stained with PAS-hematoxyline. In those animals in which the graft was not found, the area of the graft (traced by a piece of black thread purposely left there) was fixed and processed in the same way.

Results. The study of sections showed that in the animals castrated in adult life, 3 out of 6 grafts had taken satisfactorily. In the animals castrated at birth, 5 animals that received as host a prepuber ovary showed good grafts; meanwhile, only one in which an adult female was used as donor had taken. The histological pattern of all the ovaries grafted in males castrated at birth were alike; all of them showed a polycystic ovary and in none of them was a corpus luteum present (Figure). The same aspect was observed in males castrated in adult life. In one of the animals grafted with an ovary from an adult female, an old corpus luteum was present.

Discussion. The development of a polycystic ovary in the grafts made in guinea-pig males castrated at birth, seems to demonstrate that in this species the control of the gonadotrophin secretion is already patterned as the male type at birth. This fact is in accordance with our previous results, in which the administration of high doses of testosterone to the new-born female guinea-pig or to female foetuses does not change the 'phasic' type (or female type) of gonadotrophic secretion.

These various facts lead us to the conclusion that the sexual differentiation of the gonadotrophic secretion in the guinea-pig is already determined at birth, contrary to what occurs in rats. This difference might be related to the general somatic differentiation that is observed in both species at birth.

Résumé. Des cobayes mâles ont été châtrés le premier jour après leur naissance; à l'âge de 60 jours, on leur grèffa un ovaire provenant d'un cobaye prépubère et le laissa évoluer pendant 60 jours. Les ovaires greffés ont présenté, dans chaque cas, l'aspect d'un ovaire polycystique, avec des follicules bien développés et sans corps jaunes. Il en faut conclure que la différenciation de l'hypothalamus, chez le cobaye, s'accomplit avant la naissance.

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Uncharted Secretory Nerves in the Parotid Gland of the Dog

Numerous observations suggest that some salivary glands may receive part of their secretory nerve supply by way of anatomically unknown channels (see BABKIN[1], EMMELIN[2]). In dogs the maximal rate of parotid salivary flow that can be induced reflexly is often greater than when the auriculotemporal nerve is stimulated electrically[3]. The most likely explanation of this finding seems to be that reflex stimulation activates additional uncharted secretory fibres as well as those in the auriculotemporal nerve. The existence of such fibres is demonstrated in the present physiological and histochemical investigation.

In 3 dogs anaesthetized with pentothal (about 30 mg/kg i.v.) the right auriculotemporal nerve was exposed according to the method of BURGEN[4] and cut. The dogs again received pentothal 7–9 days later and polythene tubes were introduced from the mouth into the parotid ducts. Saliva flowing from each gland displaced distilled water in a bottle, and the rate at which drops fell from an outlet of the bottle was recorded by an ordinate recorder on a smoked drum. Lemon juice was poured on to the tongue of the dog[3] at intervals, and as the anaesthesia became more superficial the rate of reflex salivary secretion increased from both parotid glands. Lemon juice was applied until the secretory rate had reached a maximum. The salivary flow from the right, 'denervated' parotid gland was quite marked; in 2 of the dogs it was somewhat slower than that of the normal, left gland, but in the third dog it was of the same order in both glands. When the secretory maxima to reflex stimulation had been estimated, chloralose-urethane (100 + 500 mg/kg) was given i.v. The left auriculotemporal nerve was then stimulated electrically at increasing stimulation frequencies, and the results confirmed the earlier finding[3], that the maximal reflex secretory rate was higher than when the nerve was excited electrically.

The sensitivity of the 2 glands to i.v. methacholine was estimated and some supersensitivity was found in each gland 'denervated' by section of the auriculotemporal nerve. Finally both parotid glands, from each animal, were removed, transected, fixed in formol-sucrose for 4 h at 0–4 °C, and then stored in sucrose-phosphate at 0–4 °C. Sections from 3 levels in each gland were cut on a cold microtome and stained for acetylcholinesterase (AChE) activity (as in GARRETT[5]). The normal parotid glands showed an extensive and complex arrangement of AChE positive nerves around the parenchymal structures (see Figure 1). The experimental parotid glands from the 'denervated' side each showed a patchy irregular decrease in AChE positive nerves but a fair number of nerves were still present in all parts of the glands (see Figure 2). The numbers of nerves remaining was very much greater than in the cat[6], after a similar time interval, but a more drastic avulsion of the auriculotemporal nerve had been performed closer to the gland in the cat experiments.

The auriculotemporal nerve is generally considered to contain the main secretory innervation of the parotid gland; it is thought that any sympathetic secretory fibres present do not contribute to the flow of saliva elicited reflexly in dogs. The present investigation showed that reflex secretion could still be evoked after section of the

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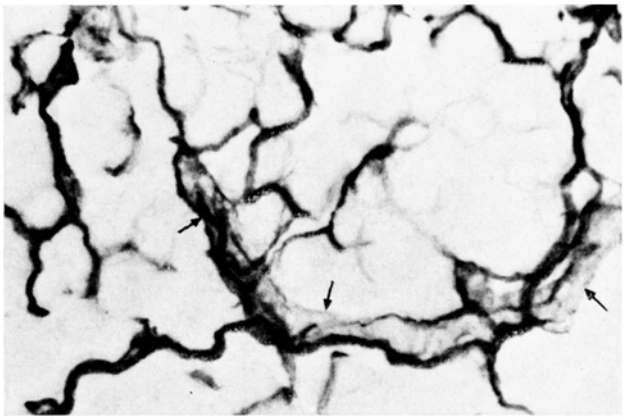

Fig. 1. Normal dog parotid gland, stained for AChE activity, showing numerous dark stained nerves around acini and a vessel, marked →. × 675.

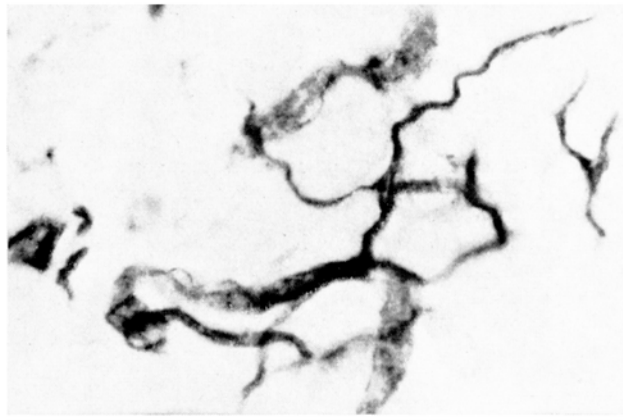

Fig. 2. Dog parotid gland, 9 days after section of the auriculotemporal nerve, stained for AChE activity, showing that a fair number of nerves still persist. × 675.

auriculotemporal nerve and the rate was so high that even if the demonstrated denervation supersensitivity be taken into account it must be concluded that numerous secretory fibres still supplied the gland. Correspondingly, many nerves which were AChE positive and thus probably cholinergic, were found in the histochemical preparations. The anatomical source of these nerves is being investigated.

Zusammenfassung. Es wird in Versuchen an Hunden gezeigt, dass man nach Durchschneidung und Degeneration des Nervus auriculotemporalis reflektorisch eine beachtliche Parotissekretion auslösen kann. Histochemisch konnten zudem viele acetylcholinesterasepositive Nerven nachgewiesen werden.

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Zur zellulären Reaktion des Thymus nach Tumorimplantation

Untersuchungen an der Milz von Mäusen mit Ascitestumor haben gezeigt, dass eine i.p. Implantation des NK-Lymphosarkoms[1] zu einer vermehrten Bildung von Plasmazellen in diesem Organ führt[2]. Während die Lymphknoten nach Implantation des Tumors sich offenbar vergrössern[1], wird der Thymus gewöhnlich allmählich zurückgebildet, so dass nach 12–15 Tagen nur noch ein geringer bindegewebiger Rest vorhanden ist. Eine eingehende Untersuchung dieser Verhältnisse ergab, dass die regressiven Veränderungen des Organs trotz gleicher äusserer Bedingungen bei den einzelnen Tieren nicht gleichmässig verlaufen. Es zeigt sich nämlich, dass zu einem bestimmten Zeitpunkt nach der Tumorimplantation der Thymus gewöhnlich um so kleiner ist, je grösser der Tumor ist und umgekehrt[3]. Da dem Thymus primär sowohl eine Bedeutung für die Lymphopoese[4,5] als auch für die Entwicklung des Immunsystems zukommt[6,7], war es von Interesse, in welcher Weise die makroskopischen Veränderungen des Organs von zellulären Reaktionen begleitet sind.

Zu diesem Zweck wurden 3 Wochen alte Inzuchtmäuse (AB-Stamm) mit 1 ml sterilem Ascites des angeführten Lymphosarkoms vom gleichen Wirtstier beimpft und jeweils 3–4 Tiere am 2. und 7. Tag nach der Implantation seziert. Die Thymen bzw. deren Reste wurden nach entsprechender Fixierung und Färbung licht- und elektronenmikroskopisch untersucht. Für die Untersuchung am 7. Tag wurden nur Tiere verwendet, deren Tumor gut entwickelt war.

Lichtmikroskopisch lassen sich an Hämalaun-Eosinpräparaten weder nach 2 noch nach 7 Tagen Veränderungen an den Zellen beobachten. Dagegen lassen die Thymuszellen der untersuchten Organe elektronenmikroskopisch am 2. Tag nach der Tumorimplantation deutliche Veränderungen erkennen, die am auffälligsten an den Lymphocyten sichtbar sind, aber auch die Retikulumzellen betreffen (Figur 1). Bei den lymphatischen Zellen erscheinen die Kerne stärker alteriert als das Cytoplasma, was sich hier in der Bildung zahlreicher, unterschiedlich grosser,

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