(*Escherichia*) of different equine origin have been used and all have accelerated the rate of ecdysis.

Experiments have also been conducted using Seitz-filtered natural equine duodenal contents. Larvæ placed in this have never undergone great degrees of ecdysis, 9 per cent after twenty-four hours being the greatest yet recorded. In unfiltered duodenal contents, ecdysis regularly reaches 90–100 per cent before this time.

In all these experiments, mixed larvæ of the family Strongylidae were used. These were obtained from charcoal cultures of equine fæces, and it is likely that small amounts of bacteria were present on them, despite the fact that they were washed in sterile distilled water before use.

It is concluded that the presence of coliform organisms is necessary for the normal occurrence of the second ecdysis of nematode larvæ of the family Strongylidae commonly parasitizing the horse.

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Adrenergic Sweating in Cattle

Cattle skin is abundantly supplied with sweat glands[1], and these glands have been suggested to be functional[2,3]; but very little is known about the secretory control. Muto[4] recorded that adrenaline produces marked sweating in horses and sheep but has no effect on the calf. Ferguson and Dowling[3], on the other hand, observed the formation of sweat droplets in the calf in response to intradermal injections of adrenaline. Precise information, however, on whether the control of sweat glands of cattle is adrenergic and/or cholinergic is still lacking. We have therefore extended our experimental work on the cutaneous evaporation in cattle, in order to test the response of sweat glands to some of the drugs affecting the sympathetic nervous system.

An American Brahman calf, between the ages of three and seven months, was exposed at intervals to an air temperature of 108° F. dry-bulb and 80° F. wet-bulb. Cutaneous evaporation was measured from the shoulder area using a semicircular capsule made of 'Perspex', with an area of 19·6 sq. cm. Hot-room air was circulated through this capsule at the rate of 2·5 lit./min. At frequent intervals, the hot air was passed, after it had circulated over the skin under the capsule, through an absorber (concentrated sulphuric acid), and at the same time the same quantity of air at the same rate of flow was passed through another identical absorber. The difference of gain in weight between the two absorbers represents the amount of water evaporated from the skin.

Results presented in Fig. 1 indicate that N-(2-chloroethyl) dibenzylamine hydrochloride (dibenamine) given intravenously at the rate of 7 mgm./kgm. body-weight gradually reduced sweating. Sweating was completely blocked three hours after the injection. During the course of adrenergic blockade, intradermal injections of adrenaline and noradrenaline (0·2 mgm.) given near the site of the capsule failed to stimulate sweating. On the following day, the blockade of adrenaline action gradually diminished until the sweating-rate returned to its initial level; at this stage, injection of adrenaline increased the sweating whereas noradrenaline remained ineffective. The action of dibenamine on cattle sweat glands is therefore similar to that on human sweat glands[5].

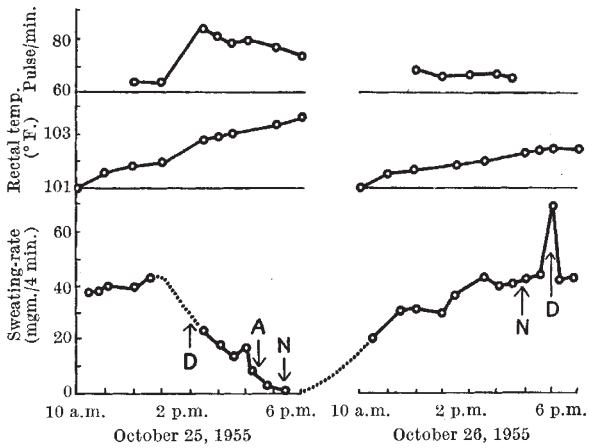

Fig. 1. Effect of dibenamine, adrenaline and noradrenaline on sweating-rate, rectal temperature and pulse-rate of a calf. Dotted lines indicate unmeasured intervals. Dibenamine (*D*), adrenaline (*A*) and noradrenaline (*N*) administered at points marked by arrows. Room temperature 108° F. dry bulb and 80° F. wet bulb

The inhibition of sweating induced by dibenamine was accompanied by increase in rectal temperature and pulse-rate with a room temperature of 108° F. As the sweating gradually increased on the following day, the pulse-rate and the rectal temperature were found to be below the levels recorded during administration of dibenamine. Intramuscular injections of dibenamine caused inhibition of sweating; but local subcutaneous administration of 2 mgm. of 2-benzyl 2-imidazoline (priscol), another adrenergic blocking agent, did not reduce sweating. A higher dosage of priscol (10 mgm.), on the other hand, caused profuse sweating similar to that in man[6].

There was no response of sweat glands to subcutaneous injections of atropine (60 mgm.) and acetylcholine (0·2 mgm.), but the injections of adrenaline given at the shoulder region increased the sweating-rate on the average from 32·1 to 45·5 mgm./cm.^{2}/hr. Cattle sweat glands appear, therefore, to be adrenergic, in this way differing from those of man, which are both adrenergic and cholinergic.

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