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ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

BRYAN, G. W., 1966. The metabolism of Zn and ^{65}Zn in crabs, lobsters and freshwater crayfish. In *Radioecological Concentration Processes*, being Proc. Int. Symp., Stockholm, 25–29 April 1966 (ed. Bertil Aberg and Frank P. Hungate), pp. 983–91. Oxford and New York: Pergamon Press.

The crab *Carcinus maenas* regulates the concentration of zinc in its body and so the potential concentration factor for ^{65}Zn is almost inversely proportional to the concentration of zinc in the sea water. Zinc can be absorbed directly from sea water across the gills and the turnover of zinc is more rapid in high-zinc sea water. More zinc is absorbed from high-zinc sea water and so more must be removed. Turnover is also increased when zinc is absorbed from the stomach after feeding. Like the crab, the lobster *Homarus vulgaris* is able to regulate zinc. But, whereas the crab loses zinc largely across the body surface, the lobster excretes it in the urine. The impermeability of the freshwater crayfish limits the exchange of zinc across the body surface. Regulation is controlled by the hepatopancreas. Nearly all the body zinc is absorbed from food and nearly all losses occur in the faeces. G.W.B.

BRYAN, G. W., 1967. Zinc concentrations of fast and slow contracting muscles in the lobster. *Nature, Lond.*, Vol. 213, pp. 1043–4.

In the lobster *Homarus vulgaris*, the deep abdominal extensor and flexor muscles contain about 15 μg/g of zinc whereas the superficial extensor and flexor muscles contain about 100 μg/g. This appears to be a good example of a relationship between tissue function and zinc concentration because the deep muscles are fast contracting and the superficial are slow contracting. This feature should make these muscles suitable material for determining the role of zinc in crustacean muscle. G.W.B.

KRASNE, F. B. & LAWRENCE, P. A., 1966. Structure of the photoreceptors in the compound eyespots of *Branchiomma vesiculosum*. *J. Cell Sci.*, Vol. 1, pp. 239–48.

Each photoreceptor unit within the eye is located immediately beneath the surface cuticle and is composed of two cells; a large, deeply situated receptor cell and a superficially placed lens cell (which itself is composed of two segments). The deep segment of the receptor cell is filled by a large invaginated cavity containing a stack of some 450 disk-shaped membranous sacs; each is the expanded and flattened outer membrane of one of a like number of cilia whose basal bodies invest the cytoplasmic wall of one side of the cavity. The basal bodies have a 9 + 0 arrangement of fibrils and lack striated rootlets and orthogonal centrioles. On the side of the cell opposite this field of basal bodies the cavity is continuous with a tunnel which passes through the superficial segment of the cell at one side and opens at its top. The tunnel is crescent-shaped in cross-section, and its inner wall is covered by an array of microvilli. The cytoplasm of the superficial segment is mostly filled by a congregation of some 3000 long, rod-shaped, hexagonally packed mitochondria whose long axes lie normal to a plane dividing the basal body and tunnel sides of the cell. The segment's arrays of mitochondria and microvilli correspond in number and spacing, and fibrils arising in the microvilli project into the cytoplasm running in the space between adjacent mitochondria. F.B.K.