indicating that these tissues switch to higher activity in anaerobic metabolism. In the *Sd* conditioned melanomas of Xiphophorin fish, no such shift towards the muscle type LDH (A_4) could be detected. These results, which are in agreement with those recently reported by PRASAD et al.[4] on human malignant melanoma, suggest that melanoma type neoplasms may not be as dependent on anaerobic metabolism for their energy as many others.

Zusammenfassung. Elektrophoretische Untersuchungen an benignen und malignen Rückenflossenmelanomen sowie an normalen Rückenflossen lebendgebärender Zahnkarpfen zeigen, dass in den Geweben in erster Linie die für gut mit Sauerstoff versorgtes Gewebe typische Herz-LDH (B_4-Isoenzym) vorkommt. Die für schlecht mit Sauerstoff versorgtes Gewebe typische Muskel-LDH (A_4-Isoenzym) wird nur in manchen der untersuchten Gewebe gefunden, und ist auch dort nur in sehr geringer Menge vorhanden. Die Melanome scheinen also im Gegensatz zu vielen anderen Neoplasmen anderer Systeme aeroben Stoffwechsel durchzuführen.

M. R. AHUJA[13], M. SCHWAB and F. ANDERS

Genetisches Institut der Justus Liebig-Universität Giessen, Leihgesterner Weg 112–114, D-6300 Giessen (German Federal Republic, BRD), 28 October 1974.

[13] On leave from Pant University of Agriculture and Technology, Pantnagar, India. Richard Merton – Guest Professor through Deutsche Forschungsgemeinschaft.

Selection in Parthenogenetic Lines of *Asplanchna sieboldi* (Leydig) 1854 (Rotatoria)

Most authors who were concerned with heterogonic Rotifers assumed that amictic females reproduce by ameiotic parthenogenesis, and this view was supported by extensive research of TAUSON[1], Whitney[2], SHULL[3] and others. Therefore the progeny of a founder female was considered a clone, that is a genetically homogeneous group, where all the variability, appearance of mictic females and cyclomorphosis included, is determined by the action of environmental conditions on a single genotype. Such purely phenotypical interpretation has been applied until recently not only to Rotifers, but to widely different groups, such as Aphids and Daphnids.

A few authors, on the other hand, have supported an interpretation of heterogony on the basis of natural selection, beginning with WEISMANN[4–6] and LAUTERBORN[7], until BACCI[8,9] approached the problem in terms of population genetics. This approach allowed COGNETTI[10,11] to demonstrate the existence of different genetic pools in population of Aphids living under different climatic conditions.

Following these results, we wanted to verify whether in parthenogenetic lines of Rotifers variability is due to environmental factors only, or is due to the different reaction norms which are shown by different genotypes within progenies, which until now are generally considered as genetically homogeneous.

In order to discriminate environmental from genetic components of variability, selection experiments have been carried out within parthenogenetic lines, following the classic scheme for the study of hereditability.

Asplanchna sieboldi (Leydig), was collected in Lago Sirio (Ivrea, Italy) in September 1972 and mass cultures were kept, following the method described by BIRKY[12], using *Paramecium aurelia* and green unicellular algae (*Oöcystis* sp.) as food. Different parthenogenetic lines were obtained from single resting eggs, which were taken from such mass cultures and they were kept under controlled and constant environmental conditions, until they showed a certain degree of variability. The experiments started with 5th generation, when selected parents were isolated and the analysis of their offspring carried on.

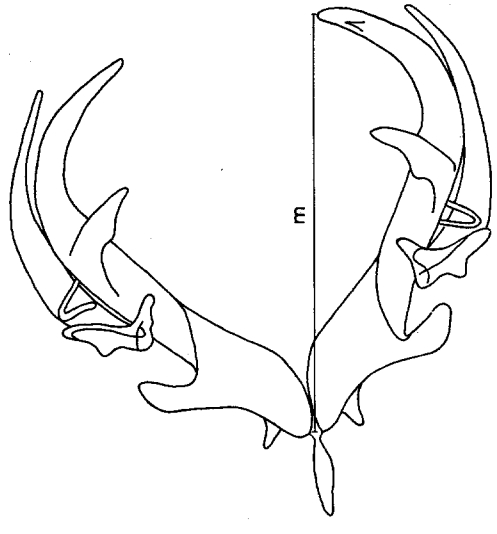

Fig. 1. Length of mastax (m).

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Results of selection experiments in parthenogenetic lines of *Asplanchna sieboldi* (Leydig)

Line	h^2	*n*	*t*	*P*
1a	0.97	79	3.60	< 0.01
2a	0.86	38	2.23	< 0.05
2b	1	38	2.37	< 0.05
3a	0.81	81	3.10	< 0.01
3b	0.83	79	2.12	< 0.05

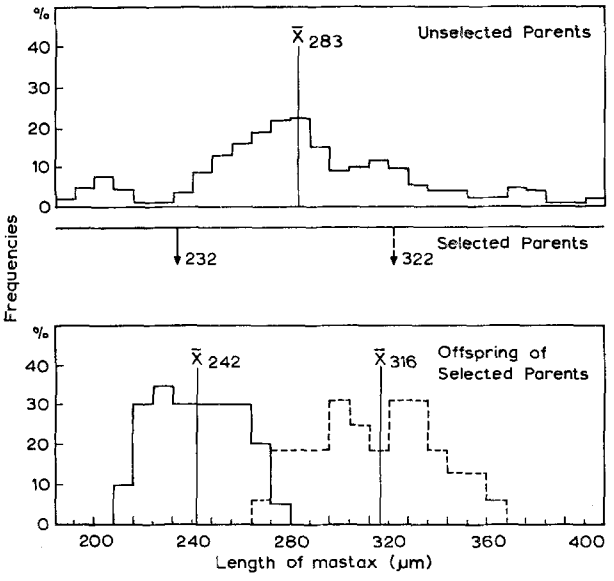

Fig. 2. Results of selection experiments in Line 3.

For this study a metric character was chosen, the length of mastax (m) (Figure 1), which a preliminary investigation showed to be in linear and positive correlation ($r = 0.29$; $t_{93} = 2.92$; $p \ll 0.01$) with the length of the adult animal. Actually, its growth can be considered practically negligeable from birth on.

The results of selection experiments, which were controlled with normal statistical methods, are summarized in the Table and are illustrated by Figure 2. They definitely demonstrate a genetic origin of the phenotypic variability which is observed in parthenogenetic lines of *Asplanchna*. Therefore the results support the working hypothesis, and the parthenogenetic lines cannot be regarded as clones.

It is thus possible to explain in terms of population genetics the classic phenomena of cyclomorphosis and appearance of mictic females. In fact, assuming that in Rotifers there is some mechanism of recombination, whether endomeiosis, as reported by COGNETTI[13] for Aphids, or somatic crossing-over, both cyclomorphosis and the alternance of amphigonic and parthenogenetic generations can be interpreted as different expressions of balanced polymorphism. Research along such lines is in progress.

Riassunto. Lo studio dell'ereditabilità di un carattere metrico (la lunghezza del mastax) e le relative esperienze di selezione dimostrano l'origine genetica della variabilità fenotipica riscontrabile in ceppi partenogenetici di *Asplanchna sieboldi* (Rotatoria). I risultati ottenuti suggeriscono un'interpretazione analoga per il ciclo sessuale e la ciclomorfosi.

G. BADINO and C. ROBOTTI

Istituto di Zoologia dell'Università, Facoltà di Scienze M.F.N., Via Accademia Albertina 17, I-10123 Torino (Italy), 13 November 1974.

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Non-Intentional Sound Production in a Cichlid Fish (*Haplochromis burtoni*, Günther)

Social communication in the Cichlid fish has been of interest to ethologists for many years. The brightly colored markings of these fish are an obvious means of visual communication and have been studied in several species[1-3]. Much less well studied, however, are the chemical and auditory signalling systems. We are particularly interested in the importance of these other systems in determining the behavioral activities of the African mouthbrooding Cichlid, *Haplochromis burtoni*. The behavioral activity elicited by the species-specific colour patterns has been studied in detail[4,5]. Studies of chemical communication are in progress (personal communication, CRAPON DE CAPRONA).

In this report, we describe experiments designed to test whether sound is also used by *Haplochromis burtoni* as a means of intraspecific communication.

Materials and methods. A 150 l aquarium with a gravel floor, some rocks and plants was placed in a quiet, isolated room. Water temperature was kept at 26° ± 1 °C. A hydrophone (Type 2, Krupp Altas Electronic, Bremen) was set up in the middle of the tank and the excess cable buried under the gravel. The hydrophone was connected through a pre-amplifier to an Uher Royal De Luxe tape recorder and monitored through earphones during observations. An incandescent overhead light was installed to minimize electrical noise. The lighting was set on a 12:12 light-dark schedule (08.00–20.00 h). Observations were made both during light and dark hours from a blind 1.2 m from the tank. Since the fish were monitored with filter, air bubbler and heater turned off, observations were kept within 90 min and usually lasted between 20 and 50 min. Selected recordings were later analyzed for frequency content with a Kay Elemetrics Co. (Pinebrook, N.J.) sound spectrograph.

In order to test the viability of the aquarium environment for sound production and recording and the sensitivity of the hydrophone, a Cichlid fish (*Tilapia mossambica*, Peters) reported to produce intentional sound[6,7], was used. 3 males and 3 females were tested. 'Drumming' sounds, as described by RODMAN and MARSHALL, were heard from the adult males during courting or threatening behaviour. These sounds were recorded and analyzed with the sound spectrograph and the spectral content found to be comparable to that published by RODMAN.

Twenty-five *Haplochromis burtoni* were observed and monitored for a total of 19 h in situations including: females alone; females with adult males; adult males

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