retained by the teleost pituitary gland when removed from its normal connexion with the hypothalamus, and suggest that the teleost hypothalamo-hypophysial relationship with respect to TSH may differ considerably from that in mammals.

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Phototaxis and Green Rods in Urodeles

Many Amphibia are strongly phototactic, and it is generally found that this behaviour is more readily released by blue light than by light of any other colour[1]. It is reasonable to suppose that the green rod underlies such phototaxis, since this receptor has been shown to be strongly sensitive to blue light[2]. Although all anurans are said to have green rods, not all urodeles possess them, so that if this hypothesis is correct we should expect those urodeles which lack green rods also to fail to show any marked sensitivity to blue light when their phototactic behaviour is tested. In experiments recorded here two urodeles were tested, one of which has green rods (*Triturus cristatus*), and one of which lacks them (*Salamandra salamandra*)[3].

The experimental arrangement for testing phototaxis has previously been described in detail[4]. Animals were tested in a dark room in a *Y*-maze of black 'Perspex', in which they chose between two 4 in. × 4 in. translucent windows illuminated by means of Wratten filters and 500 W projectors. The average half band-width of the filters was 30 mμ, and the energy reaching the windows was approximately 23 μW/cm². Six filters were used, giving seven possible stimuli, for the windows could be illuminated by six different colours, or remain dark. These seven stimuli were presented on the windows in all 21 possible pairs, and the stimulus chosen by the animal noted in each case. In this way spectral response curves were obtained, which could be tested for statistical significance by means of Kendall's coefficient of agreement[5].

Twelve *Salamandra* and 14 *Triturus* were used. Eight of the *Salamandra* received two trials on each of the 21 possible pairs of stimuli; the other four only received one trial on each pair. All 14 *Triturus* received one trial each pair. Each individual received all its trials on one day,

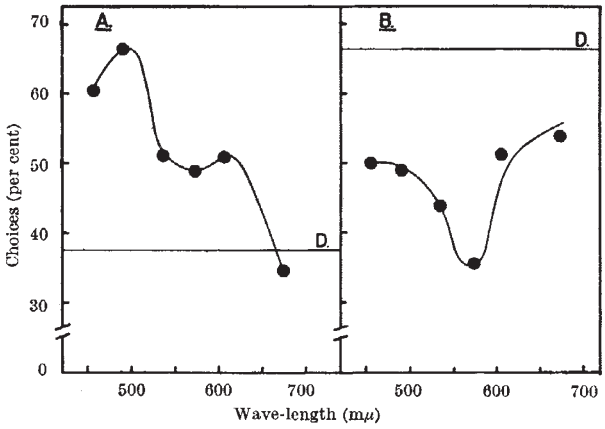

Fig. 1. *A*, Spectral response curve for *Triturus*; *B*, spectral response curve for *Salamandra*. The line labelled *D* shows the percentage of occasions on which darkness was chosen in each case

except for those animals which saw each pair of stimuli twice: these received one trial on all possible pairs on one day, and a second trial on all pairs a day later.

The spectral response curves thus obtained are shown in Fig. 1. The coefficient of agreement was in each case significant at considerably better than the 0·1 per cent level of confidence. It can be seen that the behaviour of the two species differed markedly. *Triturus* is positively phototactic, and responds to blue more often than to any other colour. The responsiveness to blue is less marked than it is in the frog[4], and the response curve also differs in having the maximum in the blue and the minimum in the green both shifted somewhat towards the longer wavelengths. The latter is presumably a consequence of the newt having visual pigments based on vitamin A_2 as opposed to vitamin A_1 like the frog. *Salamandra*, on the other hand, is negatively phototactic, choosing darkness more often than any other stimulus. The animal is maximally sensitive at about 570 mμ, and the spectral sensitivity curve is in line with the photopic sensitivity that would be expected for this animal[6].

The results therefore support the view that the green rod is involved in amphibian phototaxis. Previous results, however, show that other receptors must be involved as well[4].

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Movements and Co-ordination of the Ciliary Comb Plates of the Ctenophores *Beroe* and *Pleurobrachia*

Investigations by Afzelius[1,2] on the comb plates of *Mnemiopsis* showed that these plates are compound structures built up from several hundred thousand cilia of somewhat modified structure, the shafts of which are apparently cemented together in long rows. The comb plates of the smaller ctenophores used in this work contain fewer cilia, but even here many thousands of cilia must be incorporated in each plate.

Figures for parameters of ciliary beating published previously[3] refer to measurements made on a detached