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Comparative Effects of Gradually Increased Daily Periods of Light and Activity on the Sex Cycle of the Sparrow

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Illumination with different colored lights of equal energy value does not result in electrical responses of equal magnitude. The response is greatest with the green light and successively less with blue, violet, orange-red, and red.

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COMPARATIVE EFFECTS OF GRADUALLY IN-
CREASED DAILY PERIODS OF LIGHT AND
ACTIVITY ON THE SEX CYCLE
OF THE SPARROW

GARDNER M. RILEY

It has been repeatedly demonstrated in birds that increased daily light periods during the inactive phase of the sex cycle results in precocious testicular development. An attempt has been made to determine whether light, itself, or the increased daily period of physiological activity is the essential factor in this development.

Three series of experiments were conducted with the House sparrow during the fall and winter of 1938-39. In each series, the daily period of awakesness was regulated either by gradually lengthening the light period or by adding a period of compulsory activity (in complete darkness) to the basal light day. Compulsory activity was maintained by placing the birds in a revolving drum. The daily increase in the duration of awakesness was the same in both cases.

Increased daily light periods caused an increase in spermatogenic activity, whereas, increased activity had no effect on the gonadal development. The findings support the view that activity, alone, is not effective in stimulating testicular development in the sparrow.

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