EC 14

ADAPTATION AND EVOLUTION OF A BIOLOGICAL TIMING SYSTEM.

M. Saigusa. Coll. of Liberal Arts & Sci., Okayama Univ., Okayama

In my hypothesis about the timing mechanism of Sesarma larval release rhythm, the light cycle directly entrains the A oscillation, and the tidal or moonlight cycle entrains the B oscillation whose phase immediately controls the release of larvae. B is, as a driven element, coupled to and phased by A. As the high water moves to the right relative to the light regime, the tidal component follows it up to about 8-9 h from sunset. There would be a limit to the phase-angle difference between A and B, so that when that limit is reached the driven system should be forced to leap back to the original phase, resulting in a solar day component.

Larval release rhythm by the Izu population also can be accounted for by this model, if one would assume that the phase control of A on B is a function specific to a local population: the limit of phase-angle difference between A and B is reached much earlier than the case of Kasaoka population rhythm. In addition, the field data suggest that the period of B has a large inter-individual variability ranging from the value very close to 24 h to about 24.8 h for this population. In other words, Izu population involves females in which the period of B is close to that of a circadian rhythm.

EC 15

DISTRIBUTIONAL MODES OF STAUROMEDUSAE IN MOBA (SARGASSUM REGION).

Y. Hirano. Zool. Inst., Fac. of Sci., Hokkaido Univ., Sapporo.

Stauromedusae have unique habit in the respect that they never swim freely but attach to seaweeds. Four species occur at Oshoro in Hokkaido; Haliclystus steinegeri, Haliclystus auricula, Stenoscyphus inabai and Sasakiella cruciformis. Comparative investigation was made on the distributional mode of each species.

Of four species, H. auricula, St. inabai and Sa. cruciformis occurred sympatrically in midsummer. H. auricula was predominant at higher part of seaweeds, while St. inabai and Sa. cruciformis were dominant at lower part of them. The major components of preys were identified from gut contents as follows: amphipods and harpacticoids in H. auricula; only harpacticoids in St. inabai; gastropods and bivalves in Sa. cruciformis. It is considered that coexistence of these three species is ensured by the different requirements of food and microhabitat. Although H. steinegeri is similar to H. auricula in characteristics described above, there were seasonal and spatial segregations between the two species.

EC 16

THE COMPOSITION AND THE SEASONAL CHANGES OF THE PHYTAL ANIMALS IN THE POTAMOGETON MALAIANUS REGION IN LAKE KITAURA.

A.Ohtaka. Zool. Inst., Fac. of Sci., Hokkaido Univ., Sapporo; H.Morino. Dep. of Biol., Fac. of Sci., Ibaraki Univ., Mito.

A quantitative investigation of the phytal animals living on freshwater submerged plant, Potamogeton malaianus was carried out from Dec. 1980 to Dec. 1981. Total individual number of the phytal animals except for Protozoa, Rotatoria, Turbellaria and Aeolosomatidae (Oligochaeta) fluctuated between 0.5/cm² leaf in September to 20.4/cm² leaf in January. It kept high level in winter, and rapidly decreased in early spring when old leaves were replaced by new ones. Thereafter, second low peak was found in summer. Among phytal animals, both nematodes and oligochaetes predominated in most seasons and had over a half of whole animals in number except for April. The fluctuation of the total individual number of the phytal animals correlated with the abundance of attached matter on leaves which was mostly composed of algae and detritus. In winter, the attached matter on the upper side of leaves formed a thick and loose mat with various spaces, whereas on the under side, it was thin and dense. This mat of attached matter seems to supply not only food but also living space to phytal animals.

TS 1

DISTRIBUTION(%) OF LORICA MORPHOTYPES IN ROTIFER,B.PLICATILIS AND ITS RELATIVES.

M.Sudzuki.Biol.Lab.,Nihon Daigaku,Omiya

Possible morphotypes have been analysed basing on more than 3,000 specimens,i.e. 670 from Estonia(E),239 Bangkok(B),168 Singapore(S),199 & 166 Nagasaki(N1,N2),173 Kagawa(K),243 Owase(O),151 & 160 Matsuzaka(M1,M2),591 Shizuoka(Z),234 Shonai(A)& 222(Hanaoka(H).As regards pectoral margin,they are:hepatotomus Type;98-91% in N2,N1,M2,H, Z,O & M1,76-69% in K & S,36% in E,4% in B, mulleri Type;35% in A,8-2% in K,E,M1,Z,H,M2,B & N2,<1% in S,N & O,decemcornis Type; 3-1% in E,K,O & M2,<1% in H.sp1 Type=triangle laterals + low medians;94% in B,64-56% in A & E,27% in S,6-2% in O,M1,K & H.sp2 Type=Koste('80)'s fig.3;11% in K,<1% in N1 & Z. As regards occipital margin:typicus Type;100-94% in N1,N2& M1,61% in H,20% in O, <1% in S&E,rotundiformis Type;100-79% in E, B,K,S,M2,O & Z,38% in H,<1% in N1,sp3=regular triangle;100% in A,10-6% in M2,M1.Such types as found by Murray('13,fig.47a),Nogrady('83,fig.3) were not detected. From the result above,following are considered-:1) specimens reported by Murray,Koste,Nogrady should not be included in plicatilis s.st. 2) rotundiformis could be treated as a good species,3) Such specimens provided with shared characters as mentioned in types sp 1 & sp 3 could be regarded as the one new to science. Ridder's('67,fig.3)&Rodewald's ('37,fig.7) specimens may be considered as aberrant forms of rotundiformis.