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The Genus *Aulonocara*

by E.Trewavas.

*Aulonocara* was proposed by Regan (1922) for *A.nyassae*, echoing names for certain Tanganyikan genera. It comes from the Greek *aulos*, a hall, hence cavity, and *kara* (*cara*) a helmet or skull. Loisel (1985) derives it from *aulos* = flute, but I cannot find any basis for that. *Kara* (*cara*) is neuter in gender.

The cavities in question are part of the sensory system possessed by all fishes. It is known as the lateral line system because it extends along the body as the well-known lateral line, as well as forming a definite pattern on the head. It consists of a series of delicate sense-organs similar to the organs of hearing inside the inner ear and it is believed, with some experimental evidence, to appreciate vibrations caused by displacement in the surrounding water. It seems that these vibrations are of a lower frequency than those appreciated by the ear.

The lateral line system (or *lateralis* system) of a cichlid and its development have been thoroughly described by Prof. H.M.Peters of Tubingen (1973). Many of the sense organs are on the surface of the body, but others become, during development, surrounded by bony canals and so protected from coarser water movements. This is important for fishes that live in shallow, surging waters and for those that swim fast, causing turbulence around their bodies. Their lateral line canals are narrow and are connected with the surface skin by narrow tubes with tiny openings. In deeper water such irrelevant water movements are reduced and every vibration may signal the presence of potential prey - or predator. Fishes like *Aulonocara* that swim slowly close to the sand, seeking sand-dwelling invertebrates as their food, often have enlarged openings of the bony tubes that connect the canals with the skin and these tubes are then analogous to the ear trumpets [as David Eccles likes to describe them]. They concentrate the vibrations affecting a large area (large = perhaps as much as one square millimetre) before they reach the information receiving point in the canal.

In *Aulonocara* the lateral line openings that are enlarged are those of the lower part of the head - the infraorbital bones of the lower jaw and preoperculum. from which we may guess that they are concerned with what goes on at and immediately below the sand surface. (In many killifishes the lateral line sensory organs of the top of the head are in open grooves. These surface feeders cannot afford to miss the fall on the water of the smallest midge.)

#### LATERAL LINE ORGANS AND RELATIONSHIPS

Now life (including cichlid life) being what it is, we have to say that not all cichlids that feed from the sand or mud surface have enlarged lateral line openings. Compare, for example, most of the species of *Lethrinops*. Neither can we say that all those possessing such "ear-trumpets" are necessarily more nearly related to each other than some of them may be to other cichlids. For example, *Trematocara* of Lake Tanganyika could hardly be more unlike *Aulonocara* and still be a cichlid, but it has greatly enlarged lateral line openings. Farther afield, several groups of marine bottom-dwelling fishes, including such unrelated families such as *Macrouridae* (rat-fishes) and *Sciaenidae* (croakers) have greatly enlarged canals.

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Within the narrower group of Malawian cichlids *Trematocranus* was proposed (Trewavas, 1935) with type species *T. microstoma*, to which I added two other new species, *T. brevirostris*, based on two small fishes that Meter et al. (1987) have credibly considered to be young *T. microstoma*, and *T. auditor*. Of *T. auditor* I wrote that it was probably not closely related to the type species *T. microstoma*. So, this was a pretty shaky genus. Although *T. auditor* conformed to the (inadequate) definition of the genus, namely "with moderately enlarged lateral line openings" its dentition and pigment pattern were different. I also wrote that *T. microstoma* was related to *Haplochromis placodon*, a mollusc-eater without enlarged lateral line openings.

Both these points have received agreement from other writers. Michael Oliver (1984, still unpublished) has linked *T. microstoma* with *H. placodon* and two other species to form another genus already supplied with an older name.

Loiselle reported this with approval (1985:15-16). Meyer et al. (1987) also gets rid of *Trematocranus*, but by transferring its type species to *Aulonocara*. I admit to being quite happy to see the genus (my own creation!) go, but for Oliver's reason, and not into *Aulonocara*.

This leaves *T. auditor* out in the cold, or orphaned as Loiselle puts it. Both Loiselle and Meyer et al. have put it into *Aulonocara*. I doubt if its generic travels are over.

#### SPECIFIC IDENTITIES

The type species of *Aulonocara*, *A. nyassae*, has not been firmly identified with any of the aquarium species. There is a complication from the outset, which I think may be resolved with the greater knowledge of the genus now available.

Note on the identity of the several species are given by Ferguson & Trewavas (next issue) and by Ferguson in the issue for May, 1988.

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