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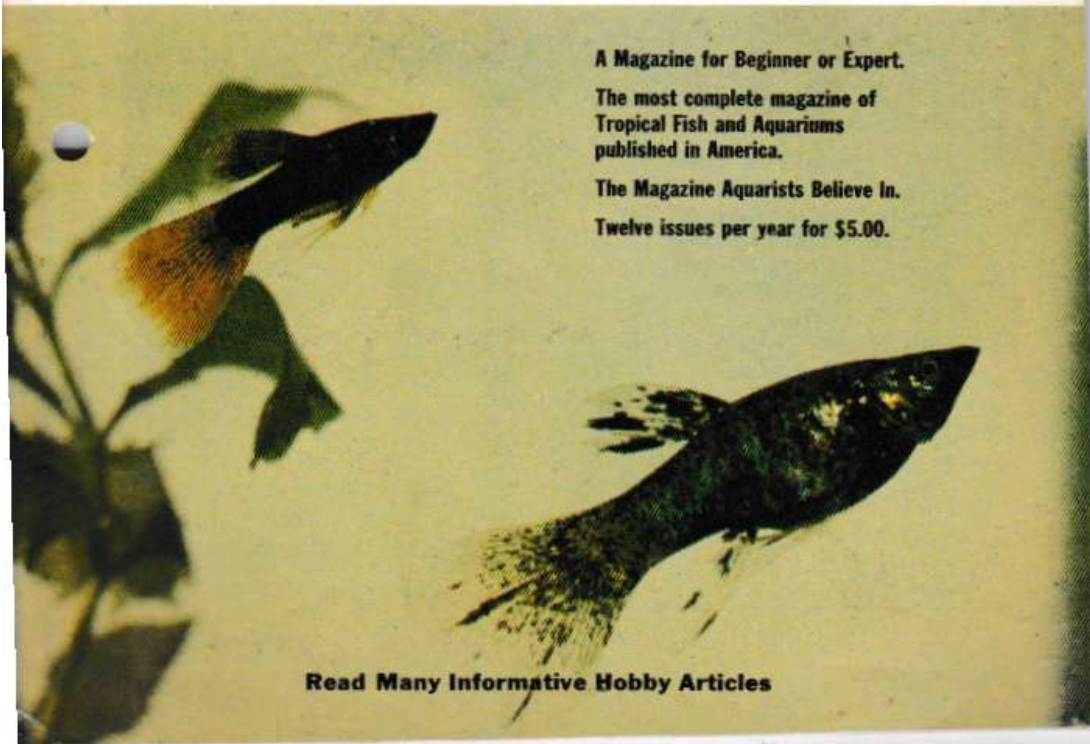
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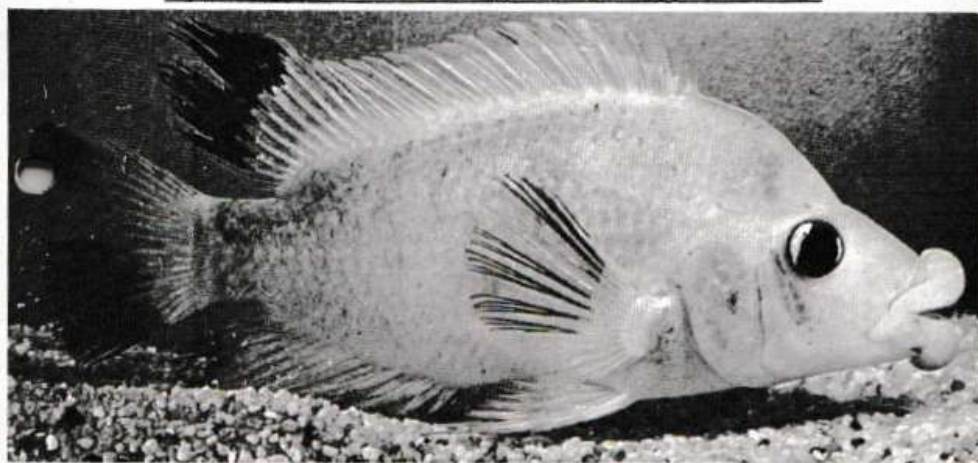
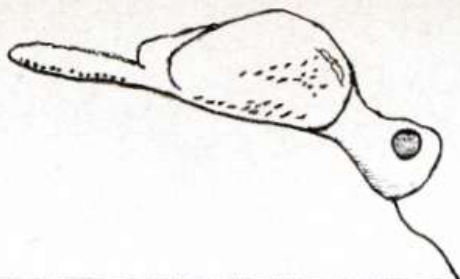
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cover photograph

A pair of veiltail mollies as photographed by California
aquarist, Gene Wolfsheimer, F.A.I. Mr. Wolfsheimer
describes this historic first in an article beginning on
Page 274.





A pair of these colorful cichlids
spawned over 2,000 fry the first time!

● Red Devils Spawned

I SHALL long remember my first sight of this amazing cichlid. We are accustomed to seeing bright colors in tropical fishes, sometimes in spots and splashes of color covering areas of varying sizes and occasionally a solid color over the entire body such as a good red swordtail helleri or a black molly.

Now we have quite a large fish *Cichlasoma labiatum* in a solid hue I can only describe as flamingo, a blend of orange and red — a bold color befitting a bold fish. Flamingo cichlids, or red devils as

Maurice Rakowicz
Hayward, California

they are being called, are in many ways typical of large cichlids.

Photos: One of the new "red devils" from Central America, described in an article by Diane Schofield in the January, 1965 issue of *The Journal*. Photos in article by Mrs. Schofield.

Sketch: (Top) *Cichlasoma labiatum* at the age of 74 hours showing fry attached to aquarium wall by egg thread. Parents move young from place to place. The adhesive thread anchors them wherever they are placed. Sketch by the author.



The first red devils appeared on the market in New York City last year and they brought the highest price asked for a tropical fish for some time. It is amazing to me that this fish has only recently been imported for the tropical fish trade for they were described by Gunther in the year 1864. It now appears that they will be with us for years to come for, though they seemed difficult to spawn at first, like many other new importations once their requirements are known they spawn quite readily.

I obtained my red devils through the kindness of Mr. and Mrs. Bill Sternke of Miami. The pair of fish were shipped by air in a standard styrofoam fish shipping box to San Francisco. I was both distressed and amazed when they arrived, — distressed at the sight of these two large, beautiful fish in such a small box and amazed that they were still alive for the weight of the fish almost equalled the weight of the water they were shipped in. This was my first evi-

dence that the fish were most durable.

These were obviously wild fish for they showed the scars and bruises of recent netting and rough handling. The fish were placed in a 50-gallon tank for observation. The second day both fish were covered with ick and treatment was provided immediately. After four days of medication no sign of ick remained and the fish were given a 50-gallon tank apiece due to the fact that the male was bullying the female.

During all of this trying period the fish remained brightly colored in spite of the fact they had not eaten for a week, had survived a severe ick infection, rough handling and a trip across country with the necessary water changes, etc. Here was certainly a fish deserving admiration.

Now that the emergency seemed to be over, my attention turned to their further well-being, the first item being food.

Photo: Typical lake country in Central America where conceivably the "red devils" can be found.

Such a large fish (5 in. female and 7 in male) suggested earth worms for their first snack, or at least something of that size. Earthworms were soon provided and I must confess I was disappointed for they acted much as if they had never seen such a creature and, though they were curious and came to within two inches of the worms to look at them, they were most cautious and soon retreated – never venturing a taste.

Adult live brine shrimp were offered and they were accepted with suspicion. The female, being first to try them, appeared a bit ridiculous as she chewed each brine shrimp before swallowing.

Many foods followed – minced clams, beef heart, chopped oysters, chopped earthworms, etc. Then an assortment of aquatic plants were offered. Most of the above mentioned items they ate most sparingly.

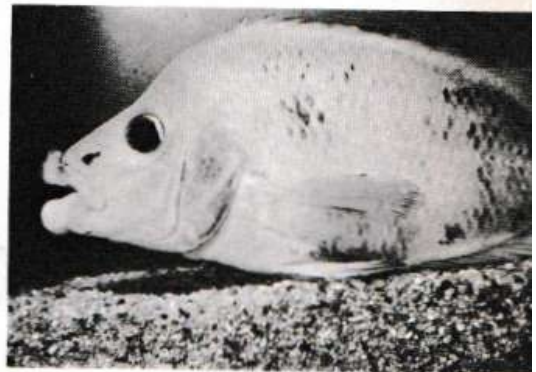
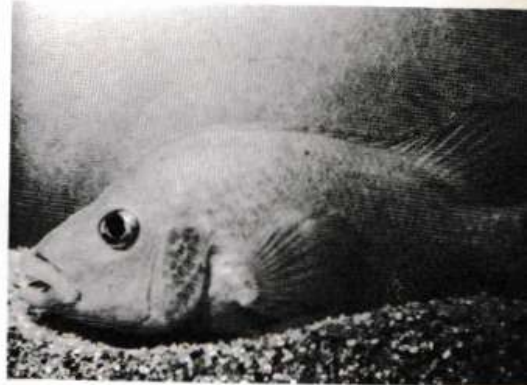
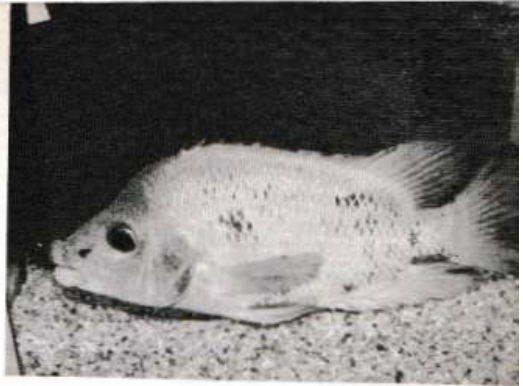
All of these trial feedings were followed by a siphoning of the aquarium for the fish at best only sampled my offerings.

In an effort to avoid pollution, I gathered about two dozen Ramshorn Snails to place in the tanks to help clean up some of the uneaten goodies I had been offering my pets. I dropped the snails in the aquarium and discovered snails were their filet mignon. They ate them with all the enthusiasm I could ask for. Here was a food they certainly knew about for they would take the snail into their mouth, give a couple of chews and blow out a shower of cracked snail shells, and then repeat the operation faster than I can relate the sequence.

My pets soon showed the benefits of eating regularly and my many aquariums soon became free of snails. Fortunately I have large outdoor heated pools containing an abundance of snails. After two weeks on their new diet I placed the two fish together in a 150-gallon

Photos: These four photographs of different fish show the great amount of variation from one to another, yet with points of similarity in common to all.

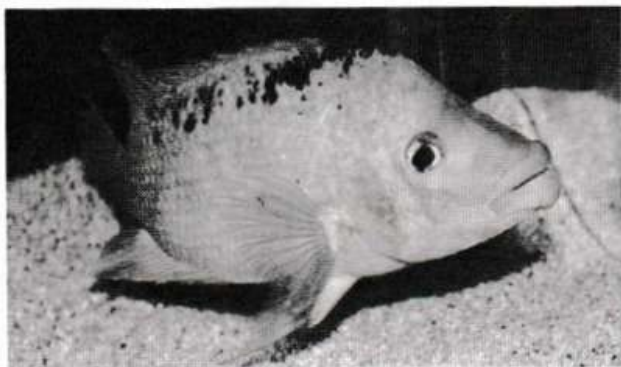
JUNE, 1965



glass aquarium with king-size flower pots, large stones and other housekeeping items cichlids are supposed to admire.

The male entered into the spirit of housekeeping by taking on a strange

fresh water, two large outside filters were then installed, flower pots and rock took their places and the tank water was crystal clear—pH 7.2, Hardness 20 grains. This was all I could do and I then placed the handsome couple in



silver cast over his normal orange color, giving him a metallic appearance. He busied himself moving huge quantities of sand from place to place but his loved one proved too shy and his patience too short for on the second day his affection turned to wrath and only my interference prevented her destruction.

The two fishes were returned to their respective tanks and the female was medicated for her minor wounds which developed fungus. She soon recovered and the feeding schedule was resumed. Knowing that some day I might run out of snails, other foods were frequently offered.

Like so many large cichlids, these are quite quarrelsome among themselves. However, they do surprisingly well in a large tank of mixed company.

After two months of resting and conditioning, both fish began taking reasonable amounts of ground beef heart, brine shrimp and a few snails for dessert. Now seemed the time to test their compatibility once again. So the 150-gallon tank was carefully cleaned and filled with

their newly-furnished home.

This time both fishes looked better. Their color was excellent, their bodies well fed and they appeared alert. Together they spent the day examining their new world and took their food together at meal times.

The following day housekeeping (cichlid style) was in progress in earnest. The aquarium contained 150 pounds of six-mesh sand, smoothly pre-arranged but now being excavated into pits that reached the bottom of the aquarium. (The furniture was definitely being moved.) Rocks were undermined, flower pots were tipped. The activity was a sight to behold.

This continued for three days and my hopes rose at the sight of the female displaying an ovipositor tube. The male, when not digging a new hole in the sand, sailed alongside of the female in spawning splendor, displaying his strange silver orange color, his fins all extended. At this time the female was

Photo: One of the new red devils, *Cichlasoma erythraeum*, showing the large lips.

brighter than the male, the orange red color evenly spread over her entire body.

On the morning of the fourth day, on entering the fish room, the male rushed the length of the tank toward me as if to attack. I could see the female at the opposite side of the aquarium fanning eggs deposited on a large rough stone. I had to restrain my pleasure for now I chafed the cichlid problem:

Should I remove the male?

Should I remove both parents?

Should I remove the stone and eggs — or

I could leave them alone.

The dangers of leaving them alone are many. While it is a beautiful sight to see a pair of large cichlids raising their

pump. No medication was used. I do not understand how it works, but I do not have an egg fungus problem when using this filter. After 72 hours the eggs hatched. The young were still attached to the stone by the egg thread and they were most actively thrashing. It was an additional three days before the small fry were free swimming and on the seventh day from spawning the fry were taking newly-hatched brine shrimp.

During their first week of free swimming I found the youngsters would gather into a compact ball in the evening. Suspecting something wrong, I disturbed this tight ball of fish several times only to find them reform immediately. The size of the ball and density of the group caused me concern for I



family, it is also a most depressing sight to see them devour their eggs or young. Because I knew they were wild fishes and this was their first family under foreign conditions, I chose to remove the male immediately and to remove the stone containing the eggs after 24 hours.

The eggs were placed in a 35-gallon tank with no sand, plants or ornaments, just a Douglas filter operated by a water

feared those in the center must surely suffocate. Morning found them schooling in a large, orderly group looking most healthy.

The first two weeks after hatching, nine fishes died. No additional losses occurred and an estimate of the number of fry gave me an amazing total of over

Photo: A typical body of water in Central America where the red devils are probably found.

2,000. A later actual count by transfer to seven 50-gallon aquariums revealed there were 2,536 fishes. Taking into account the few eggs that did not develop and the loss of nine young, one can conclude that 2,550 eggs were spawned. I have raised many fishes of the cichlid family but this is by far the largest spawning I have observed.

During their first two weeks of life I hatched 15 oz. of brine shrimp eggs to feed them. Their growth was most rapid and at this writing, eight weeks after spawning, they require ten 50-gallon tanks and twelve 35-gallon tanks to house them. The youngsters at this age are 1½" long and their orange color is evident in their dorsal and anal fins.

I expect the tank-raised fish to mature at about one-half the size of their wild parents as is normal for newly-imported cichlids. The tank-raised youngsters, unlike their parents, eat most anything offered including dry food, frozen brine shrimp, Daphnia, Tubifex, etc. This should make them a most attractive addition to anyone's cichlid collection and they will not demand the very large aquariums required to keep their large parents. ◀

CLUB NEWS

The Duluth Aquarium Society

The D. A. S. held its Annual Auction April 23, 1965, according to Robert Gellatly, Auction Chairman. Money realized from this effort is used to support the society, with the hope of expanding the tropical fish hobby, Mr. Gellatly said.

• • •

Greater Pittsburgh Aquarium Society, Inc.

There was a panel discussion at the March meeting of the G. P. A. S. with a discussion of fish spawning in the late spring, according to Henry Marzina, secretary of the group.

★ IDEAS ★

BY HOBBYISTS

The Journal will pay \$5.00 for original ideas published. Keep less than 200 words. Send your idea today!

Self-Cleansing Microworms

Lots of hobbyists have given up trying to continue cultures of microworms due to the inability of collecting them for feeding to their baby fishes and to the fact that drowned microworms tend to foul the culture quickly. To avoid this condition I have developed and have been using a method which permits easy collecting of microworms at any time and the culture may be maintained for a much greater period than any other method now in use. I use a conventional refrigerator tray either plastic or glass. A bag is made from very fine mesh nylon cloth to fit inside of the tray so that when filled with culture medium a slightly rounded smooth surface is presented. The culture medium I use consists of a mixture of quick oats and about one teaspoonful of dry yeast. This is put into the bag dry and laid in the tray. Enough water is poured in to assure complete wetting of the culture and to permit the bag to stand well above the water level in the tray. Keeping the bag from being covered with water is the principal feature of this arrangement. The fresh start of microworms taken from another culture is placed on top of the damp culture bag and will suffice to start the fresh culture which should be ready for use in less than a week. The microworms tend to stay on the surface of the bag and can go in and out as desired for food. When collecting them for feeding a celluloid card or similar material may be used to scrape the microworms from the exposed surface of the bag. These are then placed in a glass of water and given a
(Continued on Page 285)



There's nothing like a deadly-poison snake to slow down a jungle safari!

Bushmaster Boulevard

PART VI

THERE WERE three logging roads that led to the Pachitea River and the next day, we selected the east one for our first serious exploration. Zeke, Jim, Jerry and I, each carrying fishing and/or photographic equipment, started out along the dirt patch. At the outskirts of Tournavista we passed the missionary school and could hear the singing of the children within. Now we were in the jungle. Some of the trees had been rolled down by the tremendous "tree roller" of the Le Tourneau Company, leaving isolated specimens standing

Albert J. Klee

West Chester, Ohio

naked against the surrounding swamps and jungle brush. We were particularly impressed by their great size and by the extensive vine system that lived in symbiosis with them. Jerry and Zeke could not resist taking a vine and sailing across a clearing, Tarzan-like. The consensus was, however, that neither would ever replace Lex Barker unless the Tar-

Photo: The second most dangerous snake in the world—the legendary bushmaster. Photos in article by the author.

zan role was re-written to cast him as wearing a beard or weighing about 120 pounds. As for the part of Tarzan's faithful companion, Cheetah, that was another matter but in deference to my companions, I will not comment further.

Much to our surprise, the jungle was not a riot of noise. We had expected to hear the chattering of monkeys and the whistling of tropical birds, but the sounds of the jungle were muted. Of course, I write this as a married man with three young children so perhaps a good deal of the jungle noise was automatically filtered out of my ears. Be that as it may, we discovered several pools of water by the side of the road. At one point a brisk stream was flowing vigorously over the road as a consequence of a previous rain. It was not deep over the road so we were not stopped by it. The pools at both sides looked inviting and we stopped to fish.

All of these pools had thick, mud bottoms but their outstanding characteristic was their color. The water, although clear, was of a strong, tea-color. The largest of the pools was approximately 15' x 20' but much to our surprise, it was over our heads in its middle. Consequently, the seine was all but useless. We did manage, however, to bring up some specimens of characins, viz., hatchet fishes and *Pyrrhulina*. The latter had deep-crimson fins . . . a truly beautiful fish. The stream that fed this particular pool led into the jungles and we elected to follow it. This was easier said than done, however, because either the ground was swampy, or more often the case, covered with thick brush that we feared harbored jungle creatures we did not care to step on in just our sneakers. Fortunately we found several downed tree trunks and used them as bridges.

Photos: (Top) The author, exploring the natural habitat of hatchet fishes and *Pyrrhulina*. (2nd) Zeke handling a vine snake, a rear-fanged, milky venomous reptile which just "dropped in" on us! (3rd) A helping hand to Jon Krause by Win Rayburn, with Jim Thomerson as onlooker. (4th) A road inundated by a flash rain—a habitat of *Spinogramma boreali*, *Hoplosternum*, *Erythrinus* and *Hoplias*.

JUNE, 1965





These tree trunks were covered with sharp thorns approximately the length of the thickness of our sneakers. One had to be careful to tread carefully to avoid a genuine Peruvian "hotfoot"!

We followed the tree bridges as far as they could take us, and then Jim, Zeke and I prepared to enter the water. Again, it was quite deep and we found no accessible area that was not at least up to our shoulders. Combine this with underwater hazards such as submerged logs, trees and branches . . . most covered with thorns at that . . . and one can realize that it was not the easiest thing in the world to collect fish under these circumstances. The brush harbored snakes, the water concealed leeches and we weren't about to linger in such surroundings! It was back to the road once again, to explore the pools on the other side. Here, only hand nets could be used but we were delighted

with our catch which included *Hoplosternum thoracatum*, *Hoplias malabaricus*, *Apistogramma borellii*, a knife fish or two, several small characins and a few specimens of *Erythrinus erythrinus*. The cichlid was of special interest to us. Our *A. borellii* favored the edges of this very small pool, underneath overhanging vegetation. By jamming in a hand net, one or two specimens at a time could be caught. This was hard on the nets, and although they were made of plastic screening, they lasted but a day or two. Fortunately, we had spares. *Apistogramma borellii* is one of two dwarf cichlids known to the hobby for many years as "*Apistogramma U-2*" (the other is *A. klei*). Jim and I brought these cichlids back to the States with us and we were both fortunate in being able to spawn them. They are easy breeders, quite prolific and a handsome-looking fish in the bargain.

As mentioned, the *Apistogramma* was found in vegetative debris near the banks (there being no vegetation in the water itself). The hatchet fishes and *Pyrrhulina*, however, were found in the middle of the pool (where it was quite deep) near the surface where the current was negligible. When the pool necked down to form a small stream, it invariably became shallow (1 to 2 feet) but the current increased tremendously. Here no hatchet fish were found but a few hardy *Pyrrhulina* did brave these miniature "rapids." More characteristically present were specimens of *Hoplosternum*. These catfish hugged the muddy bottom of this fast-flowing area and sometimes were accompanied by the predacious characins, *Hoplias* and *Erythrinus*. Actually, *Hoplias* was omnipresent throughout our travels although in isolated specimens only. Near the banks along with *Apistogramma borellii* but in a bit deeper water, were also isolated knifefishes of

Photo: Zeke, with his hands full of bushmaster, as photographed by the author.

the genus *Gymnotus*. A complete water analysis will be given in the final installment of this series but generally, the water was very soft, moderately acid and quite low in dissolved oxygen. This last-named characteristic contrasted vividly with the high oxygen analyses found in the fast-flowing stream over gravel that was described previously (i.e., the *Rivulus peruanus* habitat). The reason was obvious . . . the high organic content of the latest find simply consumed a great proportion of the dissolved oxygen.

At the end of the day, we had collected many interesting fishes and were ready for a good meal back at Tournavista. The fish were placed into a large polyfoam container, and each of us taking a handle, Jerry and I led the way back to camp. Jim and Zeke followed with the collecting equipment. Dusk arrives swiftly in the tropics and the transition from night to day can take but 30 minutes. So it was as we made our way home. Jerry and I were hap-

pily discussing the day's activities when suddenly, Jerry stopped! This, of course, pulled me up short since I was attached to the other side of the container we were carrying. "What goes?" I said. "There's a snake!" he shouted. Sure enough, not more than four steps in front of me lay what I thought was a small log across the road. Suddenly, the "log" raised its head and stared right at me. Many years ago, prior to entering the aquarium hobby, I had been interested in snakes. Through the years, my knowledge of reptiles had deserted me considerably but the sight before me recalled to mind the many reference books I had committed to memory in the past. I was utterly astonished! Before me lay the largest specimen of the legendary bushmaster (*Lachesis mutis*) I had ever seen! The bushmaster is a member of the pit-viper family Crotalidae, which includes our copperhead, moccasin, the fer-de-lance and rattle-

Photo: The haunt of the rosy tetra. Collectors Zeke, Win and Jim deep in the heart of the Peruvian Amazon.



snakes. It is the largest poisonous snake in the South American continent, and considered by many to be the second most dangerous snake in the world (after the king cobra). This snake becomes very large (to 11 or 12 feet) and extremely venomous. It secretes a neurotoxic venom similar to that of the cobra, and coupled with its large fangs and aggressive behavior, is one of the terrors of the snake world.

Jerry and I softly but swiftly put down our container of fishes and retreated a few yards. Since the snake was making no overtures towards us other than just looking, we tried to avoid any motions that would either cause the snake to attack or to retreat. We both knew the risk we were taking but that snake was valuable and we knew it. As carefully as I could, I dashed back to get Zeke, who was carrying the snake equipment. As soon as I cried "bushmaster!" Zeke threw off all of his equipment and grabbing his aluminum snake clamps, ran to the snake. Jerry, Jim and I then witnessed a fantastic battle. Zeke, who was barefoot (!), clamped the end of the snake stick behind the bushmaster's head (the clamp was quite similar to the old-fashioned grocer's clamp, but much shorter, i.e., about three and a half feet). As soon as this happened, the snake began a violent struggle! It whipped its body around furiously, twisting and turning. Zeke was hard-pressed to keep his bare feet out of the way. Several

times the bushmaster twisted out of the clamps and struck, but it missed and Zeke managed to obtain a new hold each time.

The battle exhausted both Zeke and the snake. Jim ran back to camp to fetch some help, as we carried nothing large enough to contain the snake. In 20 minutes, he arrived back on the scene with a truck and some men. It took this long and longer, to subdue the bushmaster! Using a burlap bag, Zeke managed to cage the animal finally. In triumph, we all returned to Tournavista. Only after dinner when we had time to discuss the incident and to christen the road, "Bushmaster Boulevard," did we realize its full import. Although we carried antitoxin with us (for rattlesnakes, fer-de-lance, etc), there is no known completely successful antitoxin for bushmaster venom. A few days before, I had asked one of the missionaries about snake bites in the area. He said that bushmasters were rare but upon occasion they did bite somebody. When the snakes were small, say under 3 feet, his experience was that the mortality rate, even if the leg were amputated and antitoxin used, was about 50%. Looking at our almost 8-foot long specimen, I asked him what he thought the chance would be with one that size. He shrugged his shoulders and made a circle with his thumb and forefinger. I shuddered to think that when Jerry stopped me, I was just four steps from almost certain death. Deo gratias!

(To Be Continued)

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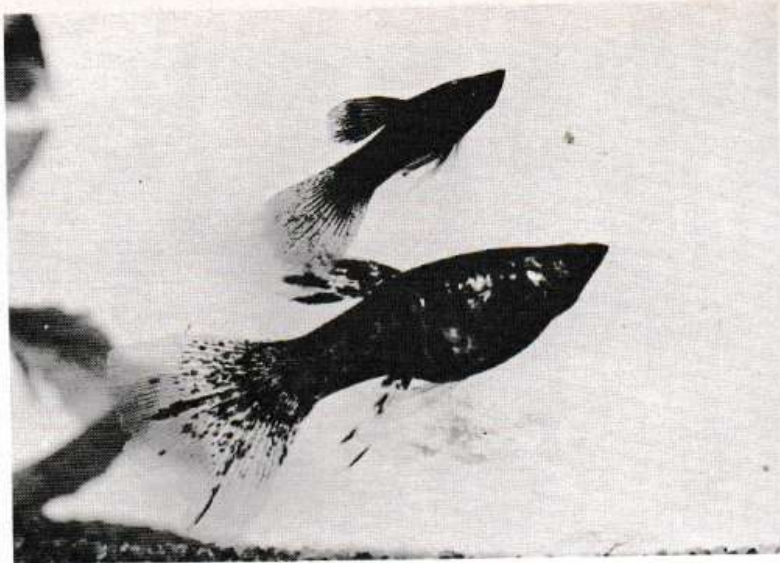
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CLUB NEWS

The Fireside Aquarium Society, Inc.

The F.A.S. is holding their 13th Annual Show June 5 and 6 at the L. G. Nourse Elementary School in Norton, Mass., according to Joan Gallini, Secretary.



California aquarist describes an historic first
in the tropical fish world — veiltail mollies!

Latest in Mollies

(See Cover Photo)

FROM TIME TO TIME the opportunity arises whereby I can report on some new species or new strain of fish. For example, the November, 1960 issue of this magazine reported my coverage of the then, new Simpson high-finned swordtail. This beautiful long-dorsaled fish has since graduated to become a tremendously diversified strain, thanks to careful line-breeding. They can be found in every color variation known to the swordtail, *Xiphophorus helleri*, even a Simpson high-finned albino. A step further has also created the *Xiphophorus variatus*, high-finned fishes that are now becoming so popular.

The most recently reported oviparous species was a new acara-like fish, still

Gene Wolfsheimer, F.A.I.

Sherman Oaks, California

not identified but quite probably of the *Aequidens* genus. I gave this cichlid the totally unoriginal, yet identifiable name of "green acara." Its picture appeared on the cover of this magazine August, 1964. Since I found all of its habits identical to that of its apparently close relative, *Aequidens latifrons*, the blue acara, no text space was given it.

Once again an exciting new strain of fish has been called to my attention. This time quite worthy of historical and descriptive text, fancy *veiltail mollies*.

Photo: A pair of the fabled veiltail mollies, as photographed by the author.

It sounded pretty hard to believe when I received a call from the Lambourne Bros. Hatchery in nearby Sylmar, California. As with my own base in Sherman Oaks, Sylmar is in the San Fernando Valley which in turn is a part of Los Angeles, well-known to be a very sprawling metropolis.

The brothers, Rupe and Laurie Lambourne are twins and I'm never sure just which one I'm talking to on the telephone. I was told that a friend of theirs who raises tropical fish on a desert fish farm had somehow managed to start a strain of long-tailed mollies. It sounded hard to believe but I've long since given up disclaiming anything concerning fish. This happened shortly after my albino *Betta* appeared.

Since their friend from the desert visited them intermittently, an appointment was set up for us to meet. The friend was to bring some of his special mollies and I my cameras.

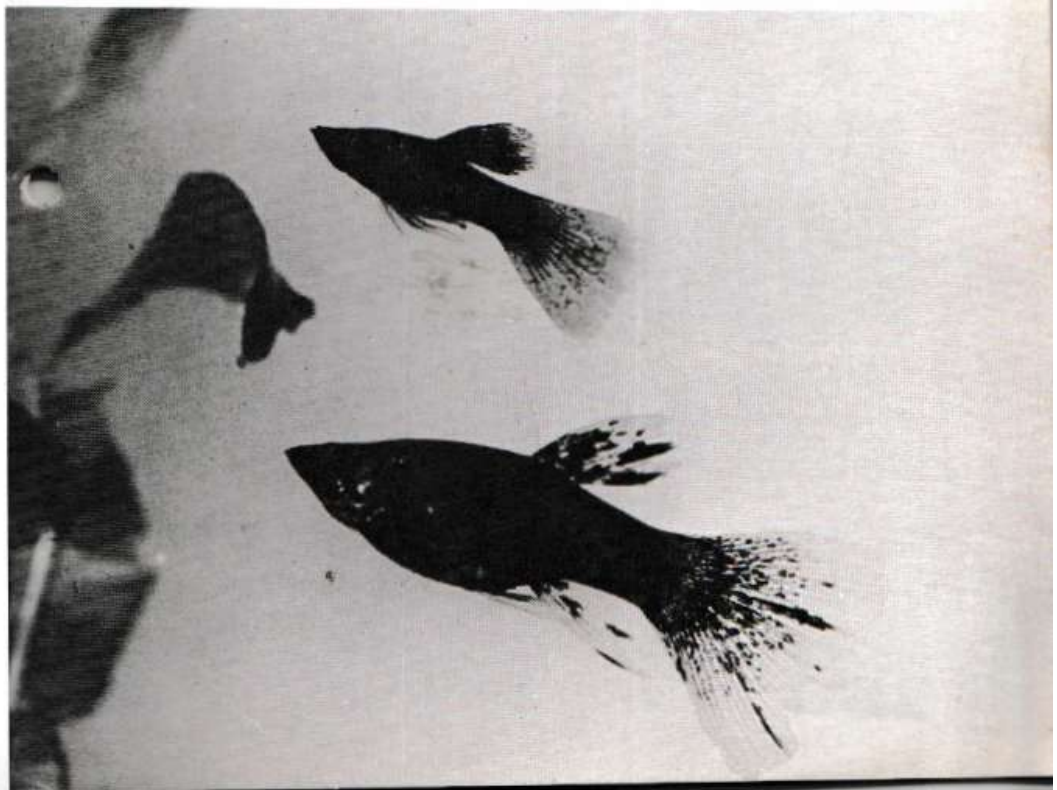
About two weeks later I drove over to the Lambourne Hatchery to meet

Jack Wood of Thermal, California. Thermal, located in the desert about 65 miles from Palm Springs, is often reported as the hottest spot in the nation during certain summer days of the year. Two minutes after the meeting I viewed my first veiltail mollies. Oh, there was no doubt, I thought, these new fish would also create quite a sensation, just as the Simpson high-fins and the lyre-tailed mollies.

Jack Wood is a quiet-spoken man of my own age. He's no newcomer to fish raising. On his 40-acre fish farm is a warm water spring gushing at 80 degrees F. night and day. The water flows through a series of outside concrete pools measuring 10 x 25 feet. Besides mollies, he specializes in swordtails, platies, guppies and dwarf gourami.

Answering my questions, Jack told me information concerning his new molly strain. One day Jack noticed a black female *Mollienesia sphenops* that had a

Photo: Another view of the marbled pair of veiltail mollies, the new strain described by the author.





slight semblance of a veiltail. After isolating this fish Jack kept searching for a mate that might, through cross-breeding, produce something unusual. He eventually found a marbled (black and white) *sphenops* male that had exceptionally long ventral fins. The mating was achieved and the first dropping of young produced the veiltail offspring. These appeared both as the all black and the marbled strains.

The females pictured are about 3½ inches in length and are average sized breeders. Although the specimens shown in the black strain appear as all black fish, the edging on the tails are a lemon yellow and make them extremely attractive. The marbled strain is also a strikingly beautiful fish. The male's tail is bright yellow as is part of its dorsal. The black marbling of the female does speckle the greyish-white background that is her basic body coloration but across it all is a brilliant blue sheen. Both strains are spectacular.

The outstanding feature of this strain is, of course, the tail. Of the two strains

I viewed, I felt the black fish had slightly better tails. They were so surprisingly developed that it was an easy comparison to relate to the huge-tailed guppies that are presently extremely popular and constantly being shown. The marbled male's tail was slightly less developed but the coloration of the pair certainly made up for this. My descriptions and judgments must be made with certain reservations since the specimens being represented that day at the Lambourne Hatchery were limited. The best fish, according to their owner and breeder, Jack Wood, still reside in their home pools in Thermal.

According to their breeder, the fish receive no special treatment with either water or food. Their water is "rather hard with a pH of 7.8-8.0." Feeding primarily consists of trout chow and frozen daphnia.

When will these beauties be available? Probably within a few months of publication of this story. Watch for advertising concerning this. ◀

Photo: A pair of black veiltail mollies as photographed by the author.



RECENTLY there came into this world of aquarists a fledgling magazine, unique because it is acclaimed as "The Magazine for Marine Aquarists." "Salt Water Aquarium" is admittedly published solely for this purpose by one of the best known commercial marine aquarists, Robert P. L. Straughan.

Now Mr. Straughan has been around a

FINNY FOLKS

By Diane Schofield

lot—the "around" referring to under the sea. He has been diving since the age of 10, and for over 11 years now he has been a marine collector. During this time, he has spent more than 30,000 hours under the sea. This amount of hours is admittedly enough to make even a strong man a little soggy. At least there should be some sort of compensation, but Mr. Straughan admits rather sadly, "In all of that time I have never even seen a real mermaid." Second best was an old Spanish galleon, about which he wrote a book which will come out in the fall of 1965.

Mr. Straughan is no neophyte in the world of marine publications. In 1959 his book, "The Salt-water Aquarium in the Home" came out and it is one of the best books ever written on the subject. I have personally had it within handy reaching distance on my own book shelf from its time of issue . . . all the better to be able to draw upon Mr. Straughan's accumulated store of salty knowledge.

"Salt Water Aquarium" will be published bi-monthly and although small in size, is literally bulging its staples with the cream of marine keeping facts. Not only are there a wide assortment of articles, but there are also in each issue sev-

Photos: (Top) Dolores Bialk presenting Roger Conklin with an honorary membership in the Milwaukee Aquarium Society. (2nd) Mitchell Park Pavilion where Mr. Conklin addressed the group. (3rd) In the Bialk's home, l. to r., Joe Bialk, Roger Conklin and Elliott Gillen. (4th) Mr. Conklin is shown addressing the Milwaukee group.

AQUARIUM JOURNAL

eral "Tips for the Month." A recent one advises, "If you have many salt water fishes, it is wise to use a double air pump set-up, with duplicated air stones in each tank. Most salt water fish won't survive overnight without air, especially if the fish are large or crowded. If a pump goes off or you forget to return an air stone to a tank, you could lose a lot of expensive fishes but with a double set up, the risk is greatly reduced." A second one opens up a new field of thought in regard to salt water fish disease, "Live adult brine shrimp give indications that they carry salt water ich as well as oodinium and other parasitic infestations. If your tank becomes infested periodically, perhaps the brine shrimp are causing it."

Another regular feature is a monthly saltwater quiz entitled "True or Fishy?" on which the reader grades himself before presumably peeking on the next page to find the correct answer. The legend goes, "Allow 20% for each question answered correctly. 100%, super; 80%, good; 60%, fair; 40%, sad; 20%, real sad; 0%, go back to Guppies!"

But if you want to progress steadily

ever upward from such a guppy-fate, send \$2.50 for a year's subscription to "Salt Water Aquarium," P. O. Box 2214, Miami (AMF BR.), Florida 33159.

Recently I was most flattered and at the same time perturbed to receive an invitation from Mr. Straughan when he discovered that I was to be in Miami. He invited me to go out on one of his collection trips. Little did he know that I panic at water when it reaches a height higher than the bubbles in my bath tub. I do have one excellent talent, however, if I do say so myself. I wade rather well.

And now we progress on to Milwaukee, Wisconsin, without ever really leaving Miami, Florida, which may seem a rather neat trick any old way that you look at it. The person who makes this possible is Roger Conklin of the Miami Seaquarium.

Recently Mr. Conklin appeared on live TV programs in the Land of Blatz, Schlitz and Budweiser while making TV tapes for sixteen programs on the four commercial stations in the Milwaukee

Photo: Tiger shark jaw frames Lynn Watkins, 10, while brother Derek, 5, looks in awe. Photos by the author.



area. In addition he also made four 8 minute and one 30 minute program for WMVS-TV, the Milwaukee educational TV station. Taking advantage of the appearance of such a stellar salt-water figure, the Milwaukee Aquarium Society had him as a speaker. A four hour speaker, as a matter of fact. While this may seem a bit much on the surface, if you

Mr. Conklin figured in one of the oddest coincidents of my life. When visiting the Seaquarium, I was escorted around by a member of their public relations staff, Miss Anita Reece. After leaving Florida I romped in and around the islands of the Caribbean until I reached a particularly isolated and lush waterfall outside of Ocho Rios, Jamaica. In this



draw a parallel with other speakers, with Mr. Conklin the time must have shot by with the speed of a greased dolphin for the 200 people in attendance. You see, I know this jolly, knowledgeable man and know with what interest he infests his audiences.

During his sojourn in the "Beer City," Conklin was the guest in the home of Joe and Dolores Bialk, the program chairman of the Milwaukee Aquarium Society. During this gathering, the board members and their wives were able to meet personally and to talk with this Dignitary of Dolphins.

spot, where you would only expect the call of a strange exotic jungle bird, all of a sudden I heard somebody call my name! Thinking that this was pretty astute of those strange exotic jungle birds, I looked admiringly around. There were Anita Reece and Roger Conklin . . . on their honeymoon!

The Milwaukee Aquarium Society is an especially live-wire group, which doesn't seem to be particularly safe when you consider all of the water that they fiddle around with in their tanks. I met a great

Photo: Mr. Conklin showing Mark Watkins, 12, the teeth in a Barracuda skull. Photo by author.

many of this group personally when they hosted the 1963 TIFAS convention and rashly invited me to be an illogical speaker for this event.

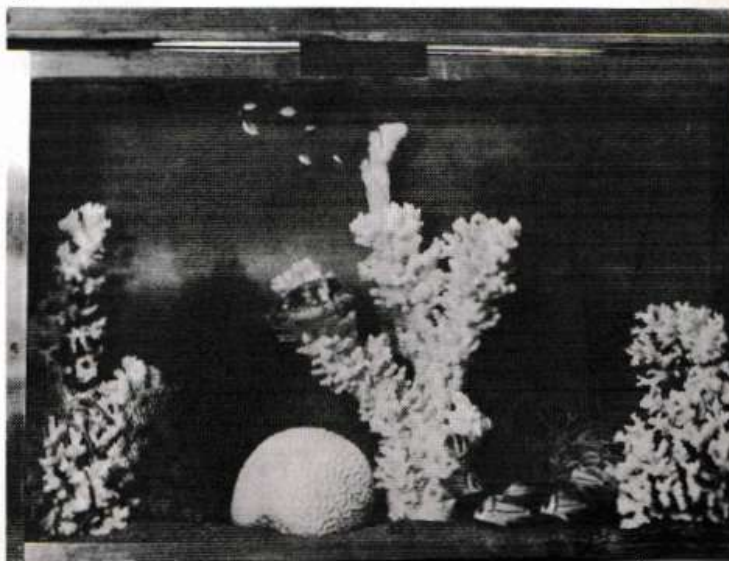
At this gathering, I also met Fred Pieroni—a man that I consider to be one of the sharpest and cleverest M.C.'s that I have ever encountered. Mr. Pieroni, a Life Member of the Milwaukee Aquarium Society, also recently served as the Master of Ceremonies at the Fourth Annual Dinner of this group—an occasion during which William Dickenson of the Milwaukee Public Museum spoke and showed a film on big game fishing near New Zealand. It was during this dinner that the new officers were sworn in and charged with their duties for the coming year. These new officers are Clyde Stauffer, President; David Horn, Vice President; Rose Mary Westfahl, Secretary; George Farquhar, Treasurer; Russ Westfahl, Sergeant-at-Arms, and Otto Voelker, who was elected to a second year as Chairman of the Board.

Otto Voelker's hands don't hold the reins of the Chairman of the Board alone. He also has those marked "Editor of 'The Splash'" firmly in his grasp too. "The Splash" is, of course, the ambitious bulletin of the Milwaukee Aquarium Society. In this publication, Mr. Voelker whips out an intensive bulletin review column called, "Fin Findings," as well as other

(Continued on Page 299)



Photos: (Top) Robert P. L. Straughan sporting a typical Straughan smile for the camera. **(2nd)** Trophy winners of the Norwalk Aquarium Society. L. to r., (seated) Ginny Reed, Lorrie Braccio; (standing)—Paul Kennedy, Bob Havestein and John Flanagan. **(3rd)** A well set-up marine aquarium by Mr. Straughan.



JUNE, 1965

IN JULY, 1964, I acquired a vivid pair of spotted scats the size of a quarter. Five months later, in December, after heavy feedings of boiled lettuce, tubifex worms, and frozen brine shrimp (and an occasional Amazon sword or giant sagittaria plant foolishly put in with them) and plenty of room to spread their fins in a 50 gallon tank, they had grown to a healthy looking fat 5½ inches in length.

I was quite proud of them. In all of

head on the reflector. After two days of this, he began coming to rest, after his mad dashes, completely, helplessly upside down in a dark corner of his wet home. He would stay very quiet, and upside down for 10 or 15 minutes at a time. After a brief respite, he would again be swimming normally. For three days, as I bit my nails to the nub, neglected my other wet pets, and hushed my children, this scat dashed, leaped,

When your scats get older it's a wise idea
to add some salt to their aquarium water

Scatophagus argus

my reference books, it was recommended that 1 teaspoon of salt be added to their aquarium water. Since mine were kept with an assortment of huge catfishes, this was impossible for me to do. I didn't have any qualms. Most of my aquarist friends kept their spotted scats in totally fresh water. I followed suit.

When spotted scats are collected from their native water in the East Indies, they are most frequently collected while very young. It is at this stage that the spotted scat is residing in fresh water. When they get older, old enough to migrate, they migrate to marine water.

So — since they are usually collected in fresh water, it is assumed they can be kept in fresh, or only slightly salted water. According to experience, this is sheer fallacy!

If you keep your scats in fresh water—Have you noticed how their color has dulled to a drab brown? Have they been very jumpy, or shy? Have they grown much?

In December one of my scats, kept in all fresh water, began to dash rapidly, madly, back and forth, up and down, and repeatedly hitting his defenseless

Stella Swain Rico

Los Angeles, California

twirled, jumped, flitted, banged his head on the reflector, and always ended upside down in the corner.

By now he had a deep 1-inch gash on his misshapen swollen head, his tender lips were bruised and raw — he was a total wreck.

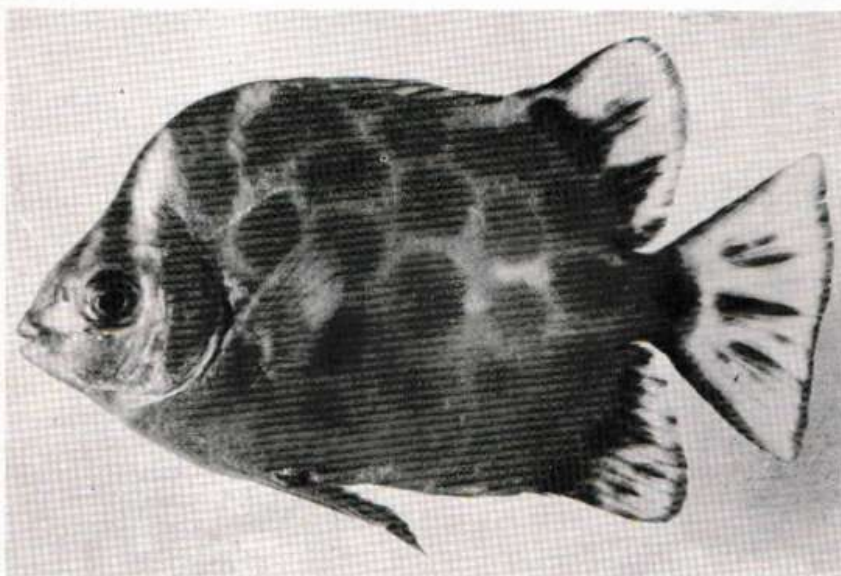
I decided I couldn't/wouldn't be irritable, and helpless watching one of my favorite fish expire. One telephone call solved my mystery. I wisely called Jim Doughty, the owner of J and E Enterprises of Glendale, Calif. He had always given me excellent advice on deeply puzzling mysteries. Most important — he was always right! By now, my precious scat was lying on his side, completely motionless, on the bottom of the tank. I explained my dear scat's puzzling behavior, the fact that there were not any distortions or marks on him, other than where he had hurt himself by banging repeatedly against the reflector.

After only a very slight pause, Jim pa-

tiently explained to me what was probably wrong with my beloved scat. A scat can be kept in fresh water, but eventually, without salt, their internal organs begin "deteriorating." It was his guess that this was my scat's woe. Following Jim's detailed recommendations, I pressed an unused 10 gallon plastic aquarium into service. I put my scats into this, immediately, adding 1 teaspoon of sea salt. Luckily, I had a spare hydrometer to measure the salinity of the water.

wrong with him! But—his sore head was still swollen to twice its normal size, the large gash on his hurting head, and his sore raw mouth had fungused thickly.

Now that he was saved, and active again, though he looked like a wreck, I was happy. Fungus is an easy matter to remedy. I used my old proven standby. I dosed my 10 gallon plastic aquarium with 10 milligrams of Aueromycin. After 24 hours, the swelling on his head began receding, and the fuzzy disgusting fungus



Every two days I added 1 teaspoon of sea salt to the scat's water, until the hydrometer indicated a salt concentration of 1.010. This took a total of 14 teaspoons of sea salt and 28 days. The abrupt change in my scats was miraculous.

My sick scat, still laying on the bottom, managed to pull himself up, and weakly swim, the second day! None of my family could believe that he still lived! He wouldn't die! After one week of slowly adding sea salt, he was swimming as though there had never been anything

began peeling off in one long thick strip, half hanging from his lips. After 2 days, I again put 70 milligrams of Aueromycin in the tank to finish off the tiny bit of fungus remaining. After 24 hours, all fungus was gone, my scat's lovable lips had new flesh on them, the massive swelling on his bruised head was completely gone, and his large gash was healing beautifully. Now—after a full month of living happily in their brackish water, my scats

Photo: Note the dorsal spines laid close down on the back. Scats usually carry their dorsal spines in this manner. Photo by Dr. Stanley Weitzman.

have regained their vivid red, yellow, and golden colors of childhood. My formerly bruised, gashed, and fungused scat does not have even the slightest evidence of his harrowing ordeal. I could hardly believe the spectacular change myself.

So — May I recommend that if you care enough about scats to buy them, care enough to keep them in brackish water (following the procedure of SLOWLY converting them), care enough to give them lots of boiled lettuce, and a variety in their diet.

You will be rewarded, and amazed by their rapid growth, beautiful colors, and healthy, happy state.

(Editor's commentary: I am happy to see that Mrs. Rico was able to save her scat; it's a very satisfying thing to save a treasured pet. I will agree that adult scats probably do better in brackish water than in fresh water. However, I have kept scats in soft, acid fresh water without the benefit of added salt and in perfect health

and color. These scats were fed large quantities of beef liver and the aquatic plant Nitella. In keeping scats I have found that they are easily subject to shock caused by a sudden change in pH and possibly also salinity and hardness. Mrs. Rico did very well to change her pets' water very slowly. There is no real evidence that the trouble with Mrs. Rico's scat was indeed due to a fresh water environment, i.e., lack of salt. I have seen strictly fresh water fishes, especially cichlids, undergo the same kind of problem, sometimes die and sometimes spontaneously recover without any alteration in the fish's water. Some of the symptoms Mrs. Rico describes are that of pH shock, but if a sudden pH change had been the cause, both fishes would have shown the symptoms and the sickness would probably have followed a partial change of water. Because of pH shock, sudden change of water is the tricky part of keeping scats or Monodactylus in fresh water.)

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CLUB NEWS

San Francisco Aquarium Society, Inc.

The next meeting of the S.F.A.S. will take place Thursday June 3, 1965, Steinhart Aquarium, California Academy of Sciences at 8:00 p.m., according to Frank Tufo, President.

Program for the meeting will include Awards of the 1965 Tropical Fish Show and a showing of slides and talk about the Annual S.F.A.S. Picnic/idepool Outing to take place in Bolinas Sunday, June 6.

Trophies and ribbons will be awarded by the 1965 Show Chairman, Joe Zins. Talk on the picnic will be given by Chairman Fred Jenne.

There will not be any Fish of the Month competition for the June meeting, due to the Fish Show Awards, according to Charles Bange, Chairman.

• • •

The Milwaukee Aquarium Society

The 10th Annual Exhibit of the M.A.S. was held May 8 and 9, 1965, at the Mitchell Park Pavilion, Milwaukee, Wisconsin, according to Dolores Bealk, publicity chairman. One of the main attractions was a pair of nurse sharks donated by Roger Conklin of the Miami Seaquarium, displayed in a 100-gallon plexi-glass tank, Miss Bealk said.

IDEAS

(Continued from Page 266)

few minutes to settle to the bottom so that the murky water may be poured off and pure microworms, minus foreign material, can then be fed to your fishes. The sack containing culture may be rinsed off lightly several times and re-used before it is necessary to make a complete culture change.—A. L. Hayley, Anchorage, Kentucky

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OF SANTA BARBARA

A STRAIN is a group of animals (or plants) having a common lineage but not distinguishing characters sufficient to constitute a breed. A breed is a group, developed and controlled by man through selection, having distinctive characteristics as in shape or color. These are terms to remember. Technically, a strain of guppies is a group with similar assortments of genes or chromo-

The young which result from crossbreeding are known as F1 or the first filial generation. Some of the routes to experiment with may be as follows: 1. Cross two outstandingly different strains accepting the female as probably completely different and coming from a different group of fish. 2. Cross two "line" strains (outbreeding) in which there has been little or no recent crossbreeding.

**Amateurs are equal to professionals when
creating new varieties — luck plays a part**

Atomic Age Guppies

somes in a fairly definite arrangement. By using strains of guppies already developed by others, one gets a head start. Several guppy generations of time will have been saved because the best of the best have already been selected unless the ideal is not shown by any of these strains. If one does select from a strain already available, he is probably approaching the very apex of perfection. Obviously one must be familiar with guppies enough so that he can recognize good or bad qualities if at all possible. Attractiveness, color, pattern, size, shape, and even vigor and adaptability sometimes can be seen but what about resistance to disease or ability to rear large families? These, then, are things to look for.

In 1928, a Czech zoologist by the name of Otaka Stepanek, first described very accurately the mating of guppies which was later described in more detail by Dr. Myron Gordon and others so that this phase of the subject will be eliminated. The reader should avail himself of this literature if at all possible and, at least, expose himself to it. Certainly he should recognize the courtship and mating behavior of guppies when it takes place.

Charles O. Masters

Walhonding, Ohio

Sensational guppies may be produced but may not breed true. 3. Cross males and females in an F1 generation (inbreeding) so as to realize the full potential of the desirable trait. 4. Backcross to the original strain (inbreeding) in order to re-establish an original, good characteristic. The guppy stands this repetitive inbreeding exceptionally well. These resulting "hybrids" may then be used in many ways so that this may well be only the beginning. These are breeding stock which no one else has. The potential from here could be extremely exciting.

Some of these systems used by outstanding breeders very often result in the production of gene arrangements which are undesirable, producing misfits of little value and which must be disposed of. The breeder must look for these signs of "retrogression" (or better, degeneration) and act accordingly. On the other hand, males have been produced with good points such as long tails and large dorsal fins so well devel-

oped that they actually interfere with its abilities to fertilize the female. Here it must be kept in mind that a single male in good condition can fertilize a very large number of females so it is only necessary to keep one of the desirables on hand to develop the strain most wanted. [Editor's note: Better keep more than one, in case of premature death of that "best" male.]

By crossing two very widely separated breeding lines, it is possible to produce young which can survive very adverse living conditions as every good pig farmer knows, but sometimes sterility results. Chemicals such as colchicine (not a hormone) may be effective in restoring fertility to the resultant sterile hybrids but not too much is known about its use.

Pure lines are those which breed true with respect to a certain character or number of characters so it is possible that they may well be impure with respect to other characters. Pure-line guppies are those which when fertilized by other guppies having identical qualities, produce offspring that resemble their parents.

Some of the more common inherited traits of guppies are size, shape, and size of tails, fins and body spots, and body colors such as blond, albino, grey, gold, red, blue, black, and barred patterns. In fact, there are already recognized more than twenty-five color traits transmitted from both guppy parents to their young. In nature the females are normally olive-grey and unattractive where-

(Continued on Page 301)

WANT ADS - \$2

Hobbyists, breeders, and dealers (only) may now place Want Ads in *The Journal*. An opportunity to contact other hobbyists for wanted fishes or equipment, or sell same in a Journal Want Ad! The cost is nominal: \$2.00 for 20 words, plus 10 cents each additional word. Send your ad along with payment today!

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Atlantic Marine Tropical Fish—Buy healthy fish direct from collectors. For information write: Atlantic Tropical Industries, 3420 N.W. 6th Street, Fort Lauderdale, Florida.

Notice: Mr. John A. Kopec, who was the President of the Eastland Tropical Fish Hatchery, Inc., for the past eight years, is no longer affiliated in any way with this concern. Mr. Kopec is now the owner of the Hacienda Aquatics, located at 1057 N. Hacienda Blvd., in La Puente, Calif. He would be most pleased to hear from any of his old friends.

Live Cultures—Tropical red worms, \$1.25; white worms, \$1.25; micro-worms, \$1.25. Any two for \$2.25. All three for \$3.00. Generous cultures. Shipped postage prepaid. Instructions included. Air mail 50c additional. Culture Gardens, 454 Leonard, N.E., Grand Rapids 5, Michigan.

Marine supply catalog—coral, plexiglass tanks, all salt-water items. Sea-Land Marine Distributors, Box 600, Wall Street Station, New York, N.Y. 10005.

Aquarium Supplies—Aquariums, aquatic plants, marine aquarium supplies. New discount catalog, 25c. Jim's Aqua Haven, 131 E. Loretta, St. Louis, Missouri 63125.

Freshwater and Marine Tropicals—also plants, wholesale. Prices reasonable. Write: Red Sea Aquarium, Singapore 9.

WANTED

Old Aquatic Magazines—Aquarium Journal; Tropical Fish Hobbyist; The Aquarium; Tropicals, etc. State dates and prices. Al Doom, 222 Wilson St., Brooklyn 11, N.Y.

Tropical Fish Hobbyist Magazines—good condition only. State dates and prices. Set or single issues. J. Conant, 830 Newport, Vista, Calif.



First to spawn the discus —
he saw his first tropical
fish way back in 1922!

Carroll Friswold

Diane Schofield

Burbank, California

MANY AN AQUARIST has had a love affair with the discus, but in Altadena, California, there is one man who has probably gone steady longer with these multi-colored pancakes than most.

Carroll Friswold has undoubtedly been fascinated with tropical fishes in general longer than most of us have or ever hope to be. In 1922 while he was working for a bank, he happened to wander into a show where fish were being exhibited, as an accessory to a flower show. Chrysanthemums were submerged into a crystal clear globe and to add the interest of movement to catch the eye of prospective customers, small fish, probably gambusia, had been added.

In 1922 one simply did not go to the corner tropical fish shop and buy tanks, pumps, hoods, filters, gravel, plants, valves, tubing and fishes. Not only were there few places in which



Photos: (Top) Mr. Friswold at work in his fishroom at his home in Altadena, California. (2nd) Some of the prize discus spawned and raised by Carroll Friswold. (3rd) Mr. Friswold performing one of the many chores in raising thousands of discus. Photos by the author.

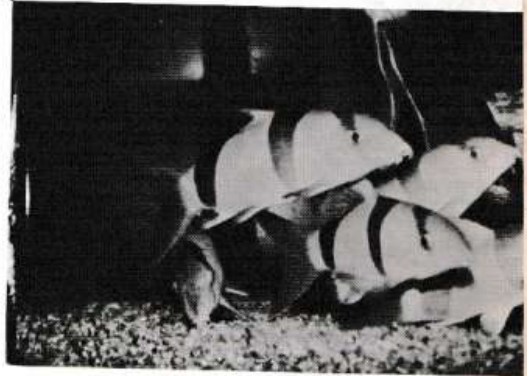
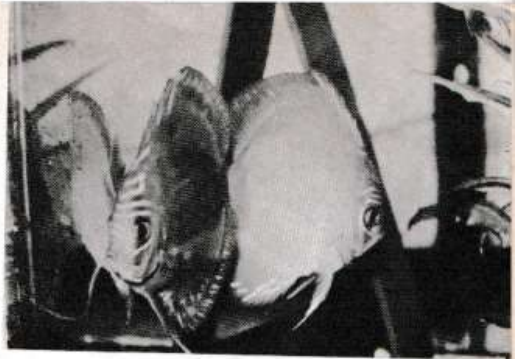
AQUARIUM JOURNAL

to buy fishes and equipment, there was a corresponding lack of people with whom to exchange information. Nevertheless Mr. Friswold decided that from that moment on to let tropical fishes be one of his major interests in life.

Coincidentally in 1922 a Irvin Ruckh started a business called "The Altadena Water Gardens." In 1934 Carroll Friswold went to work for him and in 1945 he bought the water gardens. However, while he was still an employee in 1935, he "wet nursed" the fishes of a very wealthy man, W. H. Thornburgh. This was a very momentous tending because Mr. Thornburgh brought the first discus to the West Coast. These were shipped from New York to San Francisco and Mr. Thornburgh took a train to "meet" them and transport them safely to Altadena.

It was "love at first sight" between Mr. Friswold and the discus. He was the first to spawn them and has been spawning them ever since. He is now

Photos: (Top) More of Mr. Friswold's prize discus as photographed by the author. (2nd) Some of the other species spawned and raised by Carroll Friswold. (3rd) Mr. Friswold giving one of his prize fish a midday snack.





spawning six different types of discus plus one cross. These are the browns, reds, Peruvian blue, Peruvian green, tarzoo and blue heckle. Recently he crossed a tarzoo blue male with a Peruvian green female and the babies are now about the size of a silver dollar.

Normally there are about 3,000 discus babies in various stages of development in his hatchery. All of these coin-shaped fish were obtained without a bit of fussing with the spawning water of their parents. Only plain tap water is used. This is not without its drawbacks in the Altadena area because Colorado River water is often pumped into the lines and the pH goes up to higher than 8.0 and the total hardness to 350 parts per million, making it very hard indeed.

Strips of slate are the depositing place for the spawn and as soon as the parents have done all that was required of them, the strip is whisked out of the tank and the eggs hatched artificially just like any angel eggs. There is a deep dark curtain of secrecy pulled over the ensuing feeding process for the next 10 days to two weeks. This is the period when the babies would normally be feeding from the secretions on the bodies of the elder discus. When next Mr. Friswold draws the curtain back again, the babies are old enough to take newly hatched brine shrimp and then follows the usual succession of live foods — chopped worms, daph-

nia, mosquito larva, etc. This goes on generation after generation. The oldest male in the hatchery of the Altadena Water Gardens is now 7 years old.

A lot of Mr. Friswold's success with the discus seems to come from understanding it. He says of their hunger strikes, "The discus is an intelligent fish and hates to be moved about. He dwells on it and mopes around. They are also a gentle fish and won't eat if a belligerent fish in their tank gives them a bad time." He does say, however, that he believes in many cases that the hunger



strike is due to an intestinal infection which also manifests itself in the familiar "boil" that erupts on the head.

"Waste not, want not," might be Mr. Friswold's creed. Why waste a tank on just discus breeders when you can also put your huge *Apistogramma ramirezi* spawning pairs right in the same tank? The discus at Altadena Water Gardens spawn on the slate above and the rams in clay pots on the bottom below and neither "neighbor" bothers the other.

Discus aren't the only "products" to come out of this hatchery. There are

Photos: (Top) More of Mr. Friswold's fishes, this time enjoying a meal of large brine shrimp. (Above) a closeup of one of the prize discus.

also scores of various livebearers and a host of diverse types of angels. One of the most unusual that Mr. Friswold is currently working on is a yellow and black mutation that appeared a short time ago. At a year of age, the yellow of the specimen started to recede leaving the fish with a yellow eye and lips that look as if the fish is wearing saffron lipstick. This male has been crossed with its sisters, but so far none of the babies have shown any sulphur coloration.

All of Mr. Friswold's success with fishes has not been with cichlids, as can be seen if one refers to the section on *Loricara* (whiptail cats) of the book, "Freshwater Tropical Aquarium Fishes" written by G. F. Hervey and Jack Hems. Here Mr. Friswold is named as the man to first spawn the whiptails and indeed he has done this for any number of generations now. From his accounts it must be a fascinating fish indeed to watch, as he says, "The male sits just like a brood hen over the eggs. These

are surprisingly large, being over a sixteenth of an inch in diameter." They also have the strongest parental instinct of any fish, according to Mr. Friswold, and that includes his beloved cichlids. During the eight full days that the eggs are incubating, the male sits on them, cleaning and washing them with his large sucker-like mouth and hitching himself up and down in a crude sort of fanning motion. He only leaves them once or twice, observes Mr. Friswold. As soon as an egg becomes fungused, the male promptly removes it. If a hand or other object is put into the tank, he pushes against it to get once again to his eggs. What does the female do all of this time? Absolutely nothing but sit there and eat. Mr. Friswold's whiptail breeders are conditioned entirely on dry food, not a particle of live food is used.

The dry food that Mr. Friswold serves to his fishes undoubtedly has a better all around vitamin content than

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Plastic Tubing

Tired of trying to "force" flexible plastic tubing on valves, pumps, and filters? If so, then try this. Warm the end of the tubing in hot water for a couple of minutes, or hold it against the warm part of a reflector. Then insert the nose of a pair of needle-nose pliers into the tubing as far as it will go. Gently spread the pliers, stretching the tubing. Rotate the tubing and stretch as many times as necessary. This will work with practically any size flexible plastic tubing, and your connections are easily made.—Gene R. Thompkins, Brooksville, Kentucky

JUNE, 1965



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the normal ration that most humans consume daily. Among its 26 ingredients are at least three that people eat, pabulum, dried shrimp and dried parsley. The last item is made for airlines and trains and is usually used on salads. A few of the remaining components are watercress, alfalfa, dandelion, spinach, sardine and other dried fish meals. All of these are mixed together in the same weight proportion each time and moistened. Then it is spread out on trays and baked in a specially constructed oven at less than 150° F., so that none of the vitamins are destroyed. Then the food is ground, sifted and graded.

Mr. Friswold is fortunate to have as a son, an engineer who is connected with The California Institute of Technology, one of the many places responsible for some of our successes in outer space. This son-engineer has designed all sorts of different and wondrous devices for his father's hatchery. One is a series of pipes that lead into the top of each tank and out the bottom. In this system every tank in the hatchery can have its water changed within the course of one afternoon by merely pushing a few buttons! He also has arranged a series of large plastic vats that hold aged water and brine mixtures for hatching shrimp. All Mr. Friswold has to do is to open the correct valve and he has all that he wants of either liquid.

There are a group of "citizens" that have lived at the Altadena Water Gardens for over 16 years. They toil not, but they are great on eating and making a mess out of their tank from tearing back and forth. These are five enormous clown loaches each measuring a good six inches in length. Undoubtedly they are the smartest ones — you see, they have figured out that it isn't necessary to do all of that old egg fanning in order to eat regularly. ◀

Shaven Meat

From time to time, a hobbyist treats his fish to a meat meal. Freeze the meat first, and then with a single edged razor, you can simply shave the proper

★ IDEAS ★

BY HOBBYISTS

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amount of meat into a tank. Never put very much in a tank, or the meat will foul the water before the fish have a chance to thoroughly consume the meat. Feed only enough so that they can eat it in five minutes. Frozen meat gives resistance to the blade and is easy to cut. Unfrozen meat slips around, and cut fingers may result. — Fred Howard, Ortonville, Michigan

PRODUCT NEWS

Decorative Fish Nets

Aqua Engineers, of P.O. Box 1, Ortonville, Mich., is now offering large nets for decorative purposes. They measure six feet wide and 30 feet long, and come in pastel colors for use at fish shows or at home. They are priced at \$3.75 each or two for \$7.00. For information write to Fred Howard at the above address.

Niagara Falls Aquarium

A guidebook is currently being prepared for the new public aquarium at Niagara Falls, N. Y., which is in need of photographs for same. If interested in furnishing photos, contact Charles O. Masters, Aquarium Systems, Inc., 1450 East 289 Street, Wickliffe, Ohio. ◀

★ PROGRAMS ★

Readers and societies are invited to submit ideas to The Journal for Aquarium Society meeting programs, including

lectures, slides, films, demonstrations, etc. There is no charge for these listings.

For information regarding the following TIFAS society programs, write to Mrs. Carol Schultz, R. R. 2, West Montrose, Ontario, Canada.

DEVELOPMENT OF THE ZEBRA EGG Time lapse photography of the development of the Zebra Egg. 16 mm black and white film and recording (25 minutes).

BREEDING OF THE ANGEL FISH Shows the methods of raising Angels, both natural and artificial. 8 mm color film and recording (20 minutes).

THE AQUARIUMS Showing the birth of livebearers and egg-layers, breeding habits of Cichlids and bubble-nest builders, Betta fighting, etc. 16 mm color film (25 minutes).

THE SUNFISH The spawning of the Sunfish whose habits and methods are much the same as those of the Cichlids. 16 mm black and white sound film (11 minutes).

SALT WATER FISH SETS No. 1, No. 2 and No. 3 These discussions on salt water fish are the best yet provided to those interested in this stage of the hobby. The photography is outstandingly good and certainly the brilliantly colored fish will take your breath away. 35 mm color slides and recording (36 slides in each set).

SHOW AQUARIUMS. The show slides of the Southern Tier Aquarium Society of Binghamton, New York. The lecture material accompanying this

set demonstrates the proper method to use in photographing aquarium and fish. 35 mm color slides and lecture material (55 slides).

LIFE IN A POND The slides provide an excellent program and are very instructive. 35 mm black and white slides and lecture material (40 slides).

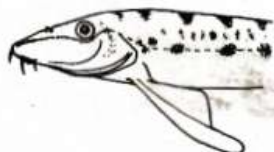
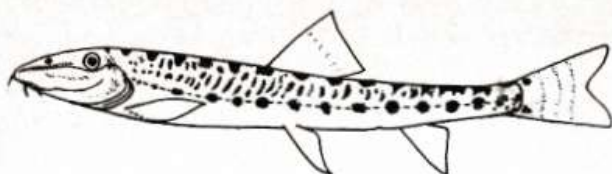
WATER PLANTS The narration is done to provide maximum information. Shows many of the plant life growing along and in streams and ponds. Delves into the stem and root structure and describes types of reproduction. 35 mm black and white slides and lecture material (51 slides).

HYDRA AND OBLIA Describes all structures and methods of reproduction. A most excellent study. 35 mm black and white slides and lecture material (38 slides).

GREAT BARRIER REEF The accompanying narration and the slides provide a very complete discussion of the Great Barrier Reef which abound in marine life. 35 mm color slides and lecture material (27 slides).

SEASHORE PLANTS AND ANIMALS The slides and the printed narration provide a very complete story of the plant and animal life found on the seashore. 35 mm color slides and lecture material (25 slides).

LIFE IN PONDS Showing the different forms of life found in the different areas of a pond. 35 mm color slides and lecture material (33 slides).



Never bred in captivity, seldom imported —
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Horse-face Loach

IT SEEMS strange that a fish which is such a favorite of illustrators of ichthyological works and is so wide in distribution that it can easily be obtained by almost all of the Far Eastern collectors is so seldom imported. I obtained a number of these fishes under the unlikely name "Mr. Clean Eel," a trade name which was obviously designated to sell the fish sight unseen and, although these little characters are not eels and don't look like Mr. Clean, I only hope that this fish comes into the popularity which it deserves.

The "horse-face loach" (another trade name) *Acanthopsis choirorhynchus* (Bleeker) is common throughout South East Asia, Sumatra, Borneo and Java and is found not only in clear, swift-running hill streams with sand or gravel bottoms but also in turbid swamp streams with mud bottoms. There are

Braz Walker

Waco, Texas

many color variations but the basic color is a pale yellowish. This may be adorned by a series of short vertical bars, a single longitudinal stripe, a row of dots, or nothing. In Thailand, Dr. Hugh M. Smith noticed that their coloration so perfectly blended with the bottom even in shallow, perfectly clear water, the only clue to their presence was sometimes their shadows moving across the sandy bottom. Not satisfied with a camouflage job that would make most other fishes jealous, when they are frightened they simply dive underneath the sand, for which they are perfectly

Sketch: Classical sketches of *Acanthopsis choirorhynchus*.

designed. This will be better understood after trying to remove one from a well planted aquarium with a bottom of fine sand.

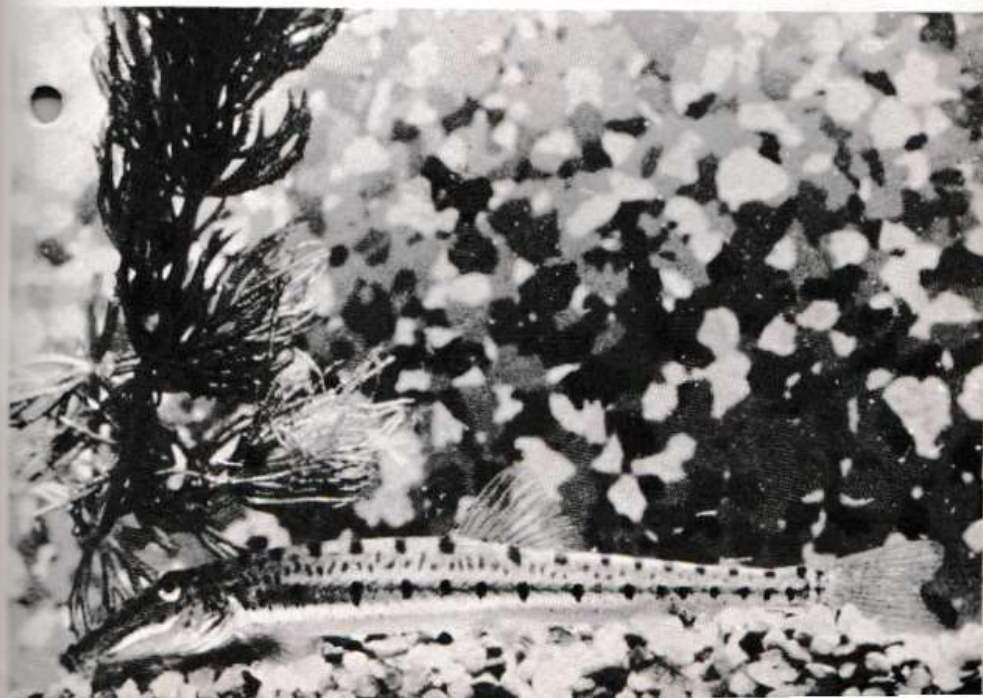
For people who ordinarily dislike larger tropicals because of their incompatibility with smaller ones such as neon tetra, but who would like at the same time something a little out of the ordinary, this fish is a good choice for several reasons. Although growing much larger in nature, in the aquarium they seldom reach a length of over four to five inches. Even at a length of five inches, however, this long nosed cousin of the Kuhli loach will not molest even the smallest types of tropicals. Their frequent burrowing in the sand keeps it loose which helps prevent sand from becoming sour.

A. choirorhynchus is a "triple threat" fish. Aside from having some of Mother Nature's most effective protective coloration and being able to swim under the sand almost as well as some fishes swim through the water, he also has a "last ditch" tactic up his sleeve. If these two protective devices should fail and he falls prey to a snake, bird or other

predators, "Mr. Clean" also packs a switch-blade knife. Like some other members of the family Cobitidae, this fish has a pair of sharp bony spines which lie in grooves below and in front of the eyes. These can be erected and locked in place if he should be swallowed, causing him to lodge in the throat of the predator and eventually choke him. Like other loaches care should be used when handling them in a net.

Feeding the horse-face loach is not particularly difficult although some consideration should be given to the fact that he is strictly a bottom dweller, at least partially nocturnal, and is apt to be somewhat shy until he has become accustomed to his surroundings. In the stomachs of four specimens from North Borneo were reported many Nematodes (worms). Also present in all four specimens were plant fragments and grains of sand. There were various other small aquatic animals such as insect larvae and diatoms. In the aquarium they will eat brine shrimp, either live or frozen,

Photo: The horse-face loach, owned by Braz Walker, —author, aquarist and photographer.



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chopped earthworms or white worms and if these are unavailable they also seem fond of pellet type fish foods which sink to the bottom. Unless the aquarium is planted, spinach or some other type of vegetable food should also be supplied occasionally. The digestive track of this fish consists simply of a short straight tube which is almost half the length of the fish.

As far as I know breeding in captivity has not been accomplished. Although little is known of their breeding habits the sexes are easily distinguished since the mature male fish has much larger pectoral fins. Ripe eggs have been found in a female only 2½ inches long so there is a good chance a skilled breeder could spawn them in the aquarium.

Less striking perhaps than most simply because he is less obvious, the horse-face loach will never be a dime store favorite. The aquarist, however, who likes something a little unusual and has the patience to give his fish time to settle down cannot help but enjoy a formation of these fishes at feeding time parading across the aquarium side by side and pecking like chickens as they go. Let us hope we see more of this long nosed fellow in the future.

CLUB NEWS

Minnesota Aquarium Society, Inc.

A major flood did not prevent thousands of fish buffs from attending the M.A.S. 9th Annual Tropical Fish Show April 5 to 9, according to Dick Larson, Publicity Chairman. The show was held at the Minnesota Federal Savings, Minneapolis, Mr. Larson said.

Fort Worth Aquarium Society, Inc.

The F.W.A.S. is holding their Annual Tropical Fish Show at the Fort Worth Children's Museum from June 10 to 20, according to Dottie Renfro, Secretary.

Finny Folks

(Continued from Page 281)

pennings, as do most editors who have to put their shoulders to the wheel, their noses to the grindstone and their fingers to the typewriter keys in order to fill up those hungry yawning blank pages each month. If any of the exchange clubs wish to see how those glistening white pages are finally filled up with fishy facts, they might try swishing one of their bulletins in the direction of The Milwaukee Aquarium Society, c/o Arlene Mortenson, 6826 Kinsman St., Wauwatosa, Wis. 53213.

The 7th of May mark the advent of their May Exhibition, under the aegis of Tom Matheny, Exhibition Chairman. For the first time, in memory of the late Ralph Watkins of Chicago, who made considerable gifts to the Milwaukee Aquarium Society, they presented the "Ralph

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"Backyard Fish"

Are you on the lookout for offbeat fish? Then don't forget to look in your own "backyard." Using a commercial, wire screen minnow trap (costing about \$2.50), you can easily catch small crayfish, brook stickleback, sunfish, bluegill, darters, etc. These make interesting pets. And, if you tire of them, or if they grow too big, you can always put them back where you found them. Bait your trap with meat and/or bread. Leave it at night in a stream or lake, and get it in the morning. Then comes the fun of trying to identify the different species. Check local fishing laws, though, before you keep game fish. — *Fred Howard, Ortonville, Michigan* ◀

JUNE, 1965

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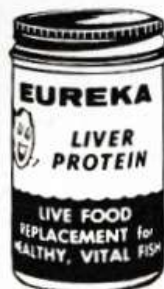
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And speaking of trophies

Ginny Read, of the Norwalk Aquarium Society, was recently awarded the Arthur Sciubba Memorial Trophy, which is awarded to the member who has done the most for the Society during the past year. As is so typical of her, when Ginny wrote me to this effect, she added the footnote, "They tactfully refrained from specifying the 'most' what. 'Damage?'"

To anybody who has just finished undoubling themselves with sheer glee after reading an issue of the bulletin of this society, the "Wet Pet Gazette," that Ginny edits, I would like to assure them that Ginny is every bit as witty in person as she is via the mimeographed page. When Ginny and I were trying to zero in on one another in New York recently, we first were trying to figure out how to recognize each other. A rose in the teeth was abandoned because thorns in the gums can be very painful and besides you know how many people go slinking around Grand Central Station with roses clutched tightly between their incisors anyhow. We felt that a thing like this could lead to innumerable complications. Therefore we finally decided that if she were to come up to my 4' x 6' hotel room, that, in all probability, we might be able to find one another there. I did make her promise and give a Scout's Honor that she

CLUB NEWS

Stanislaus County Aquarium Society

The 5th Annual Tropical Fish Show of the S.C.A.S. will be held June 26 and 27 at Ed. J. Lyng's warehouse at Highway 99 and Coldwell Ave., Modesto, Calif., and will be judged by Diane Schofield, according to Henry M. Weeks, Chairman. ◀

would take her turn in breathing. Utter carnage and ruin would result if we both insisted on breathing at the same time in these accommodations that pinched like a too-tight girdle.

As it turned out, this was an awfully lucky move on our part. Both of us had seen fit to ignore the fact that neither of us can see more than a few hazy feet before us, and bogged down with vanity, we don't wear glasses. Therefore we probably would have been doomed to roam the wilds of Grand Central Station forever myoptically peering at every strange passer-by while drooping, moulting roses.

Guppies

(Continued from Page 287)

as the males are more brightly colored and sometimes even quite brilliant. Usually the intensity of the color depends somewhat on age, health, environment, and diet. Since the females do not exhibit color as do the males, it is necessary to keep descriptive records so that one will know what to expect from the mothers.

Certain genes are capable of dominating those more recessive ones so that hereditary characteristics can be grouped according to that particular quality. For example, the wild grey color genes exert full influence over the recessive partner genes which are "attempting" to color the guppy gold, blond, or albino. Gold will be dominant

CLUB NEWS

Aquarium Society of Eastern Connecticut, Inc.

The A.S.E.C. held their 14th Annual Aquarium Show at Ocean Beach Park, New London, Conn., on March 27 and 28, according to A. D. Bouchard, Chairman.

JUNE, 1965

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over the efforts of the "blond genes." The ability of sword-tail genes to cause the tail to become pointed is really a recessive factor. This can be expressed as follows:

of environmental factors such as light, temperature, water, and food. A few very general suggestions would be to do everything possible to produce healthy, vigorous guppies and then adjust the en-

Female (golden) g g = (recessive gold) cross between gg and GG	Male (grey) G G = (dominant grey)
F1 (grey only) G g (each individual has equal numbers of G and g genes. G being dominant, all Gg are grey.) cross between Gg and Gg	
F2 Three greys — (GG, Gg, Gg) One golden — (gg)	
If goldens are crossed with albinos	
gg RR (golden)	GG aa (albino)
cross	
F1 Gg Rr (all wild gray)	
F2 If the above F1 are crossed — some albinos are produced.	
F3 If the above albinos are crossed — pure-line albinos are produced.	

Some traits are carried by genes in both sexes but expressed in one. For example, some guppies have anywhere from two to five vertical dark pigmented stripes between the tail and anal fins resembling the markings of the common zebra but it is only expressed in the male. In this way the trait is referred to as being sex-limited.

Since the establishment of a new strain has its beginning with a virgin female, everything possible should be done to separate the young fish soon after birth which means before the lapse of two weeks. The fish-breeding program should then follow with the mechanics of hybridization, selection, and the use of mutations as well as the optimum use

of environmental factors such as light, temperature, water, and food. A few very general suggestions would be to do everything possible to produce healthy, vigorous guppies and then adjust the environment so it comes as close as possible to conform with that of the natural habitat of the species. Breed for certain precise characteristics. If possible, start with established strains which are related, inbreed them as closely as you are able (brother to sister) for consecutive generations and then out-cross them for best results. Work hard to eliminate the undesirable traits. Be certain the characteristics best liked in the guppies can be inherited and have not just been acquired. Practically all of the first generation of guppies should be eliminated, keeping only the parents with desirable traits plus other good characteristics such as vigor, ability to swim and general structure. Experience alone will tell

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which of the characteristics are dominant or recessive, except for some of the information already acquired by others and available in the literature. One final suggestion which has been given before is to keep labels on the individual tanks and accurate records. ◀

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Snails vs. Beef Heart

Clarence Knepper
and
Albert J. Klee

ONE OF THE THINGS which has always fascinated us is the stress placed by certain ecologists upon the fact that snail-feeding animals are bigger than related species. To verify this experimentally, two Roumanian zoologists fed tadpoles for 20 days with minced snail food. The control tadpoles of the same generation were kept under identical conditions but fed meat. After 20 days, the snail-fed tadpoles were 60% larger than the controls. Indeed, some of them were "giants" in comparison. Examination of their pituitary glands showed that the snail-fed tadpoles had a greater number of "blue" (basophile) cells, which denotes a greater activity, than did the meat-fed controls. Apparently the snail food has some component which excites the pituitary, provoking accelerated growth.

The question occurred to us, does the effect of snail-feeding carry over to fishes? To help answer this question, we
(Continued on Page 306)

JUNE, 1965



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*From: V. Bichinella
Sunnyvale, California*

I have been taking your magazine for two years and really enjoy it very much. I am bedridden most of the time but I do have a 35 gallon tank and betta tank. I have all underground filtering and I cannot grow plants. They die after a few weeks in the tank. I want live plants in my tank. Could you recommend any plants that will grow with underground filtering? I have tried just about every plant there is and have gone to quite

from wholesalers or importers, if they are currently available.

*From: Jane Breitenbach
Whittier, California*

I wonder if you could supply some suggestions as to the following problems: 1. I seem to fight infestations of hydra after purchasing new aquarium plants. I disinfect these with potassium permanganate prior to introducing these plants into the aquarium. Is there any other agent more successful? 2. When

Letters to the Journal

an expense trying to find something that will grow. Would you please tell me what I should get?

REPLY: My experience is the same as yours. All plants that I have used with an underground filter eventually die. Thus, I don't use them when I use plants. These filters are useful for plantless tanks however. We would like to hear from anyone who has had success with an "underground" filter and plants.

*From: S. M. Cunningham
Fair Haven, Vermont*

Please send me information concerning the purchase of an European Fire Salamander. Previously I was able to purchase one from a dealer, Mildred Alexanderson in New York City, but I am not sure I can now. Thank you for your trouble.

REPLY: We do not try to keep track of what shops etc. are offering what fish and other aquatic animals. This changes so fast, even in our area that we could not keep up with it if we spent full time at it. Your best bet is to write to advertisers and to watch closely all the local shops in your area. Let your dealer or dealers know what you want. They may be willing to order them for you

I note the presence of hydra, I immediately remove fish (usually babies) to a clean tank, without plants. I then examine the ones I had placed in the aquarium with older fry and found them alive and active, but the older fry were all dead. The following day, the new fry were also dead. It somehow does not seem reasonable to suppose that the water in both the hatching container and aquarium should have simultaneously gone bad! Also, I cannot believe I had the fish overcrowded in the aquarium since I have previously raised many more together in the same size container.

REPLY: 1. Some fishes are said to eat hydra, the three spot and pearl gourami for example. Some books avoid mentioning hydra, others say a weak electric current will do the trick (remove the fishes), and still others say try a teaspoonful of vinegar to each two gallons of water in the tank. We recommend none of these "methods," although they may work. Many years ago Dr. Arthur S. Campbell, of St. Mary's College, California, developed a method that works very well. Dissolve 4 grams of ammonium nitrate (or ammonium sulphate) in water and add the solution to every 10 gallons of aquarium water, for example

use only two grams for 5 gallons of water. Many kind of fishes and plants that we have tried it with have not been bothered; however, we cannot guarantee that some kinds of fishes or plants will not be adversely affected. There is no need to remove or change the water as the compound only acts as a fertilizer for plants that are present. It does kill hydra effectively. Incidentally, be sure that the five gallon or ten gallon tank holds five or ten gallons. Many tanks sold these days do not hold all that is claimed for them. The "aquarium" gallon is likely to be smaller than the standard U.S. gallon. The "aquarium" gallon is also confusingly variable! When you buy new plants you can remove hydra from them by soaking them in the recommended 4 grams to 10 gallons for a few days before putting them in your tanks. 2. I cannot tell the cause from what you have said. I wish I could but it remains a mystery. Better luck next time.

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From: Robert W. Hampel
Ankeny, Iowa

I have made two observations about my fish that puzzles me, perhaps you can help. I had two red tail sharks (labeos) in a community 50 gallon tank kept at 76°, 5 DH, and 7.6 pH. Upon orders from the wife I moved it to the basement. Using the water I took out of it I filled it about 1/3 full and replaced the 12 occupants. I did not plug the heater back in. The next morning one of the sharks had lost all body color except for the fins. The other had an intense natural color I had never seen to that degree before. The dark shark swam on the left side of the light shark, bodies touching, for about 15 seconds. They would then separate for a few seconds and start all over. This kept up for about 20 minutes. Shortly thereafter both resumed natural color. I could see no eggs being deposited, nor could I find any anywhere in the tank. At that

time the only different condition was the temperature, about 70°. I then transferred them to another tank. Nothing has happened since — about a week. Could this have been a mating ritual? I raise multi-color guppies. At age 3 to 4 weeks many of the females develop a wasting disease. They seldom exceed 7/8 of an inch, swim head up about 20° with their whole tail from the abdominal cavity, instead of just the fin as normal fish would do. They turn a very dark color and belly along the gravel most of the time. Water is 72°, 5 DH, and 7.6 pH. They are fed brine shrimp once a day and dry food once a day. The tank never exceeds recommended population. All my tanks receive Gro-Lux lighting 10 hours a day (auto-timer). All males seem to develop normally. At birth I seem to have a normal proportion of sexes; at maturity I have more males than females. What causes this abnormal development? In my community tank my val disintegrates at the crown until there are no leaves left. See conditions in paragraph two. I plant according to recommended procedures. What gives?

REPLY: 1. I have not seen red tailed labeos spawn and therefore cannot answer your question. There are a few possibilities. A., your fish could be a pair and attempting to mate; B., you could have two males, the brighter dominant over the other (I personally doubt this); C., your pale fish could have been sick (I doubt this too). 2. I don't know but your description makes the trouble sound like a sex-linked genetic defect associated with the development of the swim bladder and possibly the nervous system. If this is the case, the only thing you can do is (1) destroy the whole lot or (2) breed your males to some non-affected females and see if you can re-establish your "strain" without the defect. I don't believe the Gro-Lux light has anything to do with it. 3. From the conditions you list I cannot be sure of

your trouble with *Vallisneria*. However, are you planting the crown below the surface of the gravel? I am not sure what recommended procedures you are following, but *Vallisneria* should have its crown exposed. I currently have a dense dark green stand of *Vallisneria* in excellent shape in a forty gallon tank lighted by only one 20 watt Gro-Lux lamp, on for about 14 hours per day. The pH in this tank is about 7.6 and the tank is slightly alkaline. The temperature is 72 degrees F. I have had 40 gallon concrete tanks with beautiful stands of the same plant. These tanks were of course with hard water and the pH was more alkaline than 8.0. The temperature here was 75 to 85 degrees F. The light was filtered skylight (through 3 panes of glass), plus about 2 hours of sunlight per day. I have almost always had trouble growing *Vallisneria* with white or warm white fluorescent lamps. As you can see from my experience I cannot see why your *Vallisneria* does not grow. ◀

Knepper-Klee

(Continued from Page 303)

selected a number of bettas (*Betta splendens*) of age 8 weeks, matched them in size as best we could by eye, and divided them into two groups. Our prior probability then, that the average weights of the two groups were not significantly different exceeded 50% (had the fish been selected at random, this prior probability would have exactly equalled 50%). Each group was housed in a 3-gallon, bare-bottomed tank equipped with an inside filter.

The fish were fed once a day for 5 weeks. One group was fed unshelled, minced red ramshorn snails (*Planorbis corneus*), the other minced beef heart. Due to the quantity of minced snail required, it was necessary to raise a quantity of them prior to the experiment. The total amount of food added to each tank was approximately the same. Both

groups consumed their respective diets greedily and their bellies all bulged after each feeding. No food was uneaten.

After 5 weeks, the fish were killed in rubbing alcohol. The fish remained in the alcohol for one day. Then, each fish was removed, the alcohol allowed to evaporate to surface dryness (this took but a minute or two), and the fish weighed on an accurate chemical balance. The results were as follows:

WEIGHTS OBTAINED (in grams)	
Beef Heart Group	Snail Group
0.3910	0.1907
0.2488	0.1006
0.3273	0.3649
0.4044	0.1969
0.3067	0.1296
0.3190	0.2042
0.2773	0.1731
0.4399	0.1808
0.2823	0.1814
0.2305	0.1362
average 0.3247	average 0.1838

The beef heart group exceeded the snail group in weight by about 77%. A statistical test shows the difference between the averages to be highly significant, i.e., the probability that they are not different is less than 0.05%. Even prior to weighing, it was quite obvious to the eye that the fish in the snail group were considerably smaller. The difference was quite marked.

We conclude, therefore, that as far as *Betta splendens* is concerned, beef heart is far superior to snails as a constant diet, and the ecological "law" as previously discussed is not valid in this instance. ◀

CLUB NEWS

Guppy Associates of Greater Cleveland

The G.A.G.C. will hold their 1965 International Guppy Show on June 26 and 27, at the Brookpark Recreation Center, 6161 Engle Road, Brookpark, Ohio. There will be 36 classes of entries which will include an International Breeders Championship competition, according to Ted Lusnak, Show Chairman, and Catherine Wolf, Secretary. For information, write Miss Wolf at 5901 Madison Ave., Cleveland, Ohio. ◀