The Scheel Letters, No. 14

More Crossings in Aphyosemion

Fry of the cross Aphyosemion cognatum male / Aphyosemion schoutedeni female hatched normally (I had to help the last ones to make up their mind to come out, used dry food). Possibly these two Congo-specimens are very close. Also fry of the more "far-off" cross Aphyosemion schoutedeni male / Aphyosemion "calliurum" female (the Nigerian stock) started normal hatching, but I had to speed up the last eggs by dry food and out they came. Also these hybrids seemed to be liveable. In 1-2 weeks more hybrids spawned on perlon certainly will hatch.

Cynolebias (Cynopoecilus) melanotaenia "The Fighting Gaucho"

In 1912 the German naval architect Albert Mayer (the well known amateur collector of tropical aquarium fishes) found some small Cyprinodontes in a small pool (about 120 square meters) near Quinta (situated about 4 hours by road from Paranagua, the coastal city in southeastern Brazil. He brought some of the specimens back to Germany alive and handed them over to the well known aquarist and amateur zoologist Arthur Rachow who sent preserved specimens to the zoologist Tate Regan who described this fish as a new member of the genus Cynolebias (The Annuals and Magazine of Natural History, 8 series, Vol. 10, 1912). Later, in the same magazine, Regan changed his opinion on this fish and drew it out again from the Cynolebias, placing the fish in a new genus, the Cynopoecilus (Regan 1912). Regan did this because he found no differences in the fin ray counts (dorsal and anal) between the sexes in this species and also that the differences in colors between the sexes in this species by far were not so pronounced as in the real Cynolebias. Until recently the genus Cynopoecilus containing only this species (I do not know if Cynopoecilus tichleri is a valid species) was considered as a valid genus, but in 1950 (?) G.S. Myers placed the "melanotania" once more in Cynolebias and thus reduced the Cynopoecilus to be a subgeneric name.

Not very much has been published on this interesting species since 1912. We know that a friend of A. Mayer collected some specimens near Paranagua in 1913 and brought these alive back to Germany, but no offspring came out from this stock, nor from Mayer's stock. In 1924, 1928 and 1934 the species was mentioned in the German aquarium magazines as well as in some of the bigger aquarium books and possibly some importations came into Germany and the USA, but no breeding records were published.

Some remarks of G.S. Myers may be of interest in this connection. In his description of Neofundulus

ornatipinnis (1935, from the Paraguayan Chaco) he wrote: "I place this species in Neofundulus (Myers 1927) with considerable hesitation. Its fin counts are higher than those of N. paraguayensis, agreeing more closely with those of Cynopoecilus melanotaenia. In fact, the only thing that prevents placing "ornatipinnis" in the Cynopoecilus is the compressed form of the latter. It would seem that for the present the body form alone must constitute the sole distinguishing feature of Neofundulus. Neofundulus ornatipinnis is much more like N. paraguayensis than C. melanotaenia in general appearance and form." No information on the colors of live Neofundulus are given. Myers wrote (preserved specimens) N. ornatipinnis has a plain, light brownish color on the body, and a conspicuous, black, vertically elongated humeral spot just behind and somewhat above base of pectorals. N. paraguayensis has four dark brown ill defiined longitudinal streaks running forward from the caudal base and fading a little before the dorsal and anal origins. Neofundulus has not been imported alive.

In 1958 a stock of this fish was imported by Toni Dunker from Solingen, Germany, and from this stock our present aquariums stock developed.

Rachow described the colors of the live fish: live specimens are very handsome. The ground color is a handsome reddish dark brown which changes into a more yellowish color towards the belly. On the side of the head 6-7 greenish golden, brilliant spots are seen. More backwards on the body sides there is a brilliant band of the same color, formed by three rows of scales running from the gill covers to the caudal peduncle. Also there is a dark (Rachow wrote "splendid carmine") longitudinal band running from the underjaw through the eye and along the sides until the root of the caudal fin. The fins are dusky and have a light yellow to light red colour. The vertical fins of the male have a conspicuous marking of fine red dots and streaks. The female is not far from the male in colors, as she has the brilliant greenish golden scales along body sides and sides of the head, but not as glaring as in the male.

The present aquarium stock differs a little from Rachow's description of the colors. I found the carmine longitudinal band which only is seen in the male, to be almost black or blackish. I have not seen any trace of red in this band. The fins of the male and in particular the caudal fin is a faded reddish. The red dots and streaks in the vertical fins are not very conspicuous indeed. But the colors of the male are very difficult to describe because they change very much and also very quickly according to the temper of the male. When not in breeding activities, the longitudinal band is not very pronounced and sometimes it is not at all seen. But when the male discovers a female it very quickly changes into quite another coloration. The general body colors fade into pale yellowish to flesh color, the longitudinal band appears and stands in extreme contrast to the light body color. At the anal base also another very conspicuous dark streak is seen. These sudden color changes we do not find in the related killies from South America. When males do not show this dark longitudinal band there is little difference between the sexes in general appearance indeed. But the male is distinguished however by its larger and more pointed dorsal and anal fins. Also its caudal fin has that reddish color which I never saw in adult females. In the body form this fish does not remind me of a Cynolebias. The body is much more elongated and the dorsal and anal fins are placed more backwards. No doubt this species would be more handsome in general appearance if the dorsal and anal fins were placed more forward. Now the fish looks a little "bad proportioned". Dorsal fins originate stands just above the origin of the anal fin.

About Mayer's stock we only know that the fishes lived in a pool that was 1/2 to 1 meter deep. Much

more information are given by Dr. A. Viggo W. Schultz (living in Porto Alegre, Brazil) in the Mar. 1959 issue of "Tropical Fish Hobbyist". This issue also gives a (not very typical) color photo of male and female. I take little abstract from his article: he calls this species by the name "The Fighting Gaucho" because he found them very combative indeed. "As to fighting... well, just try putting two or three males together in one tank and you will see homeric struggle, fierce as those of Bettas. The encounters remind one of the proud galleons of older times on the Spanish Main... Now one ship rushes madly at the other, raking him with his vicious attack until his canvas hangs in tatters, and bulldogging him into submission..., he is wiser than the Betta and knows that he cannot lick the whole world alone. Therefore you have the simple remedy -if you can afford it- to put quite a lot of them in the same aquarium, say some twenty or thirty and they will behave rather peaceably, especially if there are sufficient females to afford every male his mate".

"I first made their acquaintance some twenty years ago when fishing for Cynolebias species (both adloffi and wolterstorffi) which abound in the same waters as Cynopoecilus melanotaenia. All three of these species are "annuals" or "rainfish" as the Brazilians call them for the appearance at the beginning of the rainy season, when the swamps where they live begin to fill up. Since their home waters are very rich in Daphnia, Cyclops and other live food, being densely grown with Cabomba, Ceratophyllum, Myriophyllum and other aquatic plants, they find optimum conditions for quick growth and within three months after hatching they are fully grown and are ready to spawn. For a long time the only place I knew where to find this species was in Gravatan county, neighboring to Port Alegre where I live, in rain pools and ditches along the highway. I even came to fear they might become extinct for the anti-mosquito campaign of the government included filling up these ditches with dirt or spraying them with DDT and iol. Lately though I am glad to report that I have found them in many other places where so far nobody thinks of killing mosquito larvae (but instead killing the larvae, worst enemies, the fish in the waters which would eat them)... Since they nearly always live in still waters, they are completely helpless when facing currents and are easily swept away, even when one pours some water into the aquarium to bring up its level or making the weekly change of part of the water which is so helpful in keeping the fish healthy and contended. So far, this was the information provided by Schultz.

In my own tanks the species was a hardy fish. No diseases were observed. No attack of Oodinium nor apparently of tuberculosis. They are very greedy, but only will take live food (just as most "ladigesi" do). They take daphnia, cyclops, all mosquito larvae and so on. My first stock came in as eggs from Freund Mullner who had his pair (one male, two females) from Dunker. 60 eggs in ampoulle came in on 02 Oct. 58. 45 were dried at once, 1 was preserved, 4 were shipped to Emmens and 5 to Scheidness. 4 were stored in water for further inspection. 3 of these got fungus. I possibly made some errors handling the batches of eggs, no doubt most were missed, but on 05 Nov. 58 I found 7 eggs in one of the breeding tanks. These all showed resting embryos and were dried up together with the peat in which I discovered them. First watering on 05 Dec. 58. 9 fry hatched. Fry is very dark, have "shining eyes" as have also "ladigesi" and none were belly sliders. They measured 5.0-5.4 mm. They were raised in my normal aquarium water for killies, I found the pH in the two tanks to be 7.0-7.6 (rather high indeed). From these 9 fry I raised a stock of one male and 8 females. In Jan. 59 I observed the first spawnings and on 18 Jan. 59 I washed out the first 63 eggs.

Data: 33 eggs were dried at once.

First watering on 28 Feb., no fry after 24 hours, after 48 hours I lifted out 2 good fry. Eggs washed out: 12 had no trace of an embryo. Some fungused eggs were seen. 30 eggs were kept on shallow water. 15 eggs from this stock were sent to Mullner in order to reestablish his stock. On 11 Feb. 59 14 eggs were left, 4 had big embryos, 6 had small embryos (no pigment) and 3 possibly had no embryo. 03. Mar. 59: all eggs are ready for hatching. 13 eggs totally. Dried in moist peat together with 17 eggs from the other part of the brood.

Next watering on 05 April 59: 13 sound fry and 3 belly sliders. 09 April 59: the belly sliders are OK now. 11 April 59: washed out only 4 eggs. 3 had small embryos and one possibly no embryo. 19 May 59: 3 young males are now 20 mm and spawning with some of their "mothers" has started.

Next spawning: one male and 6 females: 18 Jan.-14 Feb. 59: lots of eggs concentrated in coarse peat by washing. 5 eggs in water filled airtight ampoulle (they are still transparent on 06 June 59), 5 eggs in another alike ampoulle, not closed showed 13 Mar. 59 only embryo in one of five eggs, on 05 April 59: big embryo in 2 eggs, no embryo in 3 eggs.

50 eggs were kept on shallow water and all the rest dried up on 14 Feb. 59. On 07 Mar. 59 these showed: 43 eggs without any embryo, 4 with small embryo, and 7 eggs with pigmented embryo (only eyes were pigmented). On 30 Mar. 59: 21 with big embryo (near hatching point), 5 with small embryo and 28 without any embryo. 20 ripe eggs were dried up in peat (watering on 03 May 59: 12 fry after 24 hours).

Third brood: one male / 5 females: 14-28 Feb. 59: quick drying, stored on 01 Mar. 59. From this brood many eggs were shaken out of peat in the "dry state" for mailing. Norderhaug, Parisien, Amfelt, Talkington and Emmens. Totally 114 ripe eggs, 47 resting eggs, and 7 unidentified. Eggs counted 18-19 May 59. First Watering on 19 May 59: after 4-5 hours many fry are free-swimming. Totally hatched 108 fry (unequal size but possibly only "melanotaenia"). 20 May 59: peat washed, 49 eggs found. That makes about 74% developed eggs after about 80 days of drying. Peat was "little more moist than smoking tobacco" but not at all sticky.

Fourth brood: one male / 5-8 females. 28 Feb.-05 Apr. 59. Dried at once after concentration and screening of peat. First watering on 19 May 59. Lots of fry are swimming normally after 4-5 hours. 170 fry lifted out (12 of these were not "melanotaenia", possibly "ladigesi" or Nothobranchius). Peat washed on 20 May 59: 430 eggs found, of these 68 had big, hatchable (?) embryos, 8 had small embryos and 354 eggs had no embryo. That makes about 40% eggs developed after about 45 days.

In order to control the screening and washing of the peat used in the tanks during the periods 14-28 Feb. 59 and 28 Feb.-05 Apr. 59, these two samples of filamentous and coarse peat were also dried and watered on 19 May 59. From first sample no fry came out within a week. From second sample 8 fry came out. This showed that the washing out (concentration) of eggs was rather effective even though the eggs are provided with "stems". The eggs that I washed out of the samples 14-28 Feb. 59 and 28 Feb-05 Apr. 59 were stored on shallow water without any peat. Almost every day a few fry hatched under these conditions and none of these fry were "belly sliders". Only very few of the eggs did catch fungus, but as I mailed many of these eggs I am not able to make further statistics.

These controlled broods of Cynopoecilus melanotaenia apppear to demonstrate an "annual fish" rather equally to Cynolebias ladigesi and the 4 "species" of Nothobranchius that I kept in 1958. In particular one should notice that belly sliders rarely occur, even if eggs hatched in water without previous drying. Fry look like fry of "ladigesi" but are darker, indeed these fry are very dark. They are fast growing and some grow much faster than others as in most killies. But under the same conditions they are not as fast growing as Nothobranchius and Cynolebias whitei because I had to catch some fry of these species from the 320 liter tank where the many fry of "melanotaenia" are raised. No doubt these fry were growing not only on daphnia and cyclops but also on "melanotaenia".

Until now only crossing to male "ladigesi" has been tried.

18 Jan.-01 Feb. 59: one male "ladigesi" / one female "melanotaenia" in one liter tank. Only 16 eggs found in the fine mud used. 13 Feb. 59 only one egg left. 19 Feb. 59: 2 males "ladigesi" / 3-4 females "melanotaenia" in a 16 liter tank. 246 eggs washed out of fine mud. Stored in coarse part of the mud until 14 May 59 in order to avoid fungus to run from egg to egg, as the first brood had so many sterile eggs. 14 Mar. 59 eggs once more washed out and counted: 244 eggs present. 30 Mar. 15 ripe eggs packed into moist peat. 03 Apr. 59: 4x15 eggs mailed. 04 Apr. 59 eggs counted 169 present. 11 Apr. 59 water on 15 eggs in peat. 12 fry hatched, no belly sliders. Also eggs in water sorted: 52 eggs had big (hatchable?) embryos, 117 eggs had no embryo or a very small one. Apr. 59, more eggs mailed. 02 May 59: in water 28 eggs with big embryo, 12 with small embryo (black eyes) and 11 without any embryo. 07 May 59: biggest fry from 11 Apr. is 13-14 mm long, pale reddish colour in anal and caudal fin, a pale longitudinal band along the sides. 15 May 59 biggest fry is 20 mm, typical male, very near to male "melanotaenia". Same day inspected eggs in water, 41 eggs had big embryo, 3 had small embryo. 25 of these eggs including the ones with or without small embryos mailed on 19 May 59. 17 May 59 peat with 52 ripe eggs (packed in peat on 11 Apr. 59) in water. 46 fry hatched.

Eggs have just the same strange surface structure as have eggs of "ladigesi" (called splendens). But the eggs of "melanotaenia" are somewhat bigger, measuring about 1.1-1.2 mm, whereas eggs of "ladigesi" rarely reached 1.0 mm. The eggs I got from Mullner were of equal size and so were the eggs spawned in the crossings, but when spawning all 8 (9?) females I found also smaller eggs which I first thought were some resting eggs of "ladigesi", now I think also these to be eggs of "melanotaenia".

From "Aquarienfische in Wort und Bild" (a fine drawing of a pair made by Albert Mayer himself, very typical indeed) 5 cm. No marked color differences between the sexes. The rows of brilliant greenish dots along the middle of the sides are more pronounced in the male. Also he has the carmine longitudinal band. The hindmost edges of his dorsal and anal fins are pointed, 20 C. Not very pretentious. Spawning takes place among the surface vegetation (???) in particular in Riccia (???). Fry have not been seen. The species like to stay near the surface in the way of Panchax and certain species of Rivulus (?). It attacks big fishes fearlessly.

To my own opinion the male is more shy than the female (as in "ladigesi" and "whitei" and possibly other species also). If I placed my sole big male (4 1/2 cm long) together with his big harem in a 15 liter tank with only a layer of peat mud and no plants, he mostly will stay near the center of the tank. In a

position with his nose downwards often at an angle of about 45 degrees. He is watching the bottom layer where all his females wisely have hidden themselves. If only he sees the slightest trembling of the peat in a rush he will be just over that spot, changing at once to "black and white" clothes. His movements are quick and if females dare to come out of the covering peat he will dance just before her snout forcing her to the surface of the mud, where spawning takes place. In such a tank the females will not get sufficient food and therefore I added fine plants that gave the females sufficient cover.

05 Apr. 59 I sold the male and some of his females. The surplus of females were kept together with some spare "ladigesi" and other small killies. 16 May some of the younger males were ready for spawning so I caught 4 females out of this tank. They were not very good looking. "Hollow chested" and also somewhat haggard, but within a week or so they all were filled with roe and looked as nice as they did during their first breedings. So like the "ladigesi" also this species may starve for a certain length of time.