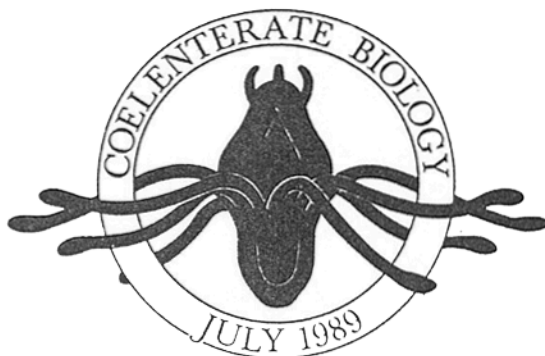


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**Programme
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MEDUSA BUD FORMATION
IN RELATION TO THE SITE AND MITOTIC ACTIVITY
IN TWO COLONIAL HYDROZOANS,
CLADONEMA UCHIDAI AND *ZANCLEA SP.*

K.-I. Kato¹, Y.I. Nakajima¹, S. Tahara¹, K.Hatada¹ & K. Noda²

¹Department of Biology, Osaka Kyoiku University, Tnnoji-ku, Osaka 543, Japan

²Laboratory of Electronmicroscopy, Tokyo Metropolitan Institute of Gerontology,
Itabashiku, Tokyo 173, Japan

Growth of medusa bud: In both species the medusa bud appears in the middle region of polyp as a small disc which consists of less than 20 ectodermal cells including interstitial cells. The cells of this disc become elongated and multi-layered which soon divide into future upper part of the umbrella and bell nucleus. Cell number increases exponentially during the growth of the bud in every part such as ectoderm, endoderm and bell nucleus. But interstitial cells appear with high frequency at the early stages, but they decrease gradually with some different rate in each region of bud at the later ones. On the other hand, mitotic index is found to show a definite rhythmic fluctuation during the growth of bud.

Site of medusa bud formation: In *C. uchidai*, single medusa bud appears on the middle region of polyp. When next bud appears in the same polyp, it is often observed on the opposite site of the same horizontal level to the first one with some time interval (after the first bud has reached to the well grown stage). In *Z. sp.*, however, almost polyps can form 4 buds one after another on the restricted area in the middle-lower part of the polyp. Eighty-seven percent of the second buds in appearance is found at an opposite site in direction of lateral, upper or lower to the first one. In all specimens, 4 buds show their growth stages with definite morphological and time interval. Mitotic indices of them show also relatively higher and lower values alternately according to the order of their appearance.

TISSUE MOVEMENT IN STROBILATING POLYP OF *AURELIA AURITA*

K.-I. Kato & M.Y. Kato

Department of Biology, Osaka Kyoiku University, Tennoji-ku, Osaka 543, Japan

During strobilation of *Aurelia* polyp, the following phenomena have been known:

1) the furrow appears one after another from the distal to the proximal direction with the same distance between, 2) the shape of ectodermal cells become more flattened and many of the endodermal ones die as the furrow forms, 3) the upper part of each segment separated by furrows becomes waveshaped with eight ridges, each of which, latter on, bifurcates to form pair of lappets. The lappets grow with some acceleration as time passed and the acceleration is more prominent in the proximal segments than in the distal ones.

In this work, tissue movement during strobilation is further examined by means of vital staining in which Nile blue-absorbed small pieces of agar has been placed on several to ten parts on the body along the disto-proximal direction. The site and length of the stained parts are found to move synchronously along disto-proximal direction. This means relative site between stained parts is not altered. The relative length of the stained parts shows considerable expansion and contraction during strobilation. This kind of tissue movement takes place with synchronous rhythm before the first furrow forms but dissynchronized during and after the second furrow appears. Compared tissue movement in each segment, the upper part than the third segment shows a rhythm in which the more shortened period and the more magnifying amplitude appear as the furrow formation proceeds, but the lower part gives only exponential increase as it goes.