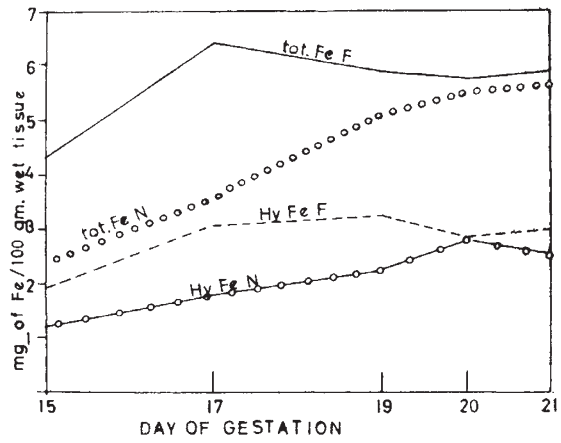

Fig. 1. Total and hydrolysable iron per unit fresh fœtal weight in 'Ferrigen'-treated (*F*) and untreated (*N*) rats during the observed period of pregnancy

hydrolysable iron measured in the fœtal bodies of the rats treated with 'Ferrigen' in the earlier period of gestation, it is clear that some of the iron of the therapeutic agent has passed through the placental barrier. If the preparation had passed freely and unaltered through, we would expect its passage to increase with the duration of pregnancy (see Flexner and Gellhorn[5]). Here, however, the reverse happens. Furthermore, since the iron compound of 'Ferrigen' is very easily hydrolysable, we would expect to find the hydrolysable iron fraction to be proportionally further increased if the preparation had passed the placental barriers unaltered. This did not happen; the hydrolysable iron fraction throughout constitutes some 50 per cent of the total fœtal iron, as was the case in untreated pregnancies. Hence the ferric carbohydrate does not pass through the placental organs unaltered, but is broken down by the maternal organism, giving rise to increased iron depots and serum iron concentration. This is accompanied by an increased synthesis of the intermediate placental iron compound referred to earlier (Fig. 2), from which iron is mobilized by the fœtus according to its need. It is important to note that at no stage of pregnancy do the fœtal bodies of the 'Ferrigen'-treated rats accumulate more iron than is found at term in untreated pregnancies.

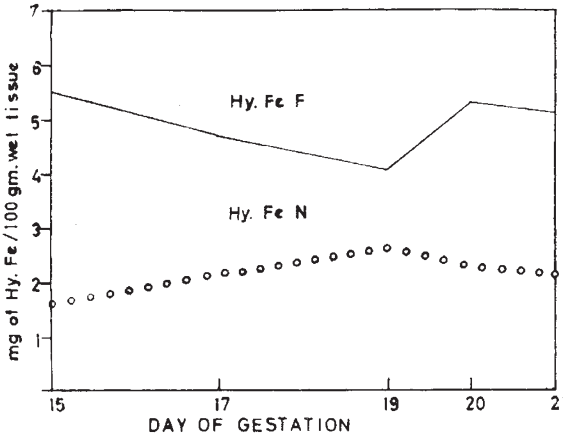

Fig. 2. Hydrolysable iron content per unit fresh weight of the total placental organ during the observed period of 'Ferrigen'-treated (*F*) and untreated (*N*) pregnancies

The features of placental iron transfer suggested here are further supported by the finding that in the 'Ferrigen'-treated rats the period of greatest iron transfer to the fœtus coincides with the lowest iron concentration measured in the placental structures.

A detailed report of these investigations will appear elsewhere.

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Effect of Cervical Sympathectomy on the Onset of Œstrus in Ferrets

THE view that the hypothalamus controls the functions of the pars distalis of the pituitary by way of a chemotransmitter transported through the pituitary portal vessels does not accord with the fact that female ferrets, when exposed to added light, will come into heat during the winter months, whether or not there is a direct vascular link between the pituitary and the hypothalamus[1]. Attention has therefore been turned again to the possibility that peripheral nervous pathways may be concerned in the response.

Bilateral superior sympathetic ganglionectomy was performed on sixteen female ferrets during the autumn of 1953. Seven of these animals were exposed to evening illumination (4.30–10.30 p.m. daily) beginning October 30, 1953. The remaining animals were kept under ordinary laboratory conditions. Sham operations were performed on four animals, all of which were exposed to extra light. Fourteen normal female ferrets were housed as control animals with the group of seven operated animals receiving added light, and nineteen normal female ferrets were kept as normal control animals for the nine operated animals in the non-illuminated group.

By January 22, 1954, the eighteen non-ganglionectomized ferrets which were exposed to added light were in full œstrus. At this time no sign of œstrus was apparent in any one of the seven ganglionectomized animals kept in the same room. These animals were still anœstrous in the middle of June 1954.

Normal spring œstrus had begun by early April in all the nineteen normal control animals kept under ordinary laboratory conditions. At the time of writing, all but two of the nine ganglionectomized animals kept under the same conditions were still anœstrous.

The results suggest that the cervical sympathetic chains are in some way concerned in the mechanism whereby the exposure of ferrets to light accelerates the onset of œstrus.

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