

emulsion and exposed for 12 weeks. Subsequently, the slides were developed and stained with hematoxylin and eosin.

No significant incorporation occurred in the glial or vascular elements. All incorporation was into neuronal nuclei. Figure 1 demonstrates hippocampal nuclei and is to be compared with Figure 2, which shows representative nuclei from the cortex. All of the hippocampal pyramidal nuclei are labeled and appear to be more heavily labeled than the cortical pyramidal nuclei, but there is a marked difference in the pattern of labeling. The hippocampal nuclei have a well defined nuclear label with this particular pulse interval (2 h). The label tends to be generally distributed within the nucleus, i.e. over the chromatin, nucleolus, and nucleoplasm, whereas the cortical pyramidal nuclei have nucleoplasmic areas devoid of label and instead a great number lie over the nucleolar periphery. The finding of the nucleolar label frequently grouped at two particular points (see arrows on Figure 2) is reminiscent of the position of the nucleolar organizers in cortical pyramidal nuclei. The concept of s-RNA synthesis at these nucleolar organizers has been given serious consideration by SIRLIN⁴. BONDY and WAELSCH⁵ have presented evidence showing that the rabbit brain is not only

higher in RNA polymerase activity than liver, but that the cerebral cortical nuclei were more active than other areas of the brain (if based on μ moles of nucleotide incorporation per mg DNA). UTP or ATP gave similar results.

It may be that differential aspects of nucleotide metabolism in various layers of the brain are basic in their capacity to perform at the psychological level.

Zusammenfassung. Beim intranuclearen Einbau von tritiummarkiertem Uriden wurden Unterschiede im Markierungsmuster zwischen Maus-Hippocampus und Cortex-Pyramiden-Neuronen gefunden.

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⁴ J. SIRLIN, Progr. Biophys. biophys. Chem. 12, 27 (1962).
⁵ S. BONDY and H. WAELSCH, Life Sci. 3, 633 (1964).
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The Effect of Severe Hypoxic Hypoxia in the Decompression Chamber on the Catecholamine Content of the Hypothalamus in the Cat

It has been already found that asphyxia lowered the amount of noradrenaline in the hypothalamus of the cat, provided it was sufficiently severe to cause considerable medullary secretion¹. In these experiments a hypercapnia was also present, because asphyxia was produced by an occlusion of the trachea. It was therefore of interest to repeat these experiments under a considerable decrease of pCO₂. Cats were kept for 1 h at the simulated altitude of 10,000 to 10,500 m in the decompression chamber. Recompression was made for 1 min. The catecholamines were extracted from the hypothalamic tissue by acidified ethanol and estimated both fluorimetrically^{2,3} and biologically on the rat's blood pressure. The results are presented in the Table. Each group represents the mean value of 10 experiments.

It can be observed that the hypothalamic catecholamines were significantly reduced in animals exposed to

severe hypoxic hypoxia. These findings confirm those of VOGT, and show that these changes occur even under a significant decrease of pCO₂.

Résumé. La quantité de la noradrénaline dans l'hypothalamus de chat exposé à l'hypoxie grave dans la chambre de décompression fut diminuée significativement.

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¹ M. VOGT, J. Physiol. 123, 451 (1954).
² U. S. VON EULER and F. LISHAJKO, Acta physiol. scand. 45, 122 (1959).
³ M. STEFANOVIĆ, Arh. Farmac. 2, 55 (1963).

Fluorimetric estimation						Biological estimation	
Controls			Animals exposed to hypoxia			Controls	Animals exposed to hypoxia
1	2	3	4	5	6	7	8
N	A	N + A	N	A	N + A	N + A	N + A
1.443 ± 0.08	0.107 ± 0.01	1.551 ± 0.08	0.722 ± 0.07	0.099 ± 0.01	0.822 ± 0.07	1.571 ± 0.37	0.752 ± 0.30
P (1:4) < 0.01		P (3:6) < 0.01		P (7:8) < 0.01		P (2:5) not significant	
						P (1:7) not significant	
						P (6:8) not significant	