Directed attack and intra-species fights were induced by stimulating 20 brain sites in 14 chicken. This response was obtained from the medial archistriatal region, including the nucleus taeniae, the tractus occipito-mesencephalicus, the area septalis and the hypothalamus. In Figure 1 the active points are plotted on frontal sections of the stereotaxic atlas. In 13 of these the attack was obtained regularly, and in 7 cases actual attacking occurred only occasionally but was observed more than once. A characteristic threat display preceded or accompanied the attacks in most cases (Figure 2). Aggression infrequently overlasted the stimulation for some minutes. Truly spontaneous fights were not seen. In the majority of the cases, circling to the non-stimulated side occurred during the threat display. Vocalizations of varying intensity were noted in about half of the responses. At three electrode sites the aggressive response pattern was intermingled with behaviour suggesting fear and escape tendencies.

Of the 20 attack responses, only 3 were obtained from hens. In them all the active points were within 1.5 mm of the midline, and no attacks were elicited from the archistriatal region. This difference between the sexes might depend on hormonal factors, since cerebral implants of androgen into capons have been reported to augment aggressive behaviour, when implanted 'in and ventral to the paleostriatum'[12]. This definition of the hormone-sensitive area seems to overlap partly with the lateral points of my material, though electrical stimulation of the paleostriatum did not cause attack, except at the borderline of the occipito-mesencephalic tract.

Lesions in the ventral medial archistriatum have been reported to have a taming effect on wild ducks and electrical stimulation of the same region to cause mainly escape behaviour[10].

The avian archistriatum and the mammalian amygdala are regarded as being anatomically homologous. The occipito-mesencephalic tract, which connects the archistriatum with preoptic, hypothalamic and mesencephalic centres, forms, together with the anterior commissure, the avian stria terminalis system[13]. In the light of the presented data, the general arrangement of brain structures related to affective reactions in birds appears to correspond to that delineated for cats[14]. In view of the great phylogenetic distance and the differences in many brain structures between birds and mammals, this would suggest that the general plan for the central regulation of aggressive behaviour was laid out early during the phylogenesis of vertebrates.

Zusammenfassung. Elektrische Reizung begrenzter Stellen des medialen Archistriatums (Amygdala), Tractus occipito-mesencephalicus, Area septalis und des Hypothalamus vom Haushuhn, löst gezielten Angriff auf einen Artgenossen aus.

P. T. S. Putkonen

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Dämpfung des Kältezitterns durch Pentobarbital und Pethidin bei Ratten

Die Beeinflussung der Temperaturschwelle für das Kältezittern durch Pethidin und Pentobarbital wurde an intakten Ratten geprüft, die sich in einem Wasserbad befanden. Die Temperatur des Wasserbades konnte durch Zufuhr von kaltem und warmem Wasser kontinuierlich verändert werden. In Äthernarkose wurde eine Kanüle zur Durchführung von Injektionen in die rechte V. jugularis eingebunden; eine bipolare, chlorierte Silberdrahtelektrode wurde zur Ableitung der elektromyographischen Aktivität im linken M. gastrocnemius fixiert. Registriert wurde das Elektromyogramm und das Mechanomyogramm, das mit Hilfe eines Piezokristalles über dem Muskel abgeleitet wurde. Die Körpertemperatur wurde thermoelektrisch im Rektum gemessen.

Die Bestimmung der Temperaturschwelle, bei der ein Kältezittern durch Abkühlung ausgelöst wurde, erfolgte bei zwei Gruppen von Tieren. Die Tiere der einen Gruppe (39 Ratten) befanden sich während der Durchführung des Versuches in einer flachen Pentobarbitalnarkose (5 mg/kg i.v. halbstündlich); unter dieser Bedingung setzte das Zittern bei einem Absinken der Rektaltemperatur unter 36,0 °C ein (Tabelle). Die Tiere der anderen Gruppe (21 Ratten), die sich nach beendeter Operation (Äthernarkose) in wachem Zustand befanden, zeigten ein Kältezittern bei einer Rektaltemperatur von 36,6 °C. Pentobarbital führte demnach zu einer geringgradigen Erhöhung der Schwelle des Kältezitterns. Der Unterschied der Schwellenwerte beider Gruppen ist zwar sehr klein, liess sich jedoch mit einem $p < 0{,}05$ statistisch sichern.

Pethidin senkte in einer Dosierung von 2 mg/kg die Schwellentemperatur für das Zittern. Ein Kältezittern trat bei den wachen Tieren erst bei einer Rektaltemperatur von 35,3 °C auf, während bei den Tieren, die ausserdem

	Schwellentemperatur (°C $\pm \sigma$) des Kältezitterns		Signifikanz
	Kontrolle	Pethidin 2 mg/kg	Kontrolle-Pethidin
a) Tiere in Pentobarbitalnarkose	*36,0* $\pm$ 0,54 $n = 39$	*33,0* $\pm$ 0,95 $n = 10$	$p < 0{,}001$
b) Wache Tiere	*36,6* $\pm$ 1,73 $n = 37$	*35,3* $\pm$ 1,16 $n = 12$	$p < 0{,}01$
Signifikanz a) gegen b)	$p < 0{,}05$	$p < 0{,}001$	

n = Anzahl der Versuche

noch Pentobarbital erhalten hatten, der Schwellenwert für das Kältezittern bei 33,0 °C lag (Tabelle).

Diese Befunde zeigen, dass Pethidin das Kältezittern unterdrückt, was auch mit der klinischen Erfahrung übereinstimmt (Corelli)[1]. Die Wirkung des Pethidins lässt sich durch Pentobarbital steigern. Dabei handelt es sich jedoch nicht lediglich um eine Addition der Wirkungen beider Stoffe, sondern um einen überadditiven Effekt.

Summary. In rats, shivering was induced by cooling. Shivering started at 36.6 °C in unanaesthetized rats and at 36.0 °C in animals with light pentobarbital anaesthesia (5 mg/kg i.v.). Pethidine (2 mg/kg) lowered the onset of shivering in unanaesthetized rats to 35.3 °C and in anaesthetized animals to 33.0 °C. The results suggest that the effect of pethidine upon shivering is potentiated by pentobarbital.

H. Schäfer

Institut für Pharmakologie und Toxikologie der Universität des Saarlandes, Homburg (Deutschland),
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Surface Microscopy of the Large Bowel

In the present paper, some preliminary results of colonic surface microscopy are reported. These have been assessed on human colic mucosa specimens prepared from surgical or bioptic material. The biopsies were performed by aspiration from every portion of the colon according to a technical procedure set up by ourselves, or from the lower 30 cm during rectosigmoidoscopy by means of rectal forceps.

Methods. 59 bioptic specimens have been studied; 30 of which were obtained during rectosigmoidoscopy and 29 by aspiration after end-to-end intubation. 10 additional specimens were derived from surgical material. The aspirative biopsy procedure has been described elsewhere[1]. The specimens were obtained from 42 subjects of both sexes; of which 10 were free from digestive troubles and 32 showed signs of different colonic disorders (non-specific ulcerative colitis, colonic carcinoma etc.). The histological sections for the surface microscopy were studied by means of an Ultropak Leitz apparatus, using UO 6.5, UO II, UO 22 and UO 55 lenses; as a rule, the UO II lens has been employed with its immersion set. Microphotographs were obtained with a Periplan $\times 8$ ocular from fresh or 10% formalin fixed specimens, employing high contrast positives and negatives.

Results. (1) Normal subjects: In the histological patterns of the colonic mucosa of these subjects, two different features can be observed. The first one shows a *flat surface* on which the openings of the mucous glands appear clearly shaped and located at intervals varying from 110–250 μ. These openings are visible at the bottom of small depressions and give rise to thin radial strings corresponding to scanty folds. The openings are round shaped or appear as thin clefts; their diameter usually varying from 10–30 μ. This picture is comparable to the one in the classical anatomical literature[2] (Figure 1a).

The second feature shows *papillary-like folds*, uniformly disseminated and almost similar in size, with a diameter of about 100 μ (Figure 2). At the very top of each fold, the opening of the mucous gland can be observed. Among the papillary folds there is a round or polygonal figure which is caused by the capillaries of the vascular layer of the mucosa[3]. This figure may also be noted in preparations having the flat aspect.

One might suggest the papillary pattern to be a consequence of an autoplastic process, deriving from activity of the 'muscularis mucosae'. The contraction of the latter might cause the straightening of the papillae and the dilatation of the peripapillary superficial blood vessels. The autoplastic process could physiologically affect the secretion as well as the reabsorption activity of the mucosa.

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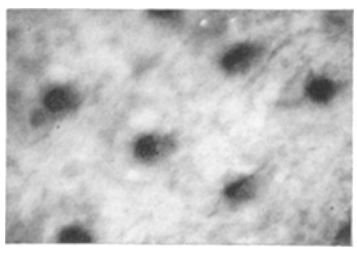

Fig. 1a. Normal left colon. Mucous surface: several openings of the mucous glands can be observed on the flat background. $\times 200$.

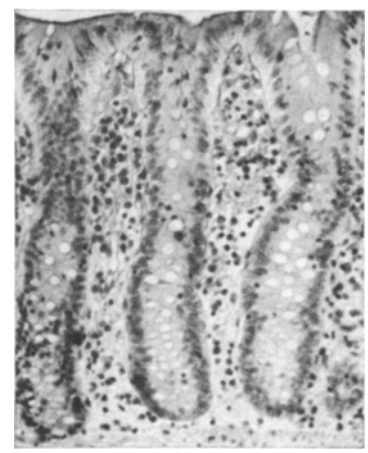

Fig. 1b. Histological pattern from the same specimens: note the small openings of the glands. $\times 200$.