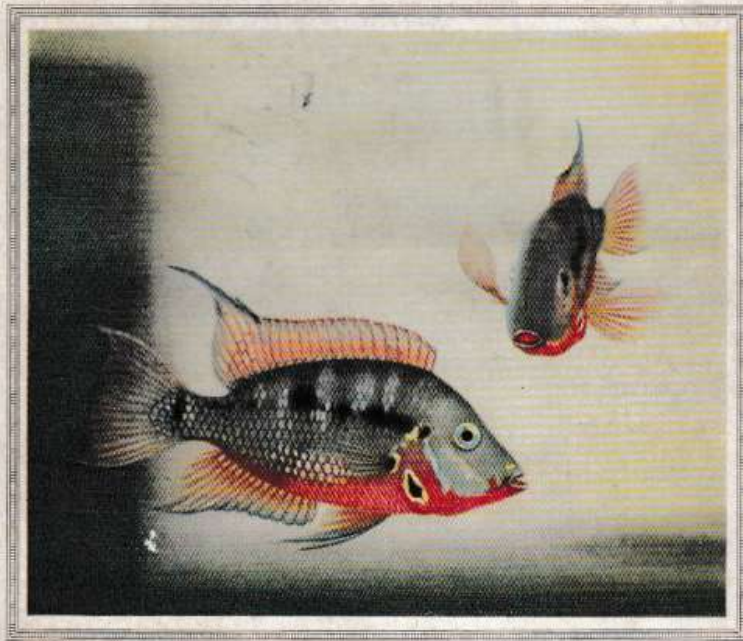


# The AQUARIUM

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Color Plate by Wm. T. Innes

*CICHLASOMA MEEKI* Brind  
"Firemouth"

*May, 1939*

Vol. VIII No. 1

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# THE AQUARIUM

... Editors ...

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GEORGE S. MYERS

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# THE AQUARIST'S CALENDAR



A SPAWNING plant which is too often overlooked, especially by breeders of exotic aquarium fishes, is our old friend the Water Hyacinth. The thick, fine indigo roots of this floating aquatic make perfect landing-places for the adhesive eggs of spawning fishes. And then the plants, with eggs adhering, are so easily lifted and transferred to other tanks or hatching trays. The plant is still in use by some of our breeders of the Goldfish, but few of our experts in exotics have ever tried it. It is worth a whirl, and the spring's supply, fresh from Florida, is now on the market. In common with other spawning plants, such as Myriophyllum, it should first be placed under a strong spray of water to dislodge any enemies of fishes, such as young Dragon Fly or Water Tiger larvae.

\* \* \*

A perennial warning at this time of year, in our average American climate in the band of middle states (known as Zone 3 to horticulturalists) is to avoid over-confidence in the weather. It is not settled before May 10, at the earliest, and it is not safe to place fishes (other than the Goldfish) outdoors, nor to dismantle electric heaters indoors. One chilly night or cold rain may set the fishes back so far that they never fully recover.

\* \* \*

We have many, many times advocated a variety of foods for our captive fishes. They seem happy enough, but

our best efforts to match what they would get in Nature are only approximate. We should always have in mind some beneficent treat for them that would at least relieve the monotony of long-established daily routine. Finely-minced or scraped raw fish is enjoyed by practically every species. What brings the subject particularly to mind at this time is that it is Shad season, and a large proportion of people are enjoying that delicacy right now. The writer several times lately shared a raw sliver of his shad with his fishes. And did they enjoy it, minced to fit their mouths! Some sections of the country do not have Shad, but everywhere in Spring is fine fresh fish. Share a mite of yours.

\* \* \*

Now the Reeds, Rushes, Cat-tails, Spatterdocks, Arrowheads and other aquatic and bog plants have made good starts. It is delightful to saunter along stream and pond to see the lively fishes and the new green things. One is tempted to bring home a variety of plants to try in the aquarium. There always seems to be the chance that some "new introduction" might prove a success. The advice of one who has tried many of these experiments is "lay off" the wild stuff, and get known and tried plants from aquatic specialists. Bog plants do better, especially young Arrowheads. They add appropriate grace to the edge of pools, or grow well in boxes coming to within a few inches of the water surface.



## CICHLASOMA MEEKI BRIND

BY Leonard M. Stern

• Being the experience  
of an aquarium novice

DURING the latter part of last summer, I purchased a pair of young "*Cichlasoma meeki*," sometimes called the Red-breasted Cichlid, which I immediately placed in a 10-gallon community tank. For the next few months, all went well. I fed my pets on a diet of chopped earthworms, which I alternated with dry foods every other day. On this fare, the *meekis* grew rapidly, and shortly I noticed that the male began to bully all my other fish, including the mate I had selected for him. This was particularly noticeable at feeding time. It soon became apparent that he intended "ruling the roost!" All my other fishes commenced hiding towards the rear of the tank for fear of being chased.

I realized that if I wanted to save my other fish, I would have to remove the *meekis*. This I did, very reluctantly, as I firmly believe that no other fish can outclass them in beauty. For those not familiar with this cichlid, I take this opportunity to give a brief description of them.

These fish, when matured, are about 3-4 inches in length—sex can be easily distinguished, as the males are larger and much more colorful than the female. The dorsal fin is electric blue-green. The lips are a pale blue, the throat and breast a flaming red. There is a black dot ringed with gold on each of the gill plates, and a larger black dot on both sides. Also 4 or 5 faint vertical black bands on the body. The body itself is a deep gray.

I transferred the *meekis* to a 5-gallon tank. In a short time the male began to pursue the female roughly. I feared

she might be injured, so I stocked the tank with a thicket of Cabomba to act as a sort of refuge. It was impossible to use any of the rooted plants, as the male would lose no time in uprooting them. I soon observed that the female was getting quite heavy, and the male was scooping up gravel. I knew then that spawning time was not far off. There was one depression behind a rock, about the size of a half dollar, which the female kept inspecting. Finally she approved, and the eggs were laid on the aquarium slate at the bottom of the depression. The male fertilized them immediately.

For days they took turns, faithfully fanning the eggs, until one morning I found the nest empty. Mother and Father *meeki* were busily transferring the helpless wrigglers to a new home. At the present time they have between 100 and 150 young, and it is a remarkable sight to watch the parental devotion of these fish. They take care of the young in the regular Cichlid fashion. To see them swimming with their babies is a thrill never to be forgotten.

By their zealous care lest harm befall the tiny youngsters, they have redeemed themselves for all time, in my opinion, from their misbehavior in the past.

*C. meeki* belongs to the medium-to-large cichlids. Consequently their young at birth are fair-sized. After their yolk-sac is absorbed and they begin eating, they like infusoria of the large sizes, but if necessary will take egg infusion, made of hard-boiled egg yolk, pulverized in water. Soon they need and should have sifted sizes of Daphnia. In a month they take big ones.

## BEGINNER'S LETTER

*{Prize Award for the Month}*

• By MARIE S. AMIS,  
Hollywood, California

MY trials and tribulations as a novice fish fancier seem very amusing and somewhat ridiculous when seen through the eyes of a veteran which I now consider myself after two years of being intensely interested in Tropicals.

After having lived more than twenty-five years in out of the way places in Southern Mexico I suddenly found myself permanently located in California. While it was a joy to be back in my native country, nevertheless I found it difficult to adjust myself to entirely different conditions and customs and—so—I was "ripe" for a hobby.

My interest was first aroused by seeing a few tanks of Tropical fish on one of the counters of our local five-and-ten-cent store. The spectacular *Scalares* were really responsible, closely followed by the showy *Swordtails*. So after several heated family discussions as to whether there was any available and suitable location for a small tank, the fish finally won. The situation was complicated by the fact that the only available and ideal spot was on the sideboard in the dining room, heretofore dedicated to the ancestral Silver and Sheffield. So now two tanks replace teapots, coffee urns, trays, sugar bowls, et cetera.

The same day upon which the acquisition of the fish was decided we trekked down on the Boulevard to the five-and-ten and purchased a 5-gallon tank, 3 pounds of sand and 3 pathetic plants of Eel grass. Arriving home we poured the sand in the tank which filled it to a depth of almost half an inch, filled the tank with water and attempted to plant the *Vallisneria*. The grass would ap-

parently be well anchored and we would lift our hands from the tank only to have the plant bob right up, often reaching the top before we had removed our hands. After innumerable trials accompanied by mutterings we finally solved the problem by placing many large stones around the roots of the plants. By this time the water was a lovely milky color but we decided it would very likely clear with time.

That afternoon we purchased the first inhabitants of my aquarium, a pair each of the always-with-us Guppies, Blue, Red and Gold Platys, *Scalares*, *Danio rerio*, *Swordtails*, *Mollies*, *Dojos* and three Red Ramshorn snails. My equipment consisted of one 10-cent can of prepared fishfood. Living in Sunny California I decided a heater would be superfluous.

The first morning I discovered that a *Danio* had jumped out of the tank, so I purchased half a yard of a lovely green cloth mosquito netting, as I was sure it would permit the free entry of air into the tank. The result was unexpected, to say the least, as a few hours later a portion of the net fell into the tank, coloring the water a lovely pale green and so I lost my two *Scalares*, victims to a beginner's ignorance. The others were hastily put into a dishpan while the tank was emptied and filled with fresh tap water warmed a little with hot water. That night the temperature fell to 62° and I lost my male Red Platy and my female Gold Platy. And so I learned through practical experience in the first 24 hours the necessity of a heater, thermometer and glass cover. The third day the remaining fish were all gasping for oxygen but I re-

lieved the situation somewhat by pouring water into the tank with a teacup.

I think it was at this stage of the game that the poor Tropicals were responsible for a major disaster in the household. One morning Father turned the water on in the bathroom and while waiting for it to run hot went into the dining room to look at the fish. He became so interested—he forgot the running water and flooded the bathroom.

It was at this time I realized that ignorance is not bliss, and if I was to be at all successful I would have to change my tactics. So I went down to the Public Library and returned with all the available books on Tropical Fish. My next step was to look in the classified section of the telephone book and obtain the addresses of shops specializing in Tropicals. About this time the remaining fish all became infected with the Ich, due to the chilling they had had the week before. One of the first victims was the female Guppy who was on the verge of blessed eventing, and I can frankly say that this disaster was the one that affected me the hardest.

By the way, the greatest thrill I have ever experienced in any of my various hobbies was the first time I saw baby fish in my tank, and I well remember the aversion I felt (and still feel) toward the whole Scalare family when I saw a poor defenseless baby Guppy gobbled down by the Scalare right under my nose, so as to speak. I returned the two Scalares to the shop within the hour.

I believe it was during the first few months I got green water in the tank and as everyone has gone through the agonies of trying to clear green water my efforts as a beginner to do the same can well be imagined.

My present setup consists of two

tanks. The original 5-gallon one and a 15-gallon tank. My equipment is all that can be desired, with the exception of a filter which I hope to get some time. I feel I have learned my lesson well, as in over a year I have lost but 3 fish due to dropsy, and my ever-present crop of Platys and Guppies are traded in for prepared fish foods and live brine shrimp, making my hobby self supporting.

My large tank is inhabited with Rosaceous Tetras, *Pristilla riddlei*, *Barbus partipentazona*, *Rasbora*, Head-and-Tail-light, Bloodfin, Mollies, Platy, *Danio Rerio*, Guppies, Dojos, *Corydoras* and snails. The planting is very lovely and the Aquarium attracts a lot of favorable comment.

I hope that by now I can be considered a full-fledged member of the Fish Fancier Association and my enthusiasm is greater now than ever. I am now particularly anxious to set up a tank of mean fish which are very colorful and do get along together; such as Sword-tails, Buenos Aires Tetras, Jewel Fish, Rosy Barbs, etc.

I might add that I am sure that while in Mexico I have used some of the lovely tropicals for a fertilizer and very likely ate some, as very small fish are caught in seines and fried crisp, particularly in Lake Chapala and Lake Patzcuaro. I have also lived in the vicinity of the Panuco and Lerma Rivers where I now know some of our colorful fish were obtained. It does seem the irony of fate that I would learn about the beauty of Tropical Fish now and not while they were right at my door step.

I understand there are not many aquarists in India, but just imagine how one would feel to see bushels of the dainty little Glassfish, *Ambassis lala*, dumped on the earth and ploughed in! And here we treasure them at twice their weight in gold.

## NEOLEBIAS ANSORGII BOULENGER

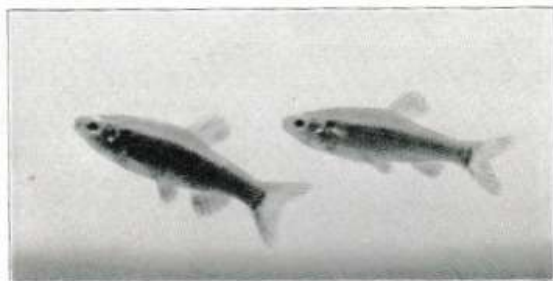
BY Hansjoachim Mitsch

Zoologisches Museum, Berlin

• Translated by  
Frederic H. Stoye

**N**EOLEBIAS ANSORGII must be included in the group of ornamental fishes which have earned themselves a permanent place. This attractive little fish hails from West Africa. It attains a length of  $1\frac{3}{4}$ " and the basic color is light brown, shading into yellowish in the ventral region. A brown-black, broad band extends from the gills. A similarly colored vertical stripe crosses the caudal base. The horizontal

quarters and were rarely hidden. The temperature of  $77^{\circ}$  seemed to suit them. During the winter I enjoyed their lively actions. When I wanted to watch them during the long winter evenings I placed a lamp on top of their aquarium. They seemed to like this light, for the male displayed his most beautiful colors. Contrary to their usual behavior they would then swim close to the surface. They apparently noticed that the



*Neolebias ansorgii* BOULENGER

stripe is bordered by a narrow golden one above. The ventral fins are reddish, especially as spawning approaches. The caudal and anal fins are also red, but have a darker edge. During the breeding period the male displays a delicate reddish coloration, the shades of which vary with the mood. It is not very difficult to distinguish the sexes. The color of the females is fainter and the fins are colorless.

I placed my pair in a 32" x 12" x 12" aquarium, together with some other characins. They became so shy that I removed them to a small, heavily planted tank. The water was 4 months old. They seemed to like their new

lamp heated the upper water levels.

Their food consisted of enchytrae, tubificids and mosquito larvae; Daphnia and Cyclops did not find favor. During March the male began to drive. The love squabbles were harmless, for the female was always able to find shelter among the plants. Finally the spawning began. Now the female willingly followed the male into the plant thickets and after each spawning she returned to open water. The male appeared a little later to seek a new spawning site, where the egg-laying was repeated. After the egg supply of the female is exhausted, it is necessary to remove her, for the male is relentless

with his attentions. The male should also be removed.

At a temperature of 82½ the first young emerged after 30 hours; 48 hours later the youngsters were already free-swimming. As the unbelievably small fry are only able to eat the very finest food, I poured pond water into their tanks. In spite of this all had vanished three days later.

Again I united the pair for breeding; this time their quarters consisted of an old established, 40-gallon aquarium. They spawned promptly and again the breeders were removed. I had better success this time and succeeded in raising 52 young.

The young should receive fine (live) food for as long as possible. When larger food is given too soon a loss of the brood must be expected. The rate of growth is very slow; during the first few weeks it is hardly noticeable. It is absolutely necessary that the young be given the finest live food. I am of the opinion that sufficiently large tanks are also necessary for success.

We have one wish—that this beautiful fish may be bred more generally, as this will eliminate or lessen its unfavorable reaction toward water changes. At the present a good many of the young perish when transferred. Therefore, avoid fresh water which does not suit them at all.

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### Bronx Exhibition

The third annual Spring Exhibition of aquarium fishes under the auspices of The Bronx Tropical Fish Society will be held at the Clarke Building, 2707 E. Tremont Avenue, two blocks west of Washington Square, Saturday and Sunday, May 27 and 28. Saturday, 1 to 9 P. M., Sunday, 10 A. M. to 8 P. M. Exhibitions and lectures free.

### Tricking *Trichogaster* into Nest-Building

The smart gentlemen who first used china eggs to give Madam Hen an idea, or who put artificial comb foundation into a beehive have nothing on Mr. Walter E. Braun, of Bogota, N. J. He has a clever ruse for getting backward bubble-nest builders to business. Here is the scheme, in his own words:

"After reading your description of the breeding habits of *Trichogaster leerii* in the February, 1936 issue of THE AQUARIUM I was determined to own a pair and try my luck. Finally, after a long search, I found a pair in perfect condition.

"In less than a week the male put on his courting costume and began to build a bubble nest in one corner of the aquarium. Meanwhile the female was eating large quantities of *Daphnia* and dry food, becoming heavier with roe every day.

"BUT every time Mr. Leerii would build a fair size nest a part of it would become detached and disappear entirely. I am sure this discouraged me every bit as much as it did the fish.

"Suddenly I hit upon an idea. When they are wild, labyrinth fishes usually build their nests under a lily pad. I cut a circle of paper about five inches in diameter and fastened a piece of thread to the center to keep the "lily pad" stationary when it was floated in the aquarium. (I have since found that waxed paper works the best as it does not sink as easily.)

"It was only three days after this that over 500 fry were hanging beneath the nest.

"I think this experience would be of great value to fanciers who attempt to breed any of the bubble-nest builders, except where the fish are already in a pool with lily pads."



### Something About Dwarf Cichlids

By EWALD KATZUNG  
Mineola, L. I.

ONE of the most beautiful and interesting of all the aquarium fish families are the Cichlids. Beautiful in color and finnage, interesting for their breeding habits. I remember that years ago it seemed almost unbelievable to me that there could be fishes that cared for their spawn and reared their young.

And yet the Cichlids never became any too popular with the fish fanciers, for several reasons. First, on account of their size, as most of them grow to 6



APISTOGRAMMA SPECIES

or 8 inches; then, their enormous appetite, and, furthermore, their inclination to attack, fight and kill almost anything they don't like. Besides, most of them uproot plants, dig in the sand and turn the whole tank topsy turvy. For the community tank they are out of question.

But now, with the dwarf Cichlids appearing more and more frequently in the importers' tanks, we have indeed a different story to tell. In them we find all the advantages, and none of the bad habits, of their bigger kin. They are just as beautifully colored. All hues of the rainbow have been blended into a picture. They are as peaceful and friendly to other inmates of the aqua-

rium as the Guppy, and they are the most loving parents imaginable. And where is the fish fan who would not be delighted by the sight of a proud mother, leading her school of young around in the tank at the first ray of daylight, keeping them close together like a flock, showing them the best hunting grounds for infusoria, and putting them to bed again at dark? All this we can have now in a 5 or 8 gallon tank.

In April of this year I acquired a pair of *Nannacara anomala*, and kept them in a 5-gallon aquarium, planted with *Cryptocoryne*, *Vallisneria* and *Sagittaria*. For a cradle I put a small, square, empty flowerpot in a shaded spot. The temperature was usually 70 degrees. I fed some *Daphnia*, *Enchytrae*, and *Tubifex*. Even dried foods, especially shrimp, or a shrimp and oatmeal-mush were readily taken. Toward the end of May the pair started to busy themselves with some digging. But they were very careful. No plants were uprooted. Within 2 days they finished 3 holes, about  $\frac{3}{4}$  inch deep, and 2 inches in diameter. The water temperature had gone up to 76 degrees, and the pH tested to about 6.8. By that time the male had turned a very deep, velvety brown, almost black. The female had lightened a little in color. The basic hue was a somewhat obscure yellow with several dark horizontal and vertical bars, giving the impression of a checkered pattern.

One morning, about 4 or 5 days after they started digging, I found them both very busy, cleaning the inside of the flower-pot. They removed particles of sand, snails, dead leaves and everything. When the one was taking care of the flower-pot, the other one would keep the sand-pits immaculately clean. The female always seemed to be the boss, and she did almost all the driving. And at last—the next day—I discovered the happy mother busily fanning a batch

of about 80 eggs. They were 1/16 inch in diameter, and were fastened to an upright side of the flower-pot. The male, having done his duty, was no longer tolerated near the nursery. Whenever he would approach too closely, the female would let him know that his presence was not at all desired. I took him out, and left the mother alone in the tank with her spawn. She would leave the eggs only long enough to make an inspection of the 3 pits. On the third day the eggs hatched at 78 degrees. One by one the mother picked the wriggling little things from the flower-pot or from the sand on the bottom, where some had dropped, and carried them into one of the pits. After about 2 hours she had them all transferred. In true Cichlid fashion she changed pits every day, and on the fifth day after hatching she took the school for the first free swim. I had used an old tank with plenty of sediment on the bottom, and some rotting vegetation. The young seemed to find plenty of food the first few days, and later on I helped with Infusoria and some powdered food.

The mother enjoyed the happiness with her big family for almost 3 weeks, when I thought it was time to remove her, as she changed color, and started to eat heavily. I gave her a 10-gallon tank right next to the first one. The next morning I witnessed a very dramatic incident. The mother and the young had discovered each other through the glass of the 2 aquariums. The whole bunch of youngsters, huddled closely together, would follow every move of their parent.

Four weeks later the female was the mother of a bigger and better family, and right now she is leading her third school of young around. I counted 65 healthy youngsters in the first batch, 135 in the second, and I guess there are about 80 in the third.

### Feeding Fussy Fishes

Men are not the only ones who understand the command "When in Rome, do as the Romans do." Fishes follow it, too.

Take the matter of feeding. A Scalare or some other species, kept only with its own kind, is liable to get some nonsensical notion about its food, refuses this or that which all good Scalares are supposed to enjoy. The notion gets to be an obsession. The aquarist himself falls under the spell, and in desperation writes us for advice.

Nine times out of ten this state of affairs can be broken up by placing the fish in a tank of miscellaneous fishes where good table manners have been forgotten and each makes a dash for all that can be gobbled in the shortest space of time. The newly introduced fish may be a little stand-off-ish for a day or two, but the pangs of hunger and the force of example will soon break down dignity and sharpen the appetite.

This is not to say that strictly carnivorous fishes such as *Polycentrus schomburgkii*, *Ambassis lala* or *Belonesox belizanus* can easily be induced to eat prepared food, but it is to say that among the ordinary, omnivorous species any aquarist can, by a little practical scheming, get his fishes to eat anything that the same species will take for anybody else.

Sometimes the ideas of a one-diet fish can be broken down gradually. For instance, a fish might refuse dried shrimp, but will take it boiled or fresh. From that step it can be carried over to the dried form. Sometimes a stubborn notion can be changed by some tempting bit of chopped earthworm, or a taste of boiled fish from the table. But mainly the trick can be turned by salesmanship—letting the fish see others enjoy the food you desire to "sell" it.

W. T. I.

## Gleanings

from the reports of the German Aquarium Societies in German magazines, with comments by the translator,

F. H. STOYE

• R. Tannert in *Wochenschrift*

### Hardihood of Tropical Fishes

On December 10th I drained a shallow cement pool with a surface area of about 43 square feet, so that I could remove the soil and the last remaining plants; the pool is in an unheated greenhouse. A pair of *Macropodus* had been placed in the pool during the summer and the bottom was covered with their half-grown young. I was astonished to see two larger fishes which, to my surprise, were identified as two beautiful *Colisa lalia* males; how they got into the pool I cannot imagine. The water temperature was about 47°, yet all fishes were in excellent health and wonderful condition. They must have withstood still lower temperatures; during several nights the (outside air-) temperature in this neighborhood dropped to 19°. In his treatise on Labyrinth Fishes (Bibliothek-Heft, Wenzel Verlag) Engelmann states that *Colisa lalia* under his observation inadvertently withstood 47° and it has been established that in the tropics this species is also found in waters of mountainous regions that are quite cool at times.

Other species too are unaffected by surprisingly low temperature. *Platyplecillus variatus* were taken from a pool covered with ice; they were in wonderful condition and the males were beautifully colored. The late Paul Schaeme of Dresden (one of the pioneer aquarists) reported that Chanchitos did not at all mind the life in an ice-covered pool. If one should attempt to conduct similar experiments in an aquarium indoors, one would

soon find that the species referred to ail and perish at much higher temperatures than those endured out-of-doors. The hobbyist should consider that under conditions prevailing in aquaria, even with the best of care, fishes never develop into as healthy and vigorous specimens as they do out-of-doors, where crowding is eliminated.

**Comment**—Experience has shown that many of the so-called "tropical" fishes are able to withstand surprisingly low temperatures. While sudden temperature drops are harmful and often fatal, a gradual lowering of the water temperature has no bad effect. The temperature of a large pool changes much more slowly than that of a comparatively small aquarium. Besides, most of the temperature changes in a still pool occur in the surface levels of the water; the lower levels are surprisingly cool and do not change much. This is probably the main reason why fishes in pools are more hardy. In large aquaria, holding 40-gallons or more, fishes withstand low temperature also quite well.

\* \* \*

Berlin-Schoeneberg—"Argus"—Wochenschrift.

During the February meeting our friend M. gave a talk on "The Care and Breeding of the Danio Species." A condensation follows: For breeding, a water depth to 6"; a long tank to allow swimming space; temperature, 68° to 77°; bottom should be covered with pebbles and part of the tank should contain thick bunches of plants as the breeders like to wiggle through

them while spawning. It is also recommended to cover the pebbles with fine-leaved plants like *Myriophyllum*, *Nitella*, *Fontinalis*, etc. This largely prevents the eating of the eggs, all of which drop to the bottom. M's experiences prove conclusively that, even at higher temperatures, the fry are not free-swimming within one or two days after spawning. According to his observations they emerge three days after spawning, at the earliest. He found that a few young of all *Danio* species do not emerge until the fifth day. The young can be successfully reared on artificial food (Mashed enchytrae). At the age of 2½ months the young are sexually mature. When *Danio malabaricus* breeders seem to be ripe and friend M. is not able to wait for the spawning to start, he darkens the tank completely. The following day, when he has leisure, he turns on the electric light. They never fail to spawn immediately, if they were in proper condition. Has anyone else ever tried this?

**Comment**—This report is quite complete and needs no comment.

\* \* \*

*Trautenau*—"Sonnenbarsch"—Wochenschrift

As the breeding season is approaching we discussed the preparation of breeding tanks. Many failures have to be ascribed to a lack of thoroughness. Usually the aquarium is filled with fresh tap water and the breeding pair is introduced soon thereafter. On the other hand, fishes are frequently placed in old aquaria harboring many snails, planaria, etc. These and similar bad mistakes are made from lack of knowledge and thoroughness. The resulting failures cause hobbyists to give up and to discontinue breeding. It is still more annoying when after spawning the eggs

fungus or disappear or the fry die for lack of sufficient or proper food.

**Comment**—Old aquaria infested with snails, hydra, planaria, etc., are best thoroughly cleaned and set up anew. Pond snails (*Physa*) are difficult to eradicate; their transparent, gelatinous egg-clusters are mainly affixed to plants and are difficult to see. Part old and fresh water seems to give the best results with most species of fishes. Thoroughness and meticulous care are bound to bear results.

\* \* \*

*Berlin - Neukoelln*—"Trinea"—Wochenschrift.

During the fancier's discussion the scarcity of live food was mentioned. All substitutes, like oatmeal, fish roe, mussel meat, etc., were thoroughly discussed. Cooked oatmeal is first washed in a net under the faucet; mussels are scalded and then cut into small pieces; herring roe (salt herring? ed.) should also be washed. Friend Pape reports that it is eagerly taken. All these substitutes can, however, not replace live food.

**Comment**—No one will question that the natural or live food, like mosquito larvae, midge larvae, daphnia, cyclops, tubificids, enchytraeids, earthworms, etc., are best for aquarium fishes. Few hobbyists are in a position to secure these foods, especially during the winter months, and must rely upon substitutes. All the foods mentioned in the report are good; many of the reliable prepared (dry) foods are also adequate when fed in rotation with live food or substitutes.

### *Aponogeton ulvaceus*

The acquisition of new and really good aquarium plants is a much more difficult matter than most aquarists appreciate. However, progress is being made, especially in the introductions in the last few years of several very fine things, well suited to situations in the broad open spaces. These plants might be called centre-pieces, especially suited to medium and large tanks. They furnish the main theme in the set-up, and give substance to it.

The latest of these distinguished introductions is a plant from Australia named *Aponogeton ulvaceus*. We believe that from the standpoint of downright aquatic charm, it is the most beautiful of all. Our photograph does not begin to do it justice because so

many of the majestic, rather oblong leaves are crowded into a small space that it is impossible to appreciate their individual beauty.

The color is a fascinating translucent green, and although the leaves are not skeletonized as in the Madagascar Lace Plant (a cousin), the shape and veining are very similar. Its faults are that the leaves are easily injured; it gets rather large for a tank of less than 15-gallon size and it has a rest period in December and January.

Liberal reproduction comes from long, heavy surface-runners that bear both flowers and fully-developed young plants. Likes slightly alkaline water and enjoys a shallow bit of unfertilized earth under the sand in which it is planted. Our own specimens are in 2 x 4 inch round pudding dishes.

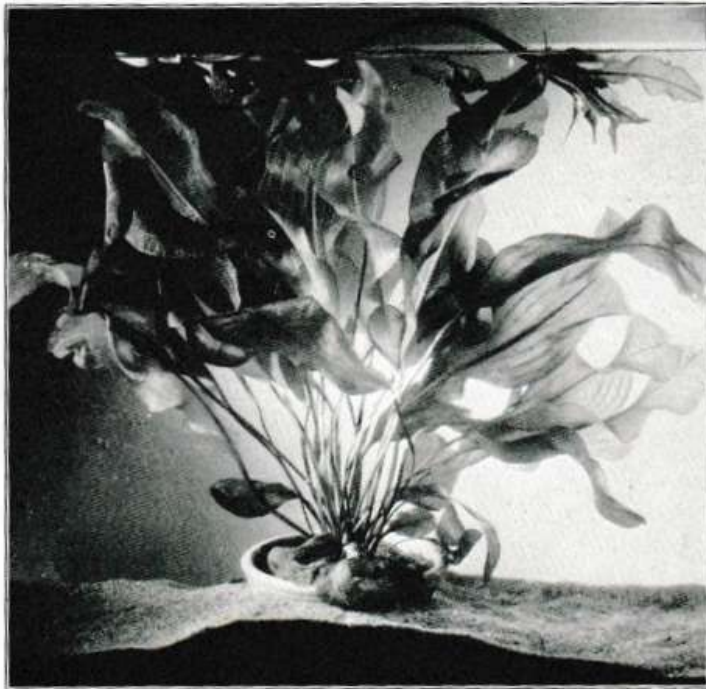


Photo by W. T. I.

ILLUSTRATION SHOWS YOUNG PLANT ON SURFACE RUNNER

## ~ The EDITOR'S LETTER ~

Dear Readers:

It is an established and regretted fact that a species of parrot in New Zealand pounces on the back of sheep, tears away the flesh and devours the kidneys. Prior to man's comparatively recent introduction of sheep these birds were harmless vegetarians. This perversion of appetite seems to establish a high of some sort.

In less dramatic degree we have fishes eating things in apparent contradiction to their natures. At least two Characins (armed with teeth that would indicate a carnivorous nature) are outstanding plant-eaters in the aquarium. They are the Silver Tetra (*Ctenopoma spilurus*) and *Metynnis roosevelti*. They both nibble *Vallisneria* down to the tuft.

The greatest eater of freshwater plants I have personally seen in the aquarium is *Scatophagus argus*, a marine fish; a sort of scavenger of the sea. This species is particularly fond of cut pieces of *Fontinalis*.

Just a few aquarium fishes are uncompromisingly carnivorous and are satisfied with nothing less than live fishes. The majority of them are content with a mixed diet having a large proportion of meats.

Some aquarists are under the impression that certain of their fishes are naturally vegetarian. I do not know of any. Take *Mollisnias*. They nibble actively at algae and keep it closely clipped, yet they enthusiastically take chopped raw meats and worms of various kinds. The southern wholesale breeders rear them largely on live mosquito larvae.

Let us compromise by saying that *Mollisnias* and many other fishes are omnivorous, and require a "balanced" diet. As for needed greens, boiled spinach fills the bill beautifully in many cases. Fishes, like our children, may have to be educated to it; given a little at a time while they are hungry. Once learning to take it, aquarists may safely assume that it is good for any species, and it may be fed regularly in moderation. To *Mollisnias* and *Symphysodon*s it is almost a necessity. I recently saw some Goldfish that had a phenomenal growth in their first year. They were in a large aquarium supplied with aeration, and were fed six times daily. The food was of several kinds, but the proportion of boiled (or just scaled) spinach was about 25%. In reference to the heavy feeding of Goldfish, it should be remembered that this can be done safely only in their first year.

While spinach isn't an aquatic plant that a fish would get in Nature, we mustn't expect fishes to be logically consistent. Are *we*? Foods from far afield have real or imaginary virtues that we enjoy. We like pineapples picked from isles in the Pacific. Why shouldn't fishes from the Amazon enjoy spinach from America?

Sincerely yours,

Wm. T. Innes

### *Alkali-proofing Concrete Pools*

New concrete pools present two problems regarding the water. One is making it really water-tight, and the other has reference to the alkalizing effect on the water. According to the great spill of radio and printed advertising bunk, alkalis are God's greatest gift to a suffering and faultily constructed world, but owners of new concrete fish pools (and good doctors) know that the alkali business can be overdone.

It is difficult, if not impossible, to keep water acid, or even neutral, in an untreated concrete pool. As a matter of fact, the slight alkalinity that comes from an old, well-seasoned pool is unobjectionable, and is even beneficial to plant life. The trouble comes from an excess of alkali washing out during the first weeks or months. Methods of rapid seasoning and of neutralizing new concrete tanks have long been in use. Some have given satisfaction.

Rendering pools impervious by paint is only good as long as the paint endures. Even special paints for concrete do not last indefinitely. We had heard of rendering the surface impervious and waterproof by the use of silicate of soda, so it was with much interest that we recently read the following paragraph in a letter from Mr. M. B. Smith, of Somerville, N. J., who is a specialist in concrete work:

"Several times I have seen references in THE AQUARIUM to the use of vinegar to quickly 'age' concrete pools. A much better way, which seems not to be well known by most people, is to paint the inside and exposed outside surfaces with sodium silicate solution (one part ordinary water-glass as used in preserving eggs, to an equal part of water), using a calcimine or white wash brush. The solution can be applied as soon as the form is removed,

or later. It has the effect of hardening and waterproofing the concrete, reacting with the free lime to form calcium silicate, an insoluble rock that will fill the pores and strengthen the concrete. Cement color can be mixed with the silicate and used to color the pool a permanent color."

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### *Transferring Micro Culture to the Aquarium*

By ADA H. LATHAM

Unfortunately artificial cultures of "infusoria" are apt to smell bad. A stronger word might sometimes be used. When culture water is dipped into the tank containing baby fishes to be fed, one feels a regret at polluting their water, even though in small amounts.

Practically all of the evil-smelling water can be discarded by filtering it through a substantial grade of muslin. Most of the organisms in the culture are paramecium or other creatures of about their size. These will not pass through the muslin. The filter is then held over the tank, reversed and some water poured through. This washes out a practically pure culture.

Mr. James B. Maris has pointed out that the foulness of culture water can be much reduced by the use of aeration. Where cultures are arranged to ripen in rotation in a number of small jars, the use of air is not likely to be convenient. In any case, the elimination of foul water is desirable.

There are many ways of developing a growth of infusoria, but one of the surest, easiest and quickest is to place a handful of crumpled lettuce leaves in a full glass of water from the aquarium. In 4 days at house temperature and medium light it will be alive with moving, dust-like bits of life that can be seen by sharp eyes, or easily under a magnifying glass.

## CORRESPONDENCE



LETTERS appearing here have already been answered personally. The ones selected for publication are those containing points of interest to readers. We answer all letters on day of receipt, provided a stamped, self-addressed envelope is furnished.

From Harold A. R. Pegg, British Columbia, Canada.

At present I have Medakas, Zebra Fish, Guppies and a new acquisition, a pair of *Variatus* in my aquarium. Only source of heat is the stove; no electricity; temperature range from 68 to 74, with an average of 70. Twice this winter it has been as low as 64 degrees. I would like to know whether the *Variatus* is a cross, or hybrid fish? Only color feature of this fish is an orange tail in the male. It is this fish which is giving me trouble. This morning on feeding my fish I noticed that the male fish had a change in color. Close inspection revealed the entire body had the appearance of having been peppered with cayenne pepper. On the left side a solid red patch appeared. He seems unable to retain food, spitting out pieces after taking them. What do you think the trouble is? My Zebra danios seem to be in spawning condition; can I possibly expect the young to develop from the eggs under the temperature conditions stated above? What depth of water? My young Medakas, hatched last June, are only half the size of the parents. Are these fish stunted, or are they slow developers? Referring again to the sick *Variatus*, I noticed in your book "Goldfish Varieties" you said short-bodied fishes are quite often bothered with disorders of the stomach. I later treated my *Variatus* for this ailment, but with no success. Do you think maybe the red spots are ruptured blood vessels caused by constipation?

*Ans.* We are rather surprised that the Guppies live for you at a temperature as low as 64 degrees. They are

usually the first tropical fish to die when the water gets chilled. Perhaps you do not have it that low for a very long time. The *variatus* is not a cross, but a distinct species. There is considerable variation of color, a few of them having brilliant red tailfins. These are considered the most desirable. When you said that your fish had the appearance of having been peppered with Cayenne pepper, it seemed to me that the fish was suffering from *Ichthyophthirius*, but the solid red patch seemed to indicate something else. Possibly if the fish had been treated in the early stages for *Ichthyophthirius*, he would not have developed the red patches. The treatment we find best for *Ichthyophthirius* is four drops of mercurochrome to the gallon of water, and keep the temperature about 85 degrees or a little higher for a few days. As far as low temperature is concerned, eggs can stand being pretty cool for a time, but when they finally hatch, the temperature must be raised in order to successfully raise the young. The depth of water is immaterial, but usually 8 inches is satisfactory. Your young Medakas being half-size are stunted. Evidently they have not been fed heavily enough, or did not have enough room in the aquarium. Our reference to short-bodied fishes being more apt to be troubled with constipation refers entirely to fancy varieties of the Goldfish.

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From Mr. Burt Tabakin,  
Philadelphia, Pa.

Would you please tell me if keeping a properly-balanced aquarium in a sunny bedroom is unsanitary or in any way



injurious to the health of the person who occupies the room?

*Ans.* On the contrary, an aquarium in a bedroom is beneficial to the health of the person in the room. Most air in winter is too dry, and the small amount of moisture which comes from the aquarium is beneficial. Any doctor will tell you this.

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*From L. Stanley Balliet,*

Mansfield, Ohio

Please let me know which is the smallest Catfish that can be used in an aquarium of tropical fishes. Also, let me know how big the Japanese Weatherfish gets to be. Do Red snails stop breeding in the winter?

*Ans.* The smallest catfish is *Corydoras bastatus*. It is about an inch and a half long. They are especially good scavengers in small tanks. Japanese Weatherfish grow to about 7 or 8 inches in length in about three years. Red Ramshorn snails naturally stop breeding in winter and start again in the Spring in about March or April.

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*From Walter C. Michel,*

Jersey City, N. J.

I have a thermostat in a glass tube open at the top. I keep this in the water so that the tube is filled with water. A friend of mine who is a physician and a tropical fish enthusiast tells me that there should be no water in the tube. If no water is kept in the tube, the temperature of the room, instead of the water, will operate the thermostat. Is the doctor right, or am I?

*Ans.* Your doctor friend is right. No water should ever be placed inside a thermostat. The idea is to place the thermostat in the aquarium water so that the air in the tube will be of the same temperature as the water. This has always worked very satisfactorily.

*From Norman Boudier,*

Baltimore, Md.

I have Japanese snails in the aquarium, and would like to know if these snails, about 50 in all, are enough for a 10-gallon tank. Do you know of any species of snails that will rid my aquarium of the growth of algae and still not harm the plants?

*Ans.* If your Japanese snails are at all large in size, you have a terrific number of them in a ten-gallon aquarium. I would say that three would be enough. Our opinion about snails is that the common pond snail is the best for keeping the glass clean. However, there is no snail which does the job perfectly.

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*From Stanley Rosendorf,* Washington, D. C.

I have been thinking about securing a pair of *Aphyosemion australe*, but would like to have your opinion as to whether they can be kept in a community tank containing Zebra Danios, and whether they can be bred in a tank of 2 $\frac{3}{4}$  gallon capacity. Another thing that has been puzzling me is, *what is a beginner?*

*Ans.* We think a pair of *Aphyosemion australe* would breed satisfactorily in a 2 $\frac{3}{4}$ -gallon capacity tank. They would live with Zebra danios if you do not have too many in the aquarium, but they could not breed in their presence. The Danios are great egg-eaters. Just what constitutes a "beginner" in aquarium study would be difficult to state. Our "Beginner's Page" does not take into consideration the length of time a person has been at the hobby, but rather how much he knows about it. Some people are beginners for several years, while others are fairly smart aquarists in three or four months.