

bivalves' siphons. That this injury is not always mortal for the *Macra* is shown by the large number of regenerating stages among *Macra* above 20 mm. long—up to 10 per cent of some samples. A first experimental attempt at inducing the regeneration of siphons, and so to build up a time-scale for the various stages of regeneration, failed through lack of sufficient live *Macra* to carry the experiment through. In eleven days no growth had taken place, but the cut edges had healed perfectly.

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Light Regulation of Coat-Shedding in a Tropical Breed of Hair Sheep

BREEDING activity in sheep in temperate climates is predominantly controlled by the photoperiod. The mechanism governing sexual activity in tropical sheep has not yet been elucidated. During current studies of this problem Persian Blackhead ewes were exposed to an experimental light regime similar to that used to induce oestrus in Suffolk ewes at Cambridge, England, namely, 14 hours dark, 4 hours light, 2 hours dark and 4 hours light¹. Results regarding sexual activity were inconclusive but the coats of the treated ewes grew long, dense and shaggy. The coats of control ewes were sleek and short. Managerial conditions other than the light treatment were identical for the two groups of ewes.

In further studies, Persian Blackhead rams were maintained in pens roofed with 'Windowlite', a translucent plastic which reduced the light entering the pens. After four months in the pens coat-growth was markedly affected and the coat was long, tousled and dense. Persian Blackhead rams maintained under natural lighting during this period had short, sleek coats. The comparative coats of rams maintained in the pens for eight months and rams allowed free-range during the daytime over the same period of the year, are shown in Fig. 1.

Wool growth in sheep and normal cyclic coat shedding of *Bos taurus* cattle in the tropics are subject to photoperiod control^{2,3}. Yeates has shown that an experimentally imposed photoperiod similar to that of equatorial regions eliminates the natural coat cycle of European cattle and tends to keep them in a thick heat-retaining coat⁴. Although cyclic coat shedding in *Bos taurus* cattle in the tropics is also hampered by low nutrient intake⁵ the penned rams received sufficient food to gain $\frac{1}{2}$ -1 lb. per week in live-weight.



Fig. 1. (a) Persian Blackhead ram maintained on natural lighting; (b) kept in a pen with reduced lighting

These independent observations suggest that the growth of, or failure to shed the hair, was due to a qualitative or quantitative interference with the normal photoperiod at this latitude (17° 50' S.).

Although it has been suggested that the annual fluctuation in the tropical photoperiod may be too small to effect control of reproductive activity in sheep⁶ it is of note that a physiological mechanism sensitive to light changes exists in a breed of sheep indigenous to the tropics.

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A Possible Role of Indoleacetic Acid Oxidase in Crown Gall Tumour Induction

THE necessity of auxin for the transformation of incipient tumour cells to fully altered tumour cells has been demonstrated by Braun and Laskaris¹ and by Klein and Link². Both groups demonstrated that decapitated plants inoculated with an avirulent strain of *Agrobacterium tumefaciens* would develop crown gall tumours if their cut surfaces were smeared with a lanolin paste containing a plant growth hormone (indole-3-acetic acid), but not if these cut surfaces were smeared with lanolin alone. The action of indole-3-acetic acid was demonstrated to be on the tissues and not on the bacteria, as the latter did not become virulent as a result of exposure to indole-3-acetic acid.

The bacteria themselves have generally been assumed to be the source of the extra auxin required for the transformation of incipient to fully-altered tumour cells. However, attempts to find correlations between auxin production by the bacteria and their virulence have yielded inconclusive results³. This communication will present evidence that the extra indole-3-acetic acid needed for transformation may not be bacterial in origin but may in fact be due to a decreased destruction of auxin in the tissues infected with virulent bacteria.

Sunflower plants were selected for uniform height (70 cm.), stem width and general appearance. An apical section was cut just below the internode that had last fully expanded; this internode was usually between 15-18 cm. long. The leaves and apical internode were then removed, and the section was washed in undiluted 'Clorox' (a commercial preparation of sodium hypochlorite) to which a small amount of detergent had been added. The washed sections were then dipped into absolute alcohol, flamed, and allowed to cool in a sterile Petri dish. The now-sterile internode was cut horizontally into five sections, each about 2.5 cm. long. Each section was then split longitudinally into two sub-sections, and each sub-section implanted basal end up in a tube of White's medium without added auxin. These cultures were grown in a 25° C. controlled-temperature room for two days, after which the contaminated sections, if any, were discarded. Inoculations were made on the second day