the froth yielded equal numbers of *Escherichia coli* and *Proteus mirabilis*. Both organisms are well known for their activity to produce gas from glucose and other sugars. Furthermore *E. coli* may have an outer lipomucoprotein cell wall layer[8] which would permit a strong attachment to other mucoproteins. Almost equal amounts of carbon dioxide and hydrogen gas are produced from glucose by these bacteria, and the cohesive force of the mucoprotein could prevent the gases from escaping, thus creating the froth.

The pH of the foam varied from 6.3–6.6 with an average of 6.5[1]. This pH could result from the generated carbon dioxide and subsequent carbonic acid. Thus, within the observed pH range of the froth, the bicarbonate-carbonic acid equilibrium could serve as an effective buffer[9].

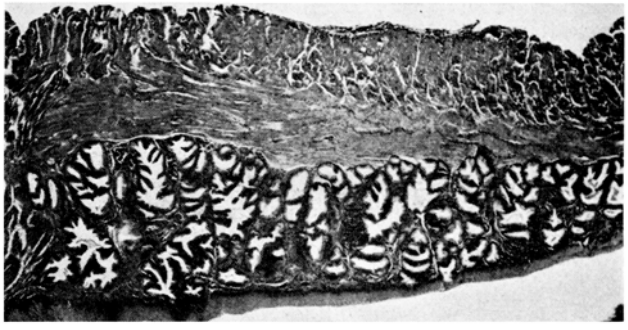

Fig. 6. Sagittal section of a typical inactive cloacal gland, as seen in sexually immature quail of both sexes, in the sexually mature female or in the sexually mature male kept on a non-stimulatory lighting regimen or implanted with estrogen. The cloacal gland is 0.65 mm thick. H and E, × 29

Résumé. Chez les cailles japonaises, le complexe glandulaire du cloaque est en fait localisé dans la lèvre dorsale du cloaque et non de l'anus. Il existe un complexe glandulaire similaire et très petit du côté ventral. La glande active se colore intensément avec le réactif périodique «acide Schiff», avec la fuchsine aldéhyde, avec le bleu d'alciane et métachromatiquement avec le bleu de toluidine. Ceci indique la présence d'une sécrétion de glycomucoprotéines. Le liquide transparent sécrété est transformé en masse blanche mousseuse au contact des bactéries *E. coli* et *Proteus mirabilis*, présentes en quantités équivalentes dans le proctodeum. Les gaz émis consistent probablement en H_2 et CO_2, ce dernier peut agir comme tampon et stabiliser le pH de la sécrétion autour de la valeur 6,5.

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17 May 1968.

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Deciduoma Induction in the Rat by X-Irradiation

It is well known that X-irradiation can interrupt pregnancy, since implantation is a radiosensitive response of the female reproductive tract[1].

In the course of experiments planned to study the sensitivity of the decidual response to X-irradiation given on different days after mating, a completely unexpected finding emerged: when a pseudopregnant female was given a sublethal dose of X-rays on the fifth day of pseudopregnancy, deciduomata were found 4 days later at autopsy.

A group of 16 female rats were made pseudopregnant by mating with vasectomized males (the day a vaginal plug was found was designated as day 1 of pseudopregnancy). Half of these animals served as controls, being sham-irradiated. On the fifth day, the other 8 rats were given a local irradiation in the lower left part of the abdomen. The right part of the abdomen and the remainder of the body were shielded with lead $^1/_4$ inch thick. In this way only 1 of the uterine horns was irradiated. The doses ranged from 500–1000 r, and they were equally effective in the limited number of animals so far studied. The source was a Picker X-ray unit operating at 260 KV. Autopsies were done on the ninth day after mating (4 days after irradiation). The presence of deciduomata was evaluated macroscopically. In addition the uteri were processed for histology and serially sectioned.

At autopsy none of the control animals presented deciduomata. 4 of the tested animals presented macroscopically visible deciduomata on the left horn and 1 of these presented a deciduoma also on the right horn (nor irradiated) near the cervix uteri.

The deciduomata appeared histologically to be composed of normal decidual cells, presenting both mesometrial and antimesometrial characteristics (Figure). The epithelium was degenerating all around the uterine lumen at the site of the deciduoma in the manner typical of decidualization and implantation[2]. The orientation of the deciduoma was generally somewhat disordered, as is frequently observed in all experimentally induced deciduomata. In all the deciduomata obtained by the method described, only the ventral or the dorsal side of the endometrium reacted. The uterine lumen was pushed towards the other side.

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The size of the X-ray-induced deciduomata was only $^1/_2$–$^1/_4$ of the average normal ninth day traumatic decidual reactions. It appeared, therefore, that X-irradiation acted as a stimulus to decidualization, and then was inhibitory to its growth.

The deciduoma found in 1 animal in the right (non-irradiated) horn was not morphologically different from those found in the left horn. It was tentatively concluded that both a systemic and a local factor were involved in providing the inducing stimulus. However, the possibility could not be ruled out that the right horn, which responded with the formation of a deciduoma, received also some irradiation after slipping on the left side of the wall of the abdominal cavity.

Since the original finding of LOEB[3] that a traumatic stimulus could bring about a specific growth in the progravidic uterus resembling the normal response to implantation, a number of different non-specific physical and pharmacological stimuli have been shown to be effective in inducing a decidual cell reaction.

However, the finding that X-irradiation can also be a stimulus to the formation of deciduomata is most unexpected; since, no other instance has ever been found in which normal growth in the embryo or in the adult was promoted by X-rays. Rather, different degrees of inhibition characterize the effects of X-irradiation on developmental and growth processes.

The present finding can be better understood in the light of some results of an autoradiographic analysis of the decidual cell reaction[4]. From this study, it emerged that: (1) the effect of the decidualizing stimulus is to bring about the transformation of endometrial subepithelial cells to decidual cells; (2) these cells are already in the G_2 premitotic phase, at the time when the stimulus is applied; and (3) the transformation is direct, i.e. there is no need of an intermediate mitotic step.

The finding that the size of the X-ray-induced deciduomata were $^1/_2$–$^1/_4$ that of normal decidual reactions could indicate the dissociation of the effects of X-irradiation on the processes of transformation and of proliferation, the first being promoted and the second being inhibited. A possible mechanism conceivable for the observed induction of deciduomata could depend on tissue damage by X-irradiation. A factor, possibly histamine[5], could be released by damaged cells and act as a decidualizing stimulus[6].

Riassunto. Una dose di 500–1000 r di raggi X, data localmente ad un lato dell'addome di ratte al quinto giorno di pseudogravidanza, ha stimolato la formazione di deciduomi nel corno uterino irradiato di metà degli animali. L'esame istologico ha rivelato che i deciduomi presentavano tipiche caratteristiche isto-morfologiche, ma erano $^1/_2$–$^1/_4$ delle dimensioni medie dei deciduomi indotti traumaticamente. La formazione di un deciduoma anche in un corno dalla parte non irradiata potrebbe indicare che, sia un fattore locale che uno generale contribuiscono al meccanismo induttore.

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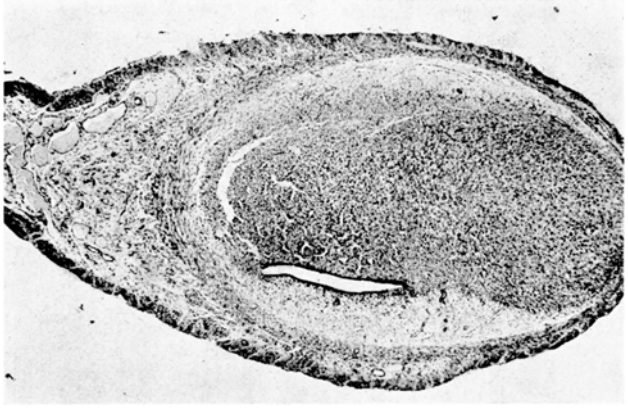

X-ray induced deciduoma, presenting typical morphological characteristics. Both the large swollen cells with anti-mesometrial cytological aspect (antimesometrial side) and smaller cells with mesometrial characteristics (mesometrial side and peripherally) are present. As in the other deciduomata induced by the method described, the reaction is restricted to only one side of the endometrium. The uterine lumen, lined by flattened degenerating epithelium, is pushed towards the other side.

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Stérilisation de l'ovaire gauche du Poulet et de la Caille par l'action de la thymidine-^{3}H pendant l'ovogenèse

Dans l'ovaire gauche de l'embryon femelle de poulet (*Gallus gallus*) de 9–11 jours d'incubation, on trouve une période de multiplication intense des ovogonies (ovogenèse strictu sensu), accompagnée de synthèse de DNA prémitotique[1,2].

La même chose se passe chez l'embryon femelle de la caille japonaise (*Coturnix coturnix japonica*) de 6–8 jours d'incubation[3].

Matériel et méthodes. Les poulets utilisés dans cette expérience (F_1: Rhode Island Red X White Plymouth Rock) ont une hérédité liée au sexe: les mâles ont une majorité de plumes blanches tandis que les femelles ont une majorité de plumes brunes. Dans des œufs fécondés et incubés pendant 9 jours 0 h à $\pm$ 39,5 °C on pratique au

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