In addition to weakness, a low muscle potassium, high muscle sodium and chloride concentrations as well as creatinuria and aldolasæmia are found in hereditary muscular dystrophy and have been attributed to altered cellular permeability[11]. Such changes in permeability of muscle cells may be a common reaction to certain kinds of injury and disturbances in metabolism.

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BIOLOGY

Thermogenic Effect of Stilbœstrol on Ewes

AT œstrus the cow's body temperature is elevated without detriment to subsequent fertilization[1,2]. Increased locomotory activity may partly account for the thermal response, but attention has also been directed to other metabolic changes at œstrus. Some evidence has been obtained that œstrogens may influence the cow's body temperature (Fallon, unpublished). It was decided to examine the effect of stilbœstrol on the rectal temperature of the ewe.

Eight mature Merino ewes were ovariectomized; mean live-weight was 33 kg. Eight weeks later they were divided at random within four groups and accommodated in individual metabolism cages to restrict exercise. During experimental periods the sheep were denied access to food and water.

Aqueous preparations were made to provide 2 ml. doses containing 0, 25, 50 and 100 μg stilbœstrol. The preparations were stored at room temperature 2–3 weeks before use in experiment *A*; and in experiment *B* similar solutions were prepared within 2 h before use. Intra-jugular injections were performed according to the schedule in Table 1.

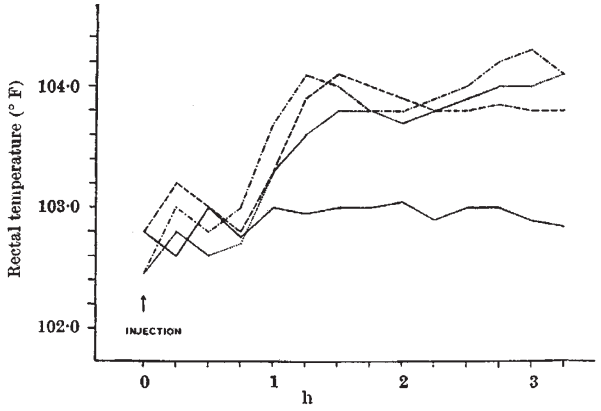

Fig. 1. Rectal temperatures in spayed ewes following intra-jugular injection of aqueous stilbœstrol solutions after 2–3 weeks' storage at room temperature. ·····, 100 μg; —·—, 50 μg; – – –, 25 μg stilbœstrol; ——, control

Table 1. PROGRAMME OF INTRA-JUGULAR INJECTIONS WITH AQUEOUS STILBŒSTROL SOLUTIONS

	Exp. *A*					Exp. *B*		
Age of solution	2–3 weeks					< 2 h		
Date	17/5	24/5	7/6	21/6	14/6	28/6	26/7	6/8
Ewe	(μg stilbœstrol)							
247	0	50	100	25	25	0	50	100
248	0	50	100	25	25	0	50	100
242	25	100	50	0	0	25	100	50
243	25	100	50	0	0	25	100	50
241	50	25	0	100	100	50	25	0
249	50	25	0	100	100	50	25	0
245	100	0	25	50	50	100	0	25
250	100	0	25	50	50	100	0	25

Table 2. RECTAL TEMPERATURES 1½–3½ H AFTER INTRA-JUGULAR ADMINISTRATION OF STILBŒSTROL IN OVARIECTOMIZED EWES

Stilbœstrol (μg)	No. of records	Mean rectal temperature (° F.)	*S.E.* (° F.)
	Exp. *A*		
0	72	102·99	0·05
25	72	103·91	0·06
50	72	104·06	0·08
100	72	103·89	0·09
	Exp. *B*		
0	72	103·84	0·11
25	72	103·20	0·13
50	72	103·38	0·10
100	72	103·24	0·11

Rectal temperatures were recorded about mid-day, immediately before injections, and thereafter at 15-min intervals. After a delay of about 45 min, the older solutions of stilbœstrol used in experiment *A* (Fig. 1) caused the spayed ewe's rectal temperature to rise by about 1° F. Records 1½ – 3½ h after injection (Table 2) indicate that each dose-level of stilbœstrol was thermogenic in relation to the control injections with water ($P < 0.001$) and that the three dose-levels produced comparable effects ($F = 1.78$). Fresh preparations of stilbœstrol used in experiment *B* were ineffective in eliciting a consistent thermal response within 3½ h after injection.

The role of storage in the development of thermogenic properties of aqueous stilbœstrol solutions is of interest since such preparations also lose œstrogenic potency[3,4]. However, the oxidative inactivation of the œstrogen molecule (*in vitro* or *in vivo*) has been shown to reverse its pituitary function from inhibition to stimulation[5]. Thus, the thermal response of the spayed ewe to stilbœstrol may involve profound neuro endocrine interactions.

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Body Temperature of Birds in Relation to Nesting Habits

THE body temperature of birds has been examined by various workers[1–5,7,9]. Temperature has been shown to fluctuate in response to various internal and external influences[1,3,4,9]; there is a difference of the order of 2° C between active birds and those at rest[3,4], and a difference of 1·5° C has been demonstrated between day and night body temperatures in quails[3]. Previous work[7] has shown that the night body temperature of the masked weaver (*Ploceus velatus*) is 1·6° C lower than the day temperature.