



Bill Braker's Tank Talk

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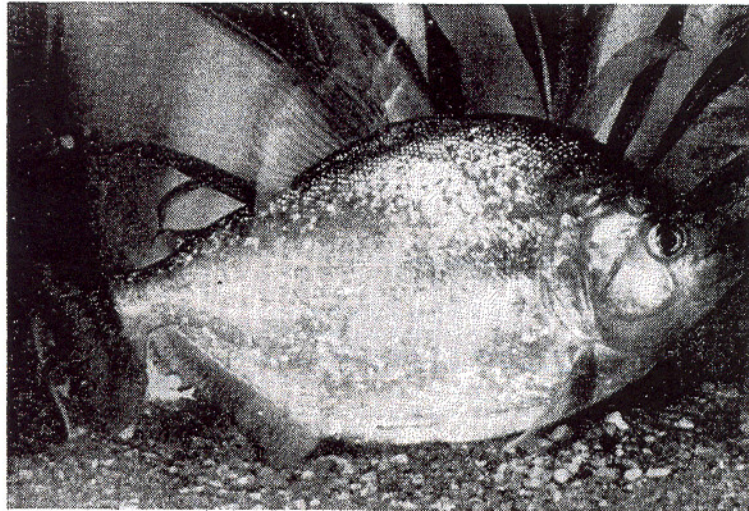
The Piranha is a dangerous fish . . . and The Shedd Aquarium has 500 young ones coming on!

They said it couldn't be done, but here we are with 500 young PIRANHAS on our hands, all spawned in hard alkaline Lake Michigan water!

In April 1955 we received twelve piranhas from Paramount Aquarium. At first they all looked alike and until they were put on exhibit

With a preserved specimen in your hand, the scales, teeth and fin rays can be counted and proportions measured. With a well constructed key to follow, proper identification can be made fairly readily. However, by a process of elimination and use of our crystal ball, eleven of them were identified as *Serra-*

In a full grown specimen (7 - 8 inches) the body is proportionately deeper and more rounded. The spots have disappeared from the sides and a bright crimson red has developed on the throat and breast. Many of the scales shine like silver sequins over a ground color of silver-grey.



where they could be viewed from the side we regarded them as one species. We were almost right. Except for one fish they were alike, but just which species we didn't know. It is not the easiest job to identify fish that are on the move and often times it is impossible.

salmus pilopteleura and the twelfth as *S. nattereri*.

These twelve fish were placed in a 1200 gallon tank, which has a mixed gravel bottom and a pile of large granite boulders in one corner. Numerous attempts were made to establish plants in this tank, but

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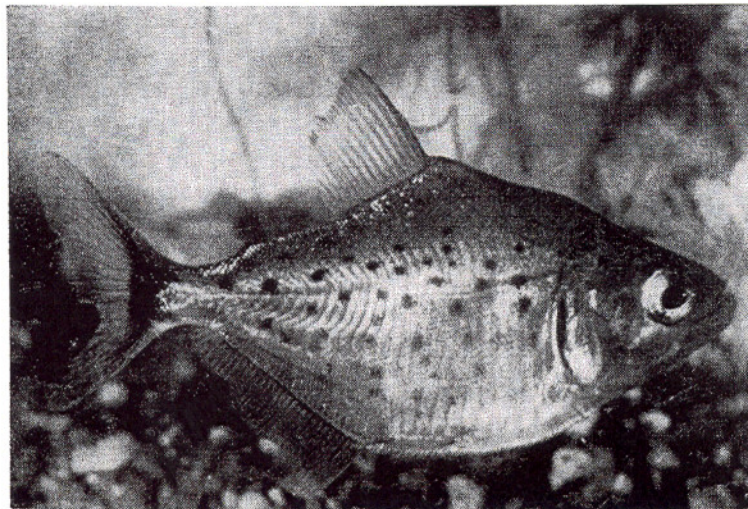
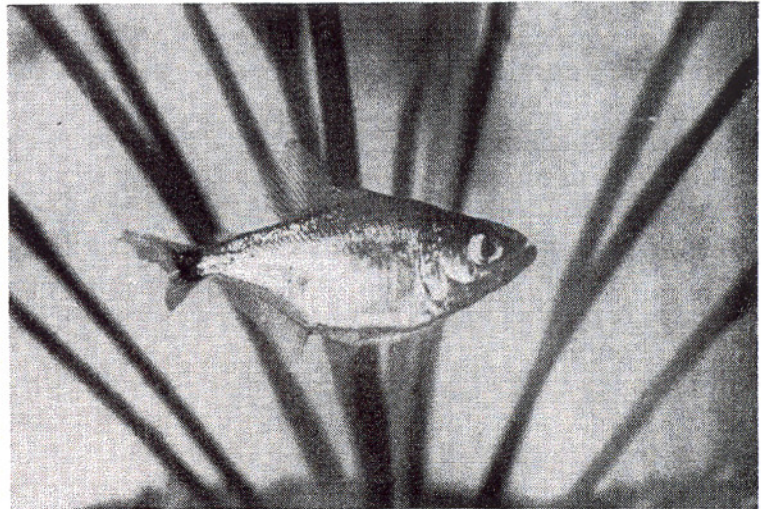


The eggs of *Serrasalmus spilopleurus*. They are adhesive and approximately one-eighth inch in diameter. Here they are shown sticking to a sprig of *Myriophyllum*.

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Six weeks after hatching the young are about three-quarters of an inch long. Notice the elongate shape and the appearance of only a few small dark spots. At this age they are already fighting as evidenced by the nipped tail.



At three and one-half months this young piranha is an inch and three-quarters long. The body is starting to deepen and the sides are covered with dark spots. The serrated abdomen, from which this group gets its name, can be seen.

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they were torn apart and pulled out almost as fast as they were planted.

In May of 1958 plants were again put in this tank, not with any hope of growing them, but just to spruce it up a little. The usual thing happened: within several days bits and pieces of *Myriophyllum* and *Sagittaria* were floating free in the tank. But the unusual happened also, for two months later young piranhas were seen darting in and out of the pile of boulders. No one had seen the spawning take place, or had seen eggs in the tank. The young fish were recovered several months later and were found to measure about one and one-half inches.

The following May (1959) the tank was again planted and the same thing happened, plants were torn apart and young piranhas appeared among the rocks. Like the year before no one had witnessed the spawning. For the rest of the summer the tank was planted sporadically, but no courting or spawning activities were observed and no more young fish were seen.

In the early part of October, piranha fry again appeared as if by spontaneous generation. This occurred at a time when there had been no plants in the tank for a week or ten days. Immediately clumps of *Myriophyllum* and *Ceratophyllum* were anchored in the gravel, and we sat back to watch what we thought would be a star performance. But aside from snipping at the stems, apparently just for the pleasure of snipping, these fish showed no interest in the plants. They were left in the tank overnight, removed in the morning and inspected for eggs. We again

drew a big blank. Being endowed with what psychologists call "oneness of purpose" (and referred to by others as being mule-headed) we again supplied plants, waited and finally turned out the lights and went home. The next morning it looked as if a box of pearl tapioca had been broadcast over the plants. Large translucent white eggs covered two or three large sprigs of the feathery plants. These were removed, put in a hatching pan, given aeration and within 36 hours most of the eggs were wigglers. Many of these remained attached to the plant by a fine thread. After five days the young were free swimming and were able to eat newly hatched brine shrimp. The fry were about six mm. long at this time.

Several days after these eggs were removed, it was noticed that two of the adults had occupied the immediate area around the remaining plants; and the other fish were keeping their distance. Some eggs could already be seen on the plants. The pair positioned themselves side by side, abdomens touching, and moved slowly upwards along a stem, the female depositing eggs while the male fertilized them. This routine was repeated again and again with the male making an occasional sortie to chase off an intruder. After spawning was completed, the male chased the female from the spawning site and *guarded the eggs!* No differences in the sexes could be observed except for a more general fulness of body of the female.

Here is something quite different from the general spawning behavior of characins. There is a very deliberate and purposeful manner

in the way their eggs of the same type. For example, *Sagittaria* are quick among clumps of available wild plants with the eggs deposited and abandoned. They are eaten as soon as completed. The male piranha few eggs, majority of the spawnings of o

The pair of other male off-beat *rhulina* deposits guards the spawns in perhaps *ina arn* trouble of the environment the under must splash the latter gy the male world.

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in the way in which they deposit their eggs on the plants. It is the same type of behavior shown, for example, by angel fish when they spawn on a piece of slate or leaf of *Sagittaria*, except that the piranhas are quicker in their movements. Among characins there is considerable wild chasing through plants with the adhesive eggs being dropped and scattered with reckless abandon. Also the eggs are usually eaten as soon as spawning is completed. Although the guardian male piranha may himself eat a few eggs, he protects the great majority of them from the depredations of other fish.

The piranhas then join these other maverick characins with their off-beat spawning behavior: *Pyrhulina rachoviana* that carefully deposits its eggs on plants and guards them; *Copeina guttata* that spawns in a hollow in the sand; and perhaps most bizarre of all, *Copeina arnoldi*, which goes to the trouble of leaping out of its natural environment to attach its eggs to the underside of a leaf and then must spend the next three days splashing them with water, which latter gymnastics are performed by the male. It is indeed a woman's world.

In short the general conditions under which these fish spawned are as follows:

Tank size - 1200 gallons

pH - 7.6

Hardness - 21 grains/gallon (357 p.p.m.)

Temperature - 78° F.

Plants - *Myriophyllum* and *Ceratophyllum*

Breeding size - 7 inches

Time in captivity before spawning - 3 years

Eggs - Adhesive or attached by a fine thread; about 1/8 inch diameter.

Breeding method - Eggs carefully de-

posited on plants and protected by male.

Hatching time - 36 hours at 78° F., free swimming in five days.

Size of fry - Six mm. (+ or -)

Food of fry - Newly hatched brine shrimp

It should be stated and noted that these are *not* to be considered as optimum conditions. These fish may be able to spawn under an entirely different set of circumstances. As with many other fishes it is likely that pH and hardness are not too important. This is true also of the type of plant used to receive the eggs.

Perhaps a word about piranhas in general would be in order. They are of course characins, and belong to the subfamily Serrasalminae. This group differs from the other Characidae in that they possess a keeled and serrated abdomen having a median series of sharp-edged bony plates with points that are directed backwards. It is divided roughly into the herbivorous Serrasalminae having two rows of teeth in the upper jaw, and the carnivorous Serrasalminae that possess only one row of teeth in each jaw. The former group consists of some nine genera, including *Metynnis* and *Colossoma*. The latter is made up of two genera - *Pygopristis* and *Serrasalmus* - and contains the piranhas. *Pygopristis* is a monotypic genus while *Serrasalmus* has 16 species. However, according to Myers (1949) only four of these can be regarded as true piranhas, that is, those species definitely known to be dangerous to man. These four are *S. piraya*, *S. nattereri*, *S. ternetzi*, and *S. niger*. The rest, including *S. spilopleura*, should correctly be termed "piram-beba" as they are considered harm-

less (to man). However, I would be inclined to agree with Dr. Myers and not trust *spilopleura* too far. It is recommended that Dr. Myers article be read as it gives an excellent account of these and other Amazon fishes.

From the few accounts of the breeding habits of piranhas in nature, it would seem that our observations fitted those of other observers. Eggs, one-eighth inch in diameter, have been seen on submerged plants and roots with the adults guarding them. However, one description tells of the fish making a shallow nest in the sand and spawning in it.

At the present time, six weeks after hatching, the young piranhas average three-quarters of an inch in length and are eating finely chopped fish and horse meat, and adult brine shrimp. They are already displaying the pugnacity and ferocity that has made the name piranha infamous. Frayed fins and tails attest to the continual "back biting" that goes on even among the young fry. There is scarcely a fish, either young or old, that does not show battle scars and areas of regenerated tissue where they have bitten each other.

Literature Cited

Myers, George S. 1947 - 1949 "The Amazon and Its Fishes" Parts I-V. The Aquarium Journal, Vol. 18, Nos. 3,4,5,7; Vol 20, Nos. 2,3.

A BOOK REVIEW

ELECTRICITY IN YOUR AQUARIUM by L. Warburton: Published by Percival Marshall & Company, Ltd., 19-20 Noel Street, London, W.I. This paperback consists of 116 pages and is illustrated with line drawings. Although it is directed to hobbyists living in England, it might well be considered an answer to a do-it-yourself-man's prayer.

Aquarium electrical devices are discussed including, heaters, thermostats, lighting fixtures, and pumps. Safety measures such as alarms, low voltage operation, and correcting circuits are described. We were somewhat disappointed not to find a word on the value of appliances equipped with fuses in this chapter. Aeration and filtration have also been covered with various methods of application. Certainly this little book contains a wealth of information for the hobbyist who wants to understand, repair, and appraise his aquarium electrical appliances.

MEI LAN ANNOUNCES NEW MARINE FISH GROUP

Mei Lan's International Tropical Marine Fish Group has recently formed to exchange facts and theories on the maintenance of salt-water fishes at home. A monthly bulletin will be published. Prospective members are invited to write to: Mei Lan's International Tropical Marine Fish Group, 147 Twelfth Street, Oakland 7, California.

MAN BITTEN BY FISH!

Man bitten by fish hobby is the theme of a short, pleasant journalistic tidbit appearing in the January issue of **PAGEANT** by Arthur Goldsmith, entitled *Little Fish, We Tank You*. Both the hobby and the hobbyist receive a friendly going over by Mr. Goldsmith who has enhanced his observations with many side lights reflecting the history of the hobby, as well as its place in the contemporary scene.

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