

## 4. Two New Species of Mbuna (Rock-Dwelling Cichlids) from Lake Malawi.

by Warren E. Burgess

and

Dr. Herbert R. Axelrod

As the mbuna become better known scientifically it becomes more apparent that there are still a number of species in that group that have not been described. Two of these, one in the genus *Melanochromis* and one in the genus *Labidochromis*, were discovered in the material brought back by one of the authors (HRA) from Lake Malawi in October 1974.

The first species is known in the aquarium hobby as the "black-and-white *auratus*" in reference to its resemblance to the familiar *Melanochromis auratus*. The second is apparently not generally imported and is not currently known in the hobby.

### ***Melanochromis parallelus*, new species**

*Holotype*. — USNM 215029, female, 77.9 mm SL, collected during Dr. Herbert R. Axelrod's trip to Lake Malawi, Malawi, Oct. 1974.

*Paratypes*. — USNM 215030, male, 83.2 mm SL, same data as holotype; USNM 215031, 2, one male and one female 74.2 and 78.0 mm SL respectively, supplied by Mr. Jack Freiberg and Mr. John Lombardo of African Fish Imports, Inc.

*Diagnosis*. — *Melanochromis parallelus* differs from most other species of the genus *Melanochromis* by the blunt head, reflected in the lower jaw measurement (3.2-3.5 in head length), and from *M. auratus*, *M. johanni*, and *M. exasperatus* by details of color and pattern.

*Description*. — Proportional measurements (data for holotype in italics): Depth 3.0, 3.0-3.3 (30.3-33.3%) in SL; head 3.0, 3.0-3.3 (30.3-33.3%) in SL; eye 4.0, 3.7-4.2 (23.8-27.0%) in head length; snout length 2.7, 2.6-2.8 (35.7-38.5%) in head length; interorbital width 4.0, 3.5-4.0 (25.0-28.6%) in head length; upper jaw length 3.6, 3.2-3.6 (27.8-31.3%) in head length; lower jaw length 3.4, 3.2-3.5 (28.6-31.3%) in head length; preorbital length 4.6, 4.5-5.2 (19.2-22.2%) in head length; postorbital length 2.3, 2.1-2.5 (40.0-47.6%) in head length; caudal peduncle depth 8.1, 7.8-8.4 (11.9-12.8%) in SL; caudal peduncle length 9.6, 7.3-9.6 (10.4-13.7%) in SL; predorsal length 2.8, 2.8-3.1 (32.3-35.7%) in SL; pectoral fin length 4.0, 4.0-4.3 (23.3-25.0%) in SL; pelvic fin spine length 6.4, 6.0-7.7 (13.0-16.7%) in SL; and pelvic fin length 4.9, 4.2-4.9 (20.4-23.8%) in SL.

Fins: Dorsal fin XIX, 8-9; anal fin III, 7-8; pectoral fin 13-14 (all elements counted except short splinter at upper edge); caudal fin ragged but may be emarginate when entire.

Scales: Lateral line scales 22-24 + 9-12 (plus one or two pored scales that may extend onto the caudal fin); 8-9 + 1 + 10-11 scales in a transverse series from base of first dorsal fin spine to base of first anal fin spine; scales in a longitudinal line 31; caudal fin scaled, dorsal and anal fins not scaled.

Gill rakers: 2 + 1 + 10-11 (last two or three very small).

Teeth: Teeth of jaws in curved rows; outer row distinctly bicuspid, the cusps subequal, that closer to the symphysis larger; in upper outer row teeth becoming smaller posteriorly and ending in 7-9 unicuspid (though some teeth with shoulders) teeth which increase in size again until the last; outer row of lower jaw meeting first inner row of tricuspid teeth near angle of jaw and continuing on as a single row of tricuspid teeth to the back of the mouth; 4-5 poorly defined inner rows of tricuspid teeth in each jaw; about 45-50 teeth in outer row of upper jaw (unicuspid teeth included) and about 24-32 bicuspid teeth in outer row of lower jaw. Teeth of lower pharyngeals typical of *Melanochromis*, not densely crowded and with posterior row enlarged and compressed, composed of about 35-40 teeth.

Pharyngeal teeth of *Melanochromis parallelus* showing enlarged posterior row. Photo by Dr. Herbert R. Axelrod.





*Melanochromis auratus*. Male (lower photo) and female (upper photo). The color pattern is very similar to *M. parallelus* and other species of *Melanochromis*. Photos by Dr. Herbert R. Axelrod.





*Melanochromis parallelus*, female (holotype: lower fish) and male (paratype: upper fish). Photo by Dr. Herbert R. Axelrod.

*Labidochromis mathotho*, holotype male. Photo by Dr. Herbert R. Axelrod.





**Internal anatomy:** The specimens were examined to determine the sex and the lower pharyngeals were removed from one female (holotype) and one male for inspection. The holotype was a ripe female containing 29 well developed eggs.

**Coloration:** The color and pattern of the holotype and a male paratype can be seen in the accompanying photo. The male exhibits a typical dominant male *Melanochromis* dark body and fins with two narrow blue longitudinal stripes and light edges to all the fins except the pectorals. The female is unusual in lacking much of the yellow coloring of most of the other *Melanochromis* females.

**Comparisons.** — The blunt head profile of this species contrasts with most previously known species of *Melanochromis* which have more pointed snouts. This is indicated in the lower jaw being included more than three times in the head length, whereas in *M. melanopterus*, *M. vermivorus*, *M. brevis*, and *M. perspicax* it is included 3 or (normally) less than three times in the head length (Trewavas, 1935). The more recently described *M. simulans* also falls into this category (2.5 times in head length). *Melanochromis exasperatus* and *M. johanni* are more similar in shape to *M. parallelus* but are quite differently colored. The final species, and the one which is most similar to *M. parallelus*, is *M. auratus*. The color patterns of these two species are similar but there are noticeable differences. *M. parallelus* is generally called the black-and-white *auratus* because it lacks the bright yellow color of the females of *M. auratus*. The caudal pattern is also different, having dark bars on the upper and lower edges and dark streaks near the outer edge in between. *M. auratus* has dark spots on the upper half of the caudal fin and is either clear yellow or has only traces of a dusky pattern on the lower half. The patterns of the males of the two species differ to a greater extent. The male of *M. parallelus* is typical of that of most other species of *Melanochromis*, but *M. auratus* males have a light colored dorsal surface including the dorsal fin; the lateral stripe in *M. auratus* may be blue or whitish-blue, and may have a yellow stripe through the center. *M. parallelus* seems to be a bulkier fish than *M. auratus*, with a deeper body (3.0-3.3 for *M. parallelus* compared to about 3.6 for *M. auratus*).

**Distribution.** — This species is endemic to Lake Malawi.

**Etymology.** — Named *parallelus* for the parallel stripes on both males and females.

### ***Labidochromis mathotho*, new species**

**Holotype.** — USNM 215032, male, 68.2 mm SL; collected during Dr. Herbert R. Axelrod's trip to Lake Malawi, Malawi, October 1974.

**Paratype.** — USNM 215033, female, 65.3 mm SL. Same data as holotype.

**Diagnosis.** — *Labidochromis mathotho* differs from all other known species of *Labidochromis* by color pattern. Its sombre brownish and gray-blue color and lack of dark bars are not found in any other species of this genus. *Labidochromis mathotho* seems most closely related to *L. caeruleus* and differs, in addition to color (*L. caeruleus* is reported as being bright cobalt blue), by having 4 to 5 rows of teeth as opposed to 3, a broader interorbital (3.2-3.8 in head length as opposed to 3.8-4.7 for *L. caeruleus*), and slightly to moderately enlarged mid-posterior pharyngeal teeth (those of *L. caeruleus* noticeably larger).

**Description.** — Proportional measurements (data for holotype in italics): Depth 2.8, 2.8 (35.7%) in SL; head 3.3, 3.0 (30.3-33.3%) in SL; eye 3.6, 3.4 (27.8-29.4%) in head length; snout length 2.9, 2.9 (34.5%) in head length; interorbital width 3.2, 3.8 (26.3-31.3%) in head length; upper jaw length 3.6, 4.0 (25.0-27.8%) in head length; lower jaw length 4.2, 4.8 (20.3-23.8%) in head length; preorbital length 4.8, 5.0 (18.9-20.0%) in head length; postorbital length 2.1, 2.2 (45.5-47.6%) in head length; caudal peduncle depth 7.4, 7.6 (13.2-13.5%) in SL; caudal peduncle length 8.5, 8.4 (11.8-11.9%) in SL; predorsal length 2.8, 2.6 (35.7-38.5%) in SL; pectoral fin length 3.4, 3.5 (28.6-29.4%) in SL; pelvic fin spine length 5.9, 5.6 (16.9-17.9%) in SL; and pelvic fin length 3.2, 3.2 (31.3%) in SL.

Fins: Dorsal fin XVII, 9 (male) and XVI, 8 (female); anal fin III, 7; pectoral fin 13; caudal fin truncate.

Scales: Lateral line scales 22-23 + 6-10 (female with 10); 6-7 + 1 + 8-9 scales in a transverse series; 29-30 scales in a longitudinal series; caudal fin scaled, dorsal and anal fins not.

Gill rakers: 2 + 1 + 9.

Teeth: Teeth of jaws in curved rows; outer row in upper jaw with middle 8 teeth unicuspid and enlarged (*Labidochromis* feature), the next 5 on each side of these becoming progressively smaller, unevenly bicuspid (one cusp much larger than other), and the remaining 8 on each side unicuspid but with shoulders (some resembling tricuspid teeth); outer row of lower jaw with similar enlarged unicuspid teeth, 8 in number, but with only about 4 weakly bicuspid teeth on either side; total number of teeth in outer row of upper jaw 34, of lower jaw 16; there are about 3 or 4 inner rows of small tricuspid teeth in each jaw. Lower pharyngeals triangular, equilateral, with an indentation in middle of posterior margin. Pharyngeal teeth not crowded, posterior row enlarged, especially around curvature of indentation (but not nearly as enlarged as those of *L. caeruleus*); about 36 teeth in this last row.

Internal anatomy: The specimens were dissected only to determine sex and examine the pharyngeal teeth. Both holotype and paratype were ripe or nearly ripe (the female had developing eggs).

Coloration: The color photos accompanying this description show the more-or-less "fresh dead" color of these specimens. The male is a brownish gray-blue and the female mostly brownish. The male has two small orange egg spots at the posterior edge of the anal

## Tropical Fish Hobbyist

fin; the female has orange color in the same area but not formed into discrete spots. The slight orange edging to the vertical fins is present in both sexes.

**Comparisons.** — Only three species of *Labidochromis* have been validly described to date (*L. vellicans* Trewavas, *L. caeruleus* Fryer, and *L. textilis* Oliver) with a fourth of doubtful validity because of an inadequate description (*L. freibergi*). The body depth of *L. mathotho*, when plotted on Fryer's (1956) graph of *L. vellicans* and *L. caeruleus*, falls within the range of *L. caeruleus*, and it seems to be equally distinguishable from *L. vellicans* by this proportion. The head length of *L. mathotho* (3.0-3.3) falls between the two species but is closer to *L. vellicans* (3.1-3.4) than to *L. caeruleus* (about 2.9). The eye diameter also falls between the two, being 3.4-3.6 as compared to 3.5-3.9 for *L. caeruleus* and 3.2-3.5 for *L. vellicans*. The differences in the number of rows and make-up of the inner teeth of *L. mathotho* as compared to *L. caeruleus* (and probably also *L. vellicans* since Fryer did not point out any differences between the two) are distinct. *Labidochromis textilis* is quite distinctly patterned so no confusion with this species is likely.

**Distribution.** — This species is endemic to Lake Malawi.

**Etymology.** — Named after the Chief Fisheries Officer of Malawi, Mr. A. Mathotho, without whose help the discovery of these new fishes would not have been possible.

### LITERATURE CITED

- Burgess, W.E. 1976. *Tropical Fish Hobbyist*, 24(6): 61-65 (Feb.)  
Fryer, G. 1956. *Rev. Zool. Bot. Afr.*, 53:81-89.  
Oliver, M.K. 1975. *Proc. Biol. Soc. Wash.*, 88(29):319-330.  
Trewavas, E. 1935. *Ann. Mag. Nat. Hist.*, (Ser. 10) 16: 65-118.

### AMERICAN CICHLID ASSOCIATION

For information about joining the American Cichlid Association, write to American Cichlid Association, c/o Jonathan & Lee Pierce, Membership Chairmen, 15019 N. 21st Place, Phoenix, Arizona 85022—tel. (602) 971-9791. Please send self-addressed stamped envelope when contacting societies.

## Quality Aquarium Plants

HOBBYISTS: 1976 RETAIL LIST NOW AVAILABLE. UNEQUALLED VARIETY OF PLANTS TO FIT ALL NEEDS. ALL PLANTS ARE TANK GROWN HERE UNDER STRICTEST CONTROL. ALL ORDERS HANDLED PERSONALLY BY MYSELF AND FILLED IMMEDIATELY.

# R. A. GASSER

129 S.W. Linden St., Stuart, Florida 33494