, P., and Fazekas, J. F., *Am. J. Physiol.*, 1941, **132**, 293.

³ Barach, A. L., Eckman, M., and Molomut, N., *Am. J. Med. Sci.*, 1941, **202**, 336.

* This work has been aided by grants from the Josiah Macy, Jr., Foundation and the Rockefeller Foundation for Medical Research.

¹ Sugar, O., and Gerard, R. W., *J. Neurophysiol.*, 1940, **8**, 1.

² Lowenstein, Otto, *Arch. Psychiat. Nervenkr.*, 1927, **82**, 285.

consensual (of the normal eye) constriction was found when a light of 60 watts at a distance of 1 meter was projected on the experimental (right) eye. Great care was taken to insure that no amount of light would reach the normal (left) eye. In several experiments a heavy bandage was placed on the normal eye; in the other cases where the consensual reaction of the other eye was to be recorded, this eye was carefully protected against direct stimulation. The direct pupillary response was found to be minimal—change from 0.1 to 0.5 mm. The consensual response, *i. e.*, from the experimental eye to the normal eye was slightly more conspicuous, showing constriction of 0.5 to 1.5 mm, while the consensual reaction from the normal to the operated eye manifested by a decrease of 2.0 to 3.0 mm in the pupillary diameter.

Our experiments indicate that there is some restitution of function of afferent fibres going to the pupillary centers in the cut optic nerve which actually is central nervous tissue. Anatomic studies have not been completed.

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Bone Calcium During Hyperthyroidism.

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Parhon¹ observed an increased excretion of calcium in rabbits fed thyroid gland. This increased excretion of calcium has also been reported by other authors.²⁻⁵ Aub, *et al.*,⁶ have also observed an increased excretion of calcium in the feces of hyperthyroid patients. Others have demonstrated, by the use of roentgenograms, a decalcification in patients with hyperthyroidism. In order to account for the increased calcium excretion in thyroid-fed animals and for the

¹ Parhon, M., *Mem. Soc. de biol.*, 1912, **72**, 620.

² Kummer, R. H., *Rev. Med. de la Suisse Romande*, 1917, **37**, 439.

³ Hunter, D., *Lancet*, 1930, **1**, 947.

⁴ Pugsley, L. I., and Anderson, E., *Biochem. J.*, 1934, **28**, 754.

⁵ Cope, O., and Donaldson, G. A., *J. Clin. Invest.*, 1937, **16**, 329.

⁶ Aub, J. C., Bauer, W., Heath, C., and Ropes, M., *J. Clin. Invest.*, 1929, **7**, 97.