observed. Since lesions affecting the median eminence caused a decrease in weight of the posterior lobe (mainly, if not exclusively, due to atrophy of the pars nervosa), MSH content is not expressed per mg tissue, but per posterior lobe.

Results are shown in the Table. It appears that lesions interrupting the connections between hypothalamus and hypophysis did not alter significantly the MSH content in the posterior lobe, which suggests that the integrity of these connections is not obligatory for the hormonal function of the pars intermedia. Damage to the median eminence region, while the hypophysial stalk remained intact, resulted in a decreased MSH concentration. On the other hand, several lesions dorsal to the mammillary bodies induced a conspicuous rise in MSH content, but due to great variations within this group of lesions the main difference with control animals was of borderline statistical significance ($p = 0.08$). The results would suggest, however, that the hypothalamus may exert stimulatory as well as inhibitory influences on the function of the intermediate lobe.

Since assays of hormonal contents of a gland cannot differentiate between a change in release or in synthesis, further elucidation of the hypothalamic control of MSH production has to await the development of MSH determinations in blood.

Zusammenfassung. Es wird gezeigt, dass Elektrokoagulation in verschiedenen Teilen des basalen Hypothalamus einen Einfluss auf den Melanophorenhormongehalt im Hypophysenzwischenlappen der Ratte hat.

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The Nucleus Lateralis Tuberis in the Fresh Water Teleost, *Clarias batrachus* Linn.

The occurrence of the nucleus lateralis tuberis as a neurosecretory centre in addition to the preoptic-nucleus is peculiar to fishes[1-3].

I have examined the brains of catfish *Clarias batrachus* with a view to studying the histochemical reactions of the nucleus preopticus and also to ascertaining if the lateralis nucleus contributes neurosecretory material.

In the catfish examined the 2 neurosecretory nuclei, viz. the preoptic and the lateralis tuberis, are present and the latter is posterior to the optic decussation. The neurons of the preoptic nuclei are flask-shaped cells, each with a prominent axon. Sections clearly show the fibres from this region passing dorsally to the optic tract into the neurohypophysis.

Posterior to the optic decussation a large group of small lateralis neurosecretory cells are found, some of them in close proximity to the ventricle and the others near the capillaries. Fibres originating from this nucleus also proceed into the neurohypophysis. During their passage, large neurosecretory cells are found in them; in these, the neurosecretory granules stained by chrome-alum hematoxylin (CAH)[4], and only feebly by aldehyde-fuchsin (AF)[5] are paranuclear, which may indicate their nuclear origin.

In the ovariectomized (gravid) female catfish both the preoptic and the lateralis nuclei show heavily granulated neurosecretory cells, possibly because the ultimate target organ has been ablated. In the ovariectomized catfish receiving 5 mg of testosterone-propionate, there was degranulation in both the nuclei, and the AF positive granules could be very clearly made out in the fibrous-tract and also in the neurohypophysis. The Figure shows the neurohypophysis wherein AF positive material is found in large concentration, probably representing the neurohypophysial hormone.

In the intact gravid catfish, injections of the same quantity of androgen brought about degranulation in the neurons of both the sets of nuclei. Degranulation was also brought about when injected with 5 mg (total dose) of oestradiol dipropionate in spayed and normal catfish.

In inactive female catfish, the cells of the lateralis nuclei appeared to be not active, whereas a high secretory activity was observed in the cells of the nucleus preopticus.

2 types of secretory cells in the nucleus preopticus were noticed: 1 which is AF positive, and the other which is azocarmine positive and very feebly AF positive. In the nucleus lateralis, the feebly AF positive cells are always

Neurohypophysis of the oestrogen treated *Clarias batrachus* showing AF-material in large concentration, sagittal section, AF. × 320.

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azocarmine positive. This can be demonstrated in the same section by counterstaining the AF stained material with azocarmine[6].

Similarly 2 types of secretory materials were noticed in the neurohypophysis: azocarmine positive and AF positive.

In order to find out if there is any relationship between the nuclear diameter and the neurosecretory activity of the lateralis nuclei, I have studied statistically the diameters of the nuclei of neurons and have tabulated the results (Table II).

It is seen (Table II) that the diameters of the lateralis nuclei increase significantly with oestradiol dipropionate treatment ($P < 0.02$). The administration of testosterone propionate into intact and spayed catfish failed to increase the nuclear diameters significantly beyond the control values ($P > 0.58$).

STAHL[7] has shown an annual cycle in the activity of the nucleus lateralis in *Mugil capito*, SATHYANESAN[8], and JASINSKI and GORBMAN[9] reported the presence of beaded axons among the lightly stained AF cells of the nucleus lateralis. In the catfish examined during winter (November/December) with regressed ovary, the cells of nucleus lateralis showed very little neurosecretory material, while the cells of the preoptic nuclei of the same fish showed neurosecretory material in abundance. In the gravid catfish, the cells of both the nuclei were found to be full of neurosecretory material. Therefore, keeping in view the activity of the cells of the lateralis nuclei during resting and spawning seasons, there seems to be a cyclic activity, supporting the observations of STAHL[7,10,11].

Table I

Intact gravid			Gravid spayed	
	NPO	NLT	NPO	NLT
Control	a	a	b	b
T.P. treated	de	de	de	de
Oestrogen treated	de	de	de	de

[a], granulation; [b], heavy granulation; de, degranulation. NPO, Nucleus preopticus; NLT, Nucleus lateralis tuberis.

Table II. Effect of ovariectomy and administration of exogenous sex hormone on the nucleus lateralis tuberis

Treatment	Mean nuclear diameter of nucleus lateralis in μ[a]	Statistical comparison
Intact (non-gravid) (5)	9.4 ± 0.4	
Intact (gravid) (5)	9.7 ± 0.2	
Ovariectomized (5)	9.6 ± 0.3	$P > 0.90$
Intact + oestradiol dipropionate (5)	11.2 ± 0.6	$P < 0.02$
Ovariectomized + oestradiol dipropionate (5)	10.5 ± 0.4	$P > 0.05$
Intact + testosterone propionate (5)	10.1 ± 0.3	$P > 0.58$
Ovariectomized + testosterone propionate (5)	9.4 ± 0.3	$P > 0.58$

Figures in parentheses indicate the number of animals. [a] Mean $\pm$ standard error.

Zusammenfassung. Nachweis, dass die Aktivität der Zellen des Nucleus lateralis bei Fischen, während der Ruhe- und Laichzeit untersucht, eine zyklische ist. Starke Granulation im Nucleus lateralis und Nucleus praeopticus wurde bei einem 21 Tage alten, kastrierten Fisch beobachtet: Granulationsschwund nach Injektion von Testosteronpropionat und Östradiol-dipropionat (Gesamtdosis 5 mg).

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Transplantations interspécifiques de gonades embryonnaires de Phasianidés

Nous avons vu précédemment qu'à la suite de la greffe d'une gonade embryonnaire de Canard de sexe opposé au sien, l'embryon de Poulet devenait intersexué[1]. Nous avons cherché à reproduire ce résultat avec d'autres espèces d'embryons comme donneurs de gonades.

Matériel et méthode. Nous avons utilisé la méthode des greffes coelomiques[2], nous servant d'embryons de Perdrix rouge (*Alectoris rufa* L.), Caille japonaise (*Coturnix coturnix* japonica) et Pintade (*Numida meleagris* L.) comme donneurs et d'embryons de Poulet (*Gallus gallus* L.) comme receveurs.

La gonade gauche, à l'exclusion de la droite, a été prélevée sur les donneurs avant le stade de la différenciation sexuelle morphologique – sur l'embryon de Perdrix à 6 ou 7 jours, sur l'embryon de Caille à 6 jours, sur l'embryon de Pintade à 6 ou 7 jours – découpée en deux, plus rarement en trois, puis chaque partie transplantée dans la cavité cœlomique d'un embryon de Poulet de 58–67 h d'incubation (stade de 23–35 paires de somites), du côté gauche, sauf dans un très petit nombre de cas. Les porte-greffes ont été sacrifiés, les plus jeunes à 13, les plus âgés à 18 jours; les morts n'ont pas été autopsiés.

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