were divided in groups of 10 (Series I) or groups of approximately 25 (Series II) into small cages and equal numbers of males were added. Finally the cages were provided with glucose-solution and an oviposition surface (wet cotton wool covered with a disk of filter paper in a small Petri-dish).

Exposure times up to 40 min caused neither an initial k.d. nor a significant 24 h mortality. Feeding was not inhibited (the mean ingested quantity of blood in treated groups and controls was found to be 2·0 mg), nor was there any difference in mean longevity. Longer exposure than 40 min, however, irritated the mosquitoes and prevented adequate feeding.

Results.—Results are summarized in the Table. Series I is based on 5 × 10 ♀ for each exposure time and for control, while series II was carried out with two groups of approximately 25 ♀ for each experimental arrangement. Females dying within three days after exposure were excluded from the calculations, since oviposition started on the third to fourth day after the blood meal.

	Series I		Series II	
	Combined mean no. of eggs/♀	Mean longevity of females, days	Mean no. of eggs/♀ Group 1	Group 2
Control	61·0	12·9	59·6	65·2
10 min	62·3	13·2	58·4	62·8
20 min	47·2	12·2	52·3	48·7
30 min	29·5	12·5	33·8	35·1
40 min	27·2	12·1	30·6	36·0

Repeating these experiments with the 'one female per cage'-method of WOKE *et al.*[9], it was found that at an exposition time of 30 min only 10 ♀ out of 32 layed eggs (31%), while in controls, 34 ♀ out of 44 (i.e. 77%) deposited eggs.

Unfortunately, rather protracted similar experiments with DDT-resistant strains of *Anopheles stephensi* List. and *Anopheles m. atroparvus* Thiel, using for short-time exposure a magnified form of the BUSVINE-NASH technique[10] followed by two blood meals (one blood meal not insuring oviposition), did not yield reproducible results.

A full account of this work will be published in the *Rendiconti dell'Istituto Superiore di Sanità.*

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Zusammenfassung

Durch Tarsalkontakt während 30–40 min mit Di-(*p*-chlorphenyl)-trifluormethylkarbinol, 20–24 h vor einer einzelnen Blutmahlzeit, konnte der Prozentsatz eierlegender Gelbfiebermückenweibchen gegenüber der Kontrolle um mehr als die Hälfte reduziert und dadurch die Zahl der abgelegten Eier auf etwa 50% herabgesetzt werden.

[9] P. A. WOKE, M. S. ALLY, and C. S. ROSENBERGER, Ann. ent. Soc. Amer. *49*, 435 (1956).

[10] J. R. BUSVINE and R. NASH, Bull. ent. Res. *44*, 371 (1953).

Distribution of DNA and RNA in Different Regions of Cat's Brain

Nucleic acids play one of the most important roles in cell metabolism (e.g. in synthesis of specific protein-enzymes). Furthermore, recent investigations strongly suggest that nucleoproteins are consumed and regenerated by the nerve cells in response to increased functional demands[1]. Since the morphological structure of various parts of the central nervous system (CNS) is different, their metabolic or functional activities may also be supposed to differ significantly. Therefore, the deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) content of the total brain cannot be considered as an adequate index of the metabolism of these substances in different regions of the CNS.

Region of the brain	No. of animals	DNA γ/10 mg of dried tissue	No. of animals	RNA γ/10 mg of dried tissue
Frontal cortex	8	32·0 ± 2·4	9	299·0 ± 27·6
Occipital cortex	8	31·5 ± 3·1	9	303·4 ± 28·7
Temporal cortex	9	29·3 ± 2·7	9	305·6 ± 11·0
Hippocampus	9	30·7 ± 2·4	8	290·3 ± 27·8
Cerebellar cortex	7	49·2 ± 5·6	8	337·6 ± 23·9
Cerebral white matter	6	34·3 ± 4·0	7	148·8 ± 11·4
Caudate nucleus	7	36·7 ± 3·5	9	282·2 ± 19·1
Thalamus	7	34·2 ± 3·6	9	232·4 ± 22·7
Hypothalamus	6	41·8 ± 3·3	5	265·0 ± 23·1
Midbrain	6	32·5 ± 3·8	9	206·1 ± 15·1
Pons	8	31·0 ± 3·0	9	168·0 ± 19·3
Medulla	9	31·2 ± 3·3	7	170·1 ± 7·4
Spinal cord	8	26·8 ± 3·3	8	140·2 ± 11·1

Since the cat is an animal of choice in investigating the functions of the CNS, the study of DNA and RNA distribution in different regions of cat's brain has been undertaken in the belief that such data might be useful for further study of the functional alterations, possibly associated with changes of these nerve cell constituents, under various experimental conditions. Adult cats have been used in the experiments. Immediately after decapitation the brain has been removed from the skull, the pia mater has been taken off and the regions of the brain (indicated in the Table) have been separated by means of a careful dissection. Phospholipids were extracted using ethanol-ether mixture (3:1). Two extractions were done, each lasting 20 min. The residues of the brain tissue samples were washed in ethanol and then dried for 48 h *in vacuum*. All these procedures have been carried out in the cold. The extractions of DNA and RNA were performed according to the method of SCHNEIDER[2], and concentrations determined by CERIOTTI's method[3] for DNA, and MEJBAUM's method[4] for RNA.

Results are presented in the Table. As can be seen, the amounts of the DNA are of the same order in most of the regions investigated. Somewhat higher concentrations of DNA in cerebellar cortex and hypothalamus are probably due to the differences in total number of cells present in these parts of CNS. The white matter of the brain contained approximately the same amount of

[1] S.-O. BRATTGARD and H. HYDEN, Acta radiol. [Suppl.] 94 (1952). – L. BAKAY and O. LINDBERG, Acta physiol. scand. *17*, 179 (1949).

[2] W. C. SCHNEIDER, J. biol. Chem. *161*, 293 (1945).

[3] G. CERIOTTI, J. biol. Chem. *198*, 297 (1952),

[4] W. MEJBAUM, Hoppe-Seylers Z. *258*, 117 (1939).

DNA as the cerebral cortex, or some subcortical gray structures.

The distribution of RNA presents an entirely different picture. The highest concentrations were found in areas of the cerebellar and cerebral cortex, somewhat lower in caudate nucleus, thalamus and hypothalamus, and the lowest in the midbrain and more distal structures. Such a distribution of RNA apparently reflects the process of phylogenetic and ontogenetic development, and the degree of morphological and functional differentiation of the CNS. Whether the distribution pattern is due to the cytoarchitectonic differences among various regions is not clear at present. The highest concentrations of RNA in the cortical regions confirmed once again a well-known fact that they are the sites of the greatest metabolic activities.

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Résumé

Chez le chat normal, la concentration d'ADN est à peu près la même dans les diverses régions examinées du système nerveux central. Par contre, la concentration d'ARN varie considérablement d'une région à l'autre. Ces résultats suggèrent que la distribution de l'ARN correspond à la différentiation morphologique et fonctionnelle des parties du cerveau.

La posizione occupata dalla fosforilcolina, citidindifosfatocolina, α-glicerilfosforilcolina e da altri corpi analoghi nel ciclo metabolico di alcuni fosfatidi encefalici

Al fine di poter precisare la posizione occupata nel ciclo metabolico dei neurofosfatidi dai singoli corpi fosforati isolati mediante la tecnica descritta in altra sede[1], è stata studiata *in vivo* la velocità di «turnover» di ciascuno di essi.

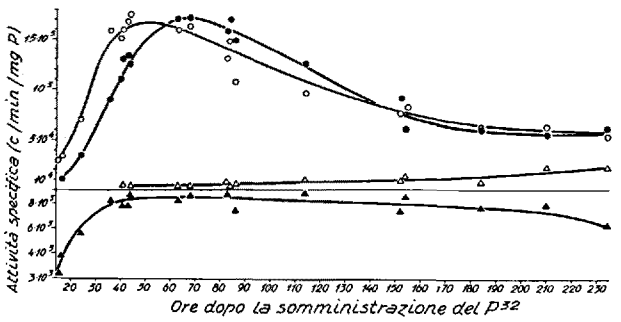

Fig. 1. Velocità di «turnover» della fosforilcolina (o), citidindifosfatocolina (•), L-α-glicerilfosforilcolina (△) e fosfatidilcolina (▲) nel sistema nervoso centrale di ratti di pochi giorni di vita. Ciascun segno indica il valore medio dell'attività specifica ottenuto da 4 esperimenti.

[1] N. MIANI, Exper. *14*, 34 (1958).

Ratti del ceppo Wistar ricevettero per via intraperitoneale al 3° giorno di vita una singola dose di $NaH_2{}^{32}PO_4$ (3 μc/g di animale) e furono sacrificati per decapitazione nell'ordine indicato nelle Figure 1–3. Ciascun segno riportato nelle figure indica il valore medio dell'attività specifica ottenuto da 4 esperimenti.

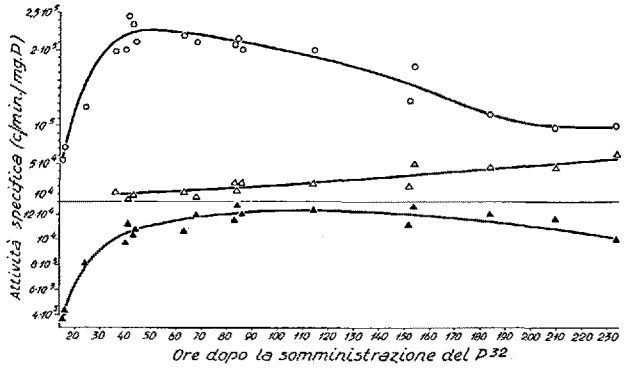

Fig. 2. Velocità di «turnover» della fosforiletanolamina (o), L-α-gliceril fosforiletanolamina (△) e fosfatidiletanolamina (▲) nel sistema nervoso centrale di ratti di pochi giorni di vita. Ciascun segno indica il valore medio dell'attività specifica ottenuto da 4 esperimenti.

Dall'esame delle curve si possono trarre le seguenti conclusioni:

1° La fosforilcolina ha la più alta velocità di «turnover» rispetto agli altri corpi fosforati contenenti colina.

2° Sulla base di presupposti teorici[2], la citidindifosfatocolina rappresenta l'immediato prodotto di trasformazione della fosforilcolina.

3° A sua volta la curva di attività specifica della citidindifosfatocolina e quella della fosfatidilcolina si dimostrano in rapporto quantitativo tale da lasciare ampio credito alla supposizione che il primo composto generi il secondo.

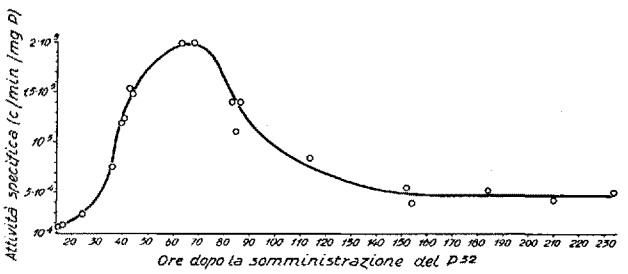

Fig. 3. Velocità di «turnover» della fosforilserina nel sistema nervoso centrale di ratti di pochi giorni di vita. Ciascun segno indica il valore medio dell'attività specifica ottenuto da 4 esperimenti.

4° L'andamento della curva di attività specifica relativa alla L-α-glicerilfosforilcolina suggerisce che essa non rappresenti il prodotto di trasformazione della fosforilcolina o della citidindifosfatocolina; può invece rappresentare il prodotto di degradazione della fosfatidilcolina o almeno di quella quota di essa metabolicamente più attiva.

5° Le curve di attività specifica della fosforilcolina, fosforiletanolamina e fosforilserina hanno un decorso fondamentalmente simile.

[2] D. B. ZILVERSMIT, C. ENTENMAN e M. C. FISHLER, J. gen. Physiol. *26*, 325 (1943). – J. M. REINER, Arch. Biochem. Biophys. *46*, 53, 80 (1953).