

ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

KLEINHOLZ, L. H., BURGESS, P. R., CARLISLE, D. B. & PFLUEGER, O., 1962. Neurosecretion and crustacean retinal pigment hormone: distribution of the light-adapting hormone. *Biol. Bull., Woods Hole*, Vol. 122, pp. 73-85.

Distal retinal pigment light-adapting hormone can be demonstrated in a number of crustacean nervous tissues and this is in agreement with the histological demonstration of neurosecretory cells and axons in such tissues. Amongst the species investigated differences were found in the activity of sinus gland extracts on the retinal pigment effectors. The basis for these differences is not yet known. Heated extracts of the tissues of the crab *Libinia* affected the distal retinal pigment index in a way not significantly different from the unheated extract. With similarly heated *Pandalus* extracts the differences in retinal pigment index are significant. The red chromatophores of *Palaemon adspersus* respond to extracts of the sinus gland of the blind *Calocaris* and to the purified hormone preparation of Edman, Fänge & Östlund, while these same preparations had little effect on the distal retinal pigment; this may support the possibility that two different hormones are involved in regulating these effectors.

D.B.C.

MURRAY, R. W., 1962. The response of the ampullae of Lorenzini of elasmobranchs to electrical stimulation. *J. exp. Biol.*, Vol. 39, pp. 119-28.

The ampullae are sensitive to weak electrical stimuli which presumably cause currents to flow along the jelly-filled tubes of the sense organ. An adapting increase in resting frequency occurs when the tube-opening is negative, and inhibition when the opening is positive, with opposite after-effects in each case. If a voltage gradient is applied in the water overlying the ampullae, the threshold is $1 \mu\text{V}/\text{cm}$, for the most sensitive units both in *Raja* spp. and in *Scyliorhinus canicula*. This represents a current of at most 5×10^{-11} amps along the tube. Changes in salinity of the water at the tube-opening are also effective stimuli, dilution causing excitation. This response is not due to an osmotic change.

R.W.M.

PARKE, M., LUND, J. W. G. & MANTON, I., 1962. Observations on the biology and fine structure of the type species of *Chrysochromulina* (*C. parva* Lackey) in the English Lake District. *Arch. Mikrobiol.*, Vol. 42, pp. 333-52.

Chrysochromulina parva Lackey (type, and only known freshwater species, of the genus *Chrysochromulina*) has been detected in the plankton of Windermere and other lakes in the English Lake District. This is the first time that this species has been recognized outside the type locality (Scioto River, U.S.A., Lackey 1939). Observations on its behaviour in life, including seasonal and depth distributions, are recorded with the light microscope. Electron microscopy, mainly of material in culture, has added details of the fine structure. The combined results show: (a) that the organism is abundant in several lakes at certain times of the year, though it had escaped detection earlier because of its extreme fragility, (b) that the cells are biflagellate, with a third filiform appendage which is a haptonema as in marine species and not a third flagellum;

(c) that delicate plate-scales are sometimes detectable on the cell surface; (d) that the micro-anatomy of the main cell components is comparable to that of several marine species except for minor differences in the Golgi body and in the presence of a contractile vacuole.

An emended taxonomic description is provided.

M.P.

PAUTSCH, F., 1961. The larval chromatophoral system of the crab, *Carcinus maenas* (L.). *Acta Biol. Med. Soc. Sc. Gedan.*, Vol. 5, pp. 105-19.

A description is given of the chromatophores of the first zoea of the crab, *Carcinus maenas* (L.), based on observations of living material. The distribution of the chromatophores shows a very regular pattern. Only minor individual variations could be observed. The pattern may be of great taxonomic value, as far as the characters of the species are concerned.

But if compared with the general scheme of the distribution of the chromatophores in brachyuran larvae, proposed by Aikawa, the pattern of the *Carcinus* larva shows basic discrepancies. From this the conclusion can be drawn that Aikawa's scheme is rather useless, especially if generic and familiar characters are to be considered.

Some of the basic reactions of the larval chromatophores in *Carcinus*, induced by light are also described. The pigment cells show the primary type of reaction to incident light (Babák). Light reflected from the background has no effect on them. The chromatophorotropic hormones of the eye-stalk of adult crabs are also inactive.

Under the influence of illumination the pigments in the chromatophores are dispersed, in darkness they are concentrated. In connection with this a diurnal rhythm of the chromatophores exists. When the larvae are placed in the darkroom, the rhythm gradually disappears. In larvae hatched directly in the darkroom the rhythm is absent from the beginning.

F.P.