

The AQUARIUM



Color Plate by W. T. J.

THE KING OF THE GOURAMIS
Colisa fasciata

Vol. XXI No. 5

May, 1952

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THE AQUARIUM

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Vol. XXI

MAY, 1952

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THE AQUARIST'S CALENDAR



MAY is a happy month for most aquarists and their fishes. Live foods are in good supply. Most egg-laying fishes are in a spawning mood. Early hatches are doing well under longer daylight hours and warmer weather. Plants are growing sturdily, and outside of the perennial "green water" menace, things seem to do particularly well this month.

However, there is always the need for a word of caution. In most sections of the country there is still the possibility of a couple of unexpected cold nights, so don't be in a hurry to get fishes or plants outside before the middle of June, especially in the mid-state areas. An exception is of course the hardy Water Lilies. They should be out and starting to bud by this time. Tender Lilies and Exotic Fishes should wait for three or four weeks yet.

Aquarists with strongly lighted overhead glass on their greenhouses or fish-rooms would do well to cut down the direct sunlight by a coating of white-wash. Applied now it will last pretty

well through the Summer until the sun weakens again in early Fall.

Hot weather is coming soon—which means that more surface space or greater aeration should be given to all fishes located where temperatures may rise to 80 degrees or more.

A few more "Don'ts" for May include:

Don't forget to thoroughly season by repeated rinsings all new wood or concrete tanks and pools before introducing fishes.

Don't forget to look carefully through all freshly caught Daphnia to pick out the Water Tigers and such enemies that can do a lot of damage once they get loose in a tank of newly hatched fry.

Don't discard tank heaters yet.

Don't forget that a feeding of freshly chopped earthworms are just about the best thing that can be fed to condition Goldfishes for outdoor spawning. They are easy to dig now.



THE KING OF THE GOURAMIS

(*Colisa fasciata*, Bloch and Schneider)

A TRANSLATION BY

Charles M. Taylor

● Re-published by popular request from our July, 1932, issue, now out of print.

EVERY charming picture can be created if one places in an aquarium those specimens of the family which are well known to aquarists, such as *Colisa fasciata*, the delicate dwarf Gourami, *Colisa lalia*, and the thick-lipped *Colisa labiosa*. And one might add, too, *Trichogaster trichopterus*, the spotted Gourami. One would then have, in a sense, a community aquarium imitating the conditions of their native waters. The most colorful fish among the various species is, of course, the delicate dwarf Gourami, but to any one who wants to succeed in breeding his fish quite easily, I can recommend the *Colisa fasciata*, the striped Gourami.

As the name indicates, the diagonal transverse striping or banding, of the body of the fish is quite characteristic. This is especially noticeable in the male. Twelve to fourteen bright carmine red stripes cross the entire body diagonally. These are separated from one another by stripes of vivid cobalt blue. In striking contrast to this marking is the deep blue of the broad, long anal fin, which is edged with a brilliant carmine red border. When in the midst of the light green foliage of the *Vallisneria*, and the delicate leafed *Myriophyllum*, our aquarium presents a charming contrast in colors which always rejoice the eye of the spectator.

Two conditions are necessary if one is to see this colorful picture in all its beauty: warmth and sun. The temperature in an aquarium containing specimens of *Colisa* should never be per-

mitted to drop under twenty degrees Centigrade (68 degrees Fahrenheit). The habitat of these fish, Lower India, Assam, Bengal, and Burma, is evidence that they are fond of warmth and high temperatures. If you can place your aquarium in a position where it will receive a great deal of the morning or afternoon sun, then you are going to derive a great deal of pleasure from these little pets.

Because of their size, full-grown specimens frequently reaching a length of from eight to ten centimeters (roughly three to four inches), one should select an aquarium which is at least fifty centimeters (about twenty inches) in length.

Occasionally, these fish will give some evidence of shyness or seem a bit scary. This is more in evidence when they are kept in single pairs. Just as soon as one places a number of them in an aquarium, one cannot describe the *Colisa fasciata* as being shy. In order to lessen this characteristic of the fish, it is suggested that the aquarium should not be planted so thickly that the fish cannot at least be seen. At this time I am not, of course, referring to an aquarium set up for exhibition purposes. There one is obliged to make concessions, but when it comes to an aquarium in which these fish are to be maintained and bred, we must take precautions against this shyness of the fish. One should plant the aquarium rather heavily, choosing special spots for this purpose as, for example, the corners and along the back

so that the fish is able to conceal itself quite readily and quickly in moments of supposed danger. Then, too, this arrangement gives the fish a kind of cross-section of its native waters in which it will feel quite at home. Those who catch the fish for export assert that the *Colisa* species are found in rivers and brooks, as well as in thickly grown lakes and ponds.

I have an aquarium about a yard long which is planted in this manner. On the sides exposed to direct light, the corners are planted thickly with *Vallisneria*. This planting becomes less prevalent as we approach the center. Here I use *Ludwigia*. The front, from which the aquarium is viewed, is perfectly free of all plants. It can thus serve as a swimming place for the fish. One might divide his aquarium into three sections, the two extreme portions being thickly planted and the center one containing no plants. In this way, one can look straight through the aquarium and the fish will have an opportunity to hide and play about in the plant thicket on either side. I recommend this arrangement as being quite satisfactory.

The manner of planting, of course, can be done according to one's individual taste. Over the clear portions of the aquarium one may place floating plants, which will have the effect of dimming somewhat the light from above, thus creating a sort of twilight which seems quite agreeable to these fish. This twilight condition can be created by the use of tufts of *Riccia*, *Salvinia*, Water Fern, and the like. Moreover, these floating plants are absolutely necessary in an aquarium where breeding is to take place.

In an aquarium planted in this manner, if one were to place three or four fairly large pair of *Colisa fasciata*, it would soon be observed that the fish feel quite at home. They will display

all their splendid coloration and their shyness will completely disappear. In the late afternoon or towards evening, I have often observed how the fish deserted their posts in the plant thickets in order to disport and enjoy themselves in the open part of the aquarium. To disport is, strictly speaking, not a very accurate expression, because they appear rather to slide forward and backward in a see-saw movement, as it were. Again there may be a charming love play and sweeping of their fins over each other, which I have mentioned before. Often a male fish will try to strike up an acquaintance with one of the female members of the group. A pair will draw off by themselves and the male will circle around the female. Occasionally, he will give a couple of gentle pushes or bumps against the fish and the female will immediately disappear in the thick plant growth and the naïve and harmless courtship has come to an end.

Should the aquarium be shaken a bit by the rumble of the heavy trucks on the street, all the fish will immediately disappear among the plants. We have already spoken about the temperature of the water and the desired sunshine. Perhaps here a few words about the feeding of the fish would not be amiss.

With regard to feeding, these fish are satisfied with almost anything. They are not choosy or finicky about their food. They will eat anything. Of course, it is highly unwise to try to feed *Colisa fasciata* constantly on dried and prepared foods. Living food is naturally to be preferred and one should not get the idea that *Daphnia* is the only form of living food to be given to these fairly large fish. Other generous morsels such as mosquito larvae, *Enchytrae*, and earth worms can safely be given to add variety to the diet. If one is anxious to obtain a good spawning in the spring

of the year, then one must see that the female gets a diet which is both rich and varied, for only in this manner is it possible to have a satisfactory and sturdy spawning. After the severe winter months, we are able to get, in brooks and ponds which are flooded by the waters of melting snows in the uplands, very abundant supplies of different kinds of large living organisms which are suitable for feeding to large fish. I am thinking more particularly of *Eubranchipus* (Fairy Shrimp). However, almost all kinds of living food are taken readily by these fish, even vegetation and plants. In fact, for relatively long periods, one can dispense altogether with living food without entertaining any fears that the fish will be seriously harmed thereby.

The breeding of *Colisa fasciata* is not at all difficult. One proceeds just as one would in the breeding of any of the other Labyrinth fishes. They are bubble nest builders and prefer, if possible, to build their nest in a mass of floating plants, to which it is fastened. One often hears complaints that fish of this species, especially the *Colisas*, are not very good nest builders. To some extent this may be true, because one frequently sees, floating around in the aquarium water, eggs which have not been covered with enough bubbles to hold them in the nest. The male sometimes doesn't bother much about the care of the eggs and then, many times, the larger part of the eggs are attacked by fungus and there will be no young fish. Perhaps this may require an explanation for the benefit of beginners.

The blame for such a catastrophe really lies not so much on the fish but on the owner! I have often found, from observation of my own aquarium, that the *Colisa fasciata* is a very successful and clever craftsman when it comes to building the nest for his progeny

when and if he is able to find suitable building materials in his aquarium home. This material consists, above everything else, of the finest possible plant stuffs. If *Nitella* and *Myriophyllum* are available, then the male fish will build a good, substantial nest.

The sexes of *Colisa fasciata* are quite easily distinguished, the most reliable indications being the shape of the fins and the color of the ventral feelers. The dorsal and anal fins are, in the male, drawn out sharply to a point while they are more rounded and blunt in the female. Furthermore, in the female, the ventral feelers are a whitish gray and only occasionally in direct light do they take on a yellowish sheen. In the male, on the contrary, the ventral feelers, in any light at all, are of a splendid vivid orange red color. Furthermore, it is generally a fact that the mature male fish is more strongly and intensely colored than the female.

If one wishes to obtain a fairly abundant spawning of this fish, then on practical grounds we should not choose too small an aquarium. The more available space in the spawning aquarium, the easier will be the bringing up of the numerous young. One condition must not be lacking, as has been emphasized before; that is, plenty of sunshine and light. Under such conditions, the pair of fish will spawn easily and quite willingly. Spawning, however, will occasionally take place in an aquarium in a shaded location in spite of these almost essential conditions. So far as the temperature of the water goes, this, during the breeding season, should be from twenty-five to thirty degrees Centigrade (seventy-seven to eighty-six degrees Fahrenheit). The height of the water should be from twelve to fifteen centimeters (five to six inches).

The beginning of the courtship and the building of the nest by the male fish

is evidence to the observer that the spawning is about to occur. If the nest of bubbles is completely built and ready for use, then the male tries to drive the female under this nest by little bumps and pushes and finally the male fish will completely embrace the female fish. At this time the eggs can be seen as they are discharged. Ordinarily, these eggs will rise immediately into the nest and remain there. Sometimes they will fall down to the ground. These latter are carefully assembled by the male fish, taken into his mouth, and ejected into the nest of bubbles. If the female fish shows at this time any aversion to the male fish and tries to escape from his advances in the thicket of plants, then we should give up all hope of breeding the fish. The best thing to do then is to take her right out.

After three or four days, the eggs mature and one can then see the very young fish hanging to the plants and sides of the aquarium, looking like little dark punctuation marks. Now is the time to remove the male fish. The raising of the young offers few difficulties if one has at hand plenty of pond *Infusoria*, which must be fed to the little fish during the next five or seven days. In the second week the young fish are generally of such a size that they can take the finest sieved *Daphnia* and from this point on the growth is very rapid. As soon as they begin to assume their characteristic shape and form, the young fish take on a wonderful olive green coloration. Then the ventral feelers become a bright cobalt blue. At a size of from one and one-half to two centimeters, they begin to assume over the entire body those rich diagonal bands.

The young fish also show a somewhat irregular black lateral line. When the *fasciata* reaches a length of from five to six centimeters (two or two and one-quarter inches) this lateral line disappears completely and the final and per-

manent coloration, cinnabar red and cobalt blue, make its appearance and presents a fish which—in the affection of those who have kept it—has no equal.

A "Beef"

In our issue of March, 1952, we reviewed a new book; "Tropical Fish as a Hobby," authored by one of our dealer friends, Mr. Herbert R. Axelrod.

In the course of the review we say, "he rates the Paradise Fish as being fairly peaceful, and suitable as an associate of other species in a tank of other species. Although many years ago we ourselves made a similar blunder regarding this fish, it would now be difficult to find an aquarist who would not quickly detect the error."

Mr. Axelrod wrote us that we must have read his book carelessly, and requests that a retraction be made. We did not pretend to quote his exact words, but it seems to us that we fully caught the gist of his thought. Here are his own words on page 55. "The Paradise Fish might be called the "Guppy of the egg layers. Its ability to survive dirty water, extremes of temperature, and poor feeding conditions, coupled with its easy temperament and beautiful color during mating time, *make it a very desirable fish for the community tank*. It breeds exactly the same as the Betta, but in contrast to the Betta, a domestic Paradise Fish is never so vicious and *will seldom attack the female after she has spawned*."

Possibly the author himself has read his own book carelessly!

We are reminded of the famous couplet of Byron regarding the respective merits of the music of Handel and Bononcini; "Strange! all this difference that could be Twixt Tweedle Dum and Tweedle Dee!"

PELMATOCHROMIS ANNECTENS

Boulenger

TO THE expert amateur, this fish is another of those that represent a distinct challenge to their skill and creative imagination, because for some reason, not generally known, it has

hobbyist a definite idea of what to look for.

Sex differences are in the bright white spot just above the vent of the female. This is very faintly outlined in the male.



Pelmatochromis annectens BOULENGER

been found to be difficult to induce to spawn. Where there is a problem, there is interest; where there is interest there you find the serious hobbyist applying every means at his disposal to be the first to produce or develop the so-called impossible. *P. annectens* is an excellent fish of this category to work with.

Commercially *P. annectens* has been handled as *P. arnoldi* and also as *P. fasciatus*. However, our illustration closely resembles *P. annectens* and as it accurately fits the fish, it will give the

When in good normal condition and environment there are six vertical bars and sometimes three horizontal stripes. Dorsals and tails are tipped with red. Blue dots are in the ends of the dorsal, tail and anal fins. They put on a really gorgeous show in their mating colors. They are not mouthbreeders.

Their breeding needs are first, a large aquarium, then a temperature of about 80 degrees, although their complete range is 68 to 85. They do not as far as is known destroy plants.

The EDITOR'S LETTER

Mass Psychology Among Aquarium Fishes

Dear Readers:

While fishes in general are considered to be creatures of very limited intelligence, they share with other animals a remarkable sharpness, at times, of being aware of danger. I do not mean everyday dangers which, through thousands of generations, they have had to learn to avoid (or to die because of them), but unusual situations in which neither they, nor their ancestors, had ever found themselves.

This train of thought was sparked today by an oft-repeated observation about which I have not previously written. It is the ability of aquarium fishes to quickly learn the intentions of a person poking about in their tank. If one is merely siphoning the bottom, inserting plants or lifting out by hand bits of leaves, the fishes, especially if Guppies are present, soon become interested spectators, comparatively free of fear. Even the presence of a net in the water does not arouse suspicion if no motion is made toward capture. Ordinarily when dipping a net into an aquarium the intention is to catch a certain fish. We place it gently into the water and conceal our purpose as long as possible. Presently the moment comes when the attempt at capture must be made. If the "snatch" is unsuccessful, not only is that fish on the alert thereafter, but every other one in the tank picks up the fear and acts accordingly.

This reminds me that through extreme patience and very slow movements it is often possible to catch difficult fishes without arousing panic. A thing not always easy to avoid at the last moment is in touching the net to the glass. This concussion, however slight, spoils everything, and the fish dashes away. A second start will be more difficult after fear has been loosened.

At any rate it takes most fishes a very short time to sense whether an effort is being made to capture them. The trigger of mob psychology is easily set off.

In our issue of December, 1945, Dr. Charles M. Breder wrote an interesting article on "Mob Psychology Among Fishes." He listed many curious examples, but I do not remember that he mentioned the panic among aquarium fishes being here considered.

Throughout animal life among the "lower" animals, capture means death, and all creatures with intelligence, however primitive or instinctive, have a great aversion to being killed. Obviously it is the first law of life, and is responsible for the preservation of its endless forms.

We have all read of the tameness of wild creatures in protected areas, or islands unfrequented by man, but as soon as any of them are shot, the others quickly sense danger from their two-legged foe, and become wary.

Our fishes are not mind-readers, or they would know that our purpose in netting them means no harm, but they naturally obey that instinct warning them against being caught. It is wonderful how quickly they discern whether or not we are trying to snare them. If this letter contains anything of practical value, it is merely by drawing attention to a well-known trick in dealing with all wild life—make no sudden movements.

Sincerely yours,

M. T. Jones

IT'S WATER GARDEN AND LILY POOL TIME . . .

MORE and more suburban hobbyists are adding beauty to practical fish culturing by building Water Gardens on their lawns or in back-yard gardens.

The city dweller too, has every opportunity to indulge in this extremely interesting phase of fish culturing with smaller but nevertheless equally interesting and delightful pools.

Whether a pool is merely a simple wooden tub, a six foot square of concrete or wood, a second-hand bathtub sunk to grass level in the ground or an elaborate affair of considerable area, it can be stocked with many different varieties of fishes that will prosper in the open during the Summer, and with the addition of many interesting aquatic plants and colorful water lilies, it becomes a thing of real beauty and endless pleasure.

Space will not permit complete plans and description of the endless variations that can be worked into pool designs. Each location is an individual thing, planned to meet personal tastes, special environments and pocketbooks. However, the illustrations shown are such that many ideas may be developed by studying them as they might be applied to particular conditions and locations to be found in various parts of the country.

For instance, Tub Gardens are ideal for beginners, especially those who do not want to go to much trouble, or expense, or do not have the space for a fairly large pool available.

Then there are others who like to "build their own" and have the time and space to do it. Unlimited designs are created by simply adopting the spaces and surroundings to fit the personal tastes and desires.

Here too, the city hobbyist has an equal opportunity to develop a "back yard" pool into a real garden spot. As long as it can be located in a spot that will receive at least three to four hours a day of direct sunlight. A pool such as illustrated will last many years, and produce fish and flowers equal to the best.

Most of the larger dealers in aquatic plants and water lilies have developed excellent catalogs in which they have illustrated and described nearly all phases of outdoor water gardening. Some of them show tub and pool location and construction in detail . . . all of them have marvelous selections of aquatic plants and lilies to choose from, and directions on how and when to plant and care for them.

Whether the hobbyist has at his disposal a corner in his back yard, or the facilities of a formal estate . . . nothing will offer more genuine pleasure with less care than an outdoor tub, tank or pool . . . and the fishes prosper too.

Many a possible water gardener is deterred from making a start on account of space limitations, or the lack of mechanical ability or ambition to construct even a small concrete pool.

Delightful miniature water gardens may be made of casks previously used

for wine, beer or olives, cut down to about 18-inch height. Also discarded enamel bath tubs, refrigerator linings with any openings glassed in, or wooden washtubs (preferably old ones) with handles sawed off. New wood is fatal to fishes. Weeks of seasoning by

bring the edge about 2 inches above general ground level, mounding up the adjoining soil and rocks to meet it.

One has the choice of providing a soil bottom about 4 inches deep, or of confining the planting to a sunken receptacle, such as a 10-inch low flowerpot



TUB GARDENING

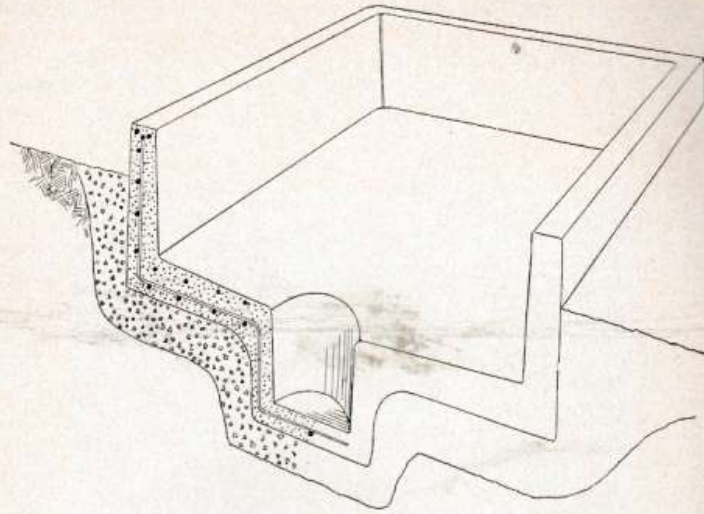
changes of water can be shortened by slaking a chunk of lime in the filled tub and letting it stand a few days, occasionally stirring. Rinse well before use.

While it may be a temptation to sink the top of the receptacle below ground level to permit plantings or grass to hide the edges, we must keep in mind the possible flooding effects of heavy rains in such a watershed that could leave pet fishes stranded on the lawn. Where this might occur, it is safest to

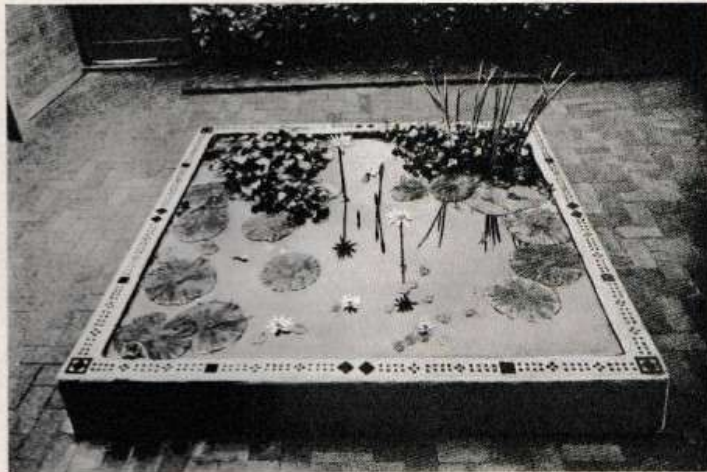
(our preference). If a Water Lily is to be used, the soil, in either case, should be enriched as described for Water Lily culture. The soil should be thoroughly moistened, well pressed and covered with a layer of sand before filling. Miscellaneous aquatics do best in plant loam. The artistic success of these little gardens is very largely dependent on keeping the plants down to proportionate scale. Dealers sell special collections for this purpose, including edging plants. One should always avoid the temptation to over-plant.



MULTIPLE TUBS



CROSS-SECTION AND FINISHED POOL

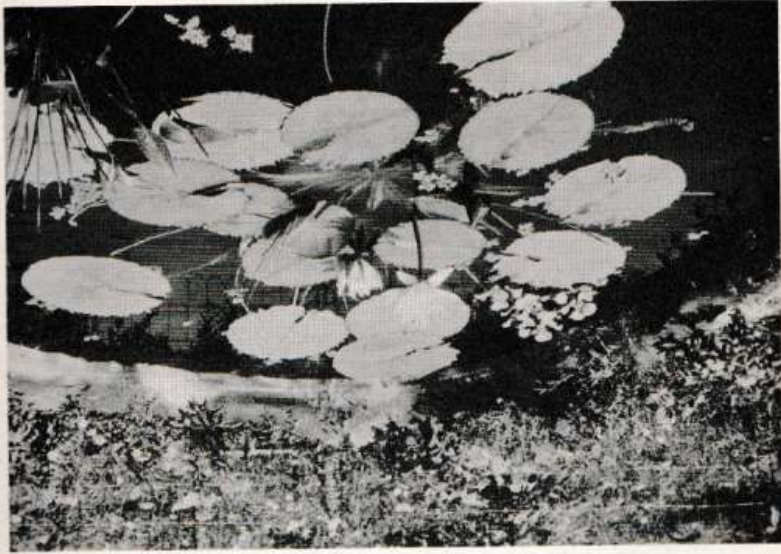


PLANTED POOL, LATER WITH BOG EDGE ADDED

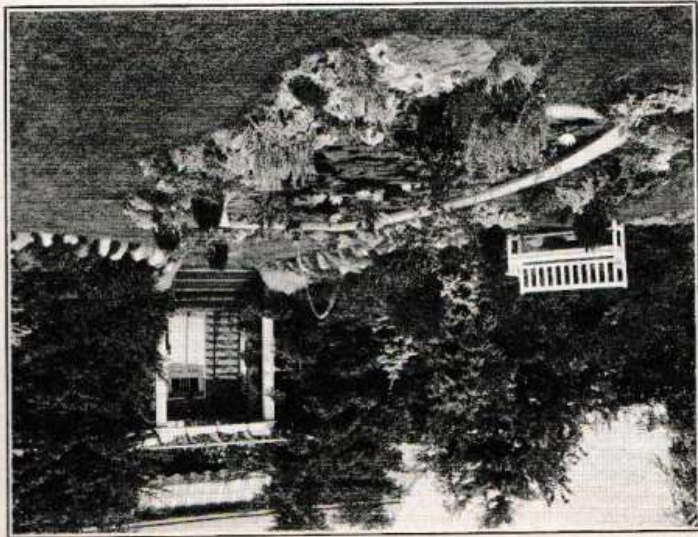
MAY, 1952

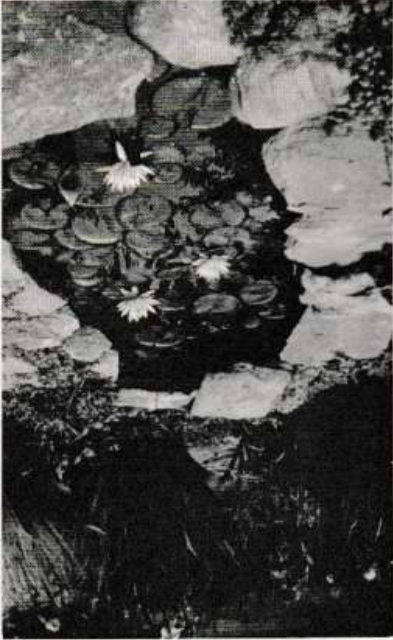
135

A BACK-YARD POOL IN AUGUST. JUST A SHALLOW WATERPROOF PAPER LINED POOL. NO FISHES.



A VARIATION OF THE ORLONG POOL, TO GET AWAY FROM STRAIGHT LINES.





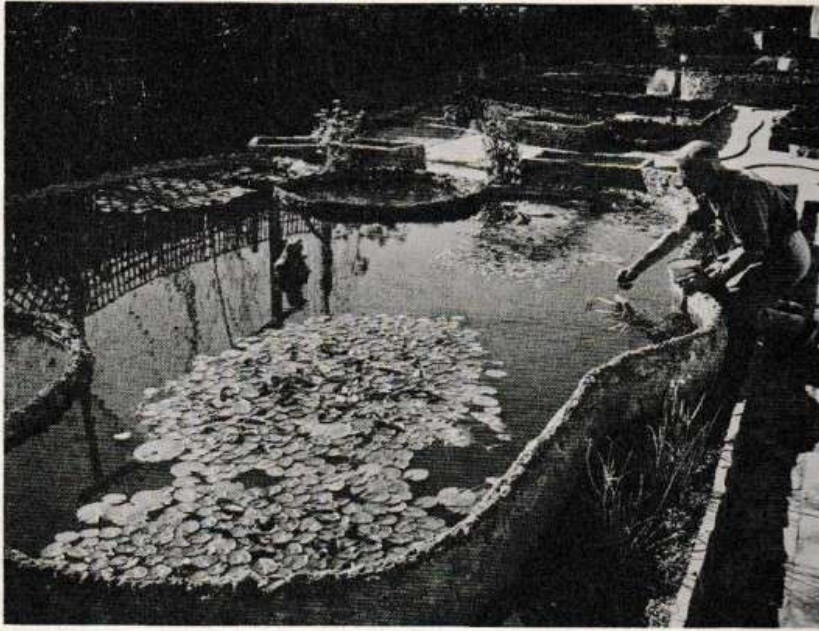
Small, but pretty. Nice for a corner spot. Good for fishes too.



Another handy idea . . . the plastic pool—easy to set-up anywhere . . . and can in a pinch serve in a dual capacity as a swimming pool for junior.



A LITTLE MORE DIFFICULT TO PUT IN, BUT NOT TOO MUCH FOR AN ENTHUSIASTIC AMATEUR TO ATTEMPT.



A LOT OF WORK WENT INTO THIS SET-UP



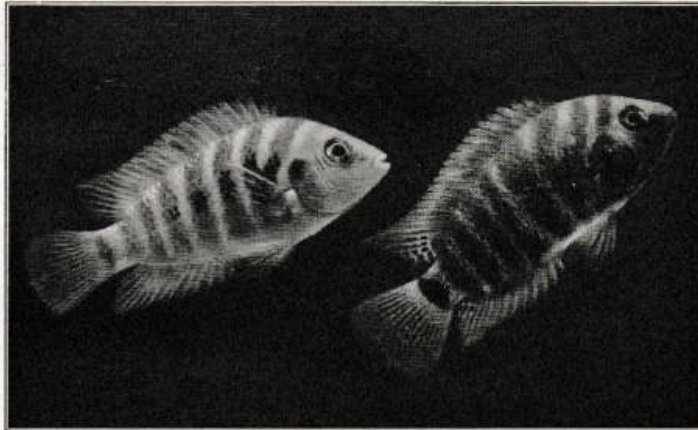
A RATHER FORMAL AFFAIR WITH STONE CAPPED MASONRY WALLS. DESIGN IS SUCH THAT IT COULD BE ENLARGED OR REDUCED TO MEET ALMOST ANY SPACE REQUIREMENTS. NOT TOO MUCH WORK TO BUILD EITHER.

CICHLASOMA NIGROFASCIATUM

by Donald E. Dede

I PURCHASED six of the fish under the name of "Kongo Cichlids." They were about an inch long, and not very colorful to say the least. However, when I introduced them into my twenty-

nests too successfully, fish began dying under rather mysterious circumstances. I removed all the other fish from the tank. A few days later I had my first look at the spawn, about fifty fish in



Cichlasoma nigrofasciatum (GUENTHER)

six gallon community tank, they took on beautiful colors almost immediately and fit the description of *Cichlasoma nigrofasciatum* in "Exotic Aquarium Fishes." We raised the fish to about a two inch size, when two of them paired off and spawned in the community tank. The actual spawning was preceded by typical Cichlid courting, locking of jaws, and digging depressions in the sand. It was extremely interesting to watch these preliminary actions, especially when they dug a tunnel completely under a rather large rock. They would disappear for a while into one entrance of this tunnel and would later emerge from the other entrance. I suspect that the eggs were laid in this tunnel. When I saw that they were defending their

all. They were raised on brine shrimp but also picked at tubifex worms which I fed to the parent fish. They grew to about a three-quarter of an inch size in about a month on this diet. It is interesting to note that after the young reached the free swimming stage, the parent fish filled in all the holes they had dug, including the tunnel. One general remark I would like to make about this species, is that contrary to what is commonly believed, it seems like a good community fish. In addition to being colorful and active, it is easy to raise, does not tear out plants, and is reasonably priced. These statements, however, are based purely on my personal observations.

*Reviews of
Aquarium Society Bulletins
(The Alamo Aquarium Society's
"Angel Notes")*

Volume 1, Number 2, is an 8½x11—14 pages and cover, single paged mimeographed bulletin, flat, wire-stitched, and received through the mails in excellent condition wrapped in an envelop. A good word play is worked into the title—"Angel Notes"—it coincides nicely with the front cover design that has a well balanced Scalare motif.

Page 1 is filled with an outline of officers and meeting dates, with details regarding dues, publishing dates and subscription rates.

Page 2 has an excellent record of the minutes of their first meeting. Altogether this information is valuable to anyone of their members (also prospective members) who did not get to this meeting.

Additional space is given to their constitution and by-laws. Again, this is important printed matter to hand out to a prospective member who would like to know all the basic factors concerning the society he is thinking of joining.

Several good fish articles are included along with local news and comment.

Another play on title wording is in the page mastheaded "Tale Bearers" which is devoted to pertinent personals followed by a short correspondence section.

As a rule it is a bit difficult to layout ads on a mimeograph stencil and get them to be sufficiently readable without overcrowding the copy—but in this issue it seems to have been creditably

accomplished, and to all intents, profitably, to both publishers and advertisers.

"Angel Notes," is published monthly by the Alamo Aquarium Society, Inc., of San Antonio, Texas, and is included in the membership dues which are \$3.00. One copy is furnished each advertiser. Outside the Society the subscription rate is \$1.50 per year including a corresponding membership. Single copies are 25c each, six for \$1.25, 12 for \$2.00. Other Aquarium Societies are invited to exchange copies. Mrs. B. W. Bradley is the Editor, address not given, but we assume she can be contacted through Miss Libbie Laas, Rec. Secretary, 210 Rockwood Court, San Antonio, Texas.

*A Note —
With an Appeal*

Dear Mr. Innes:

We thought you would like to know about a new aquarium society which has been formed. This time a junior society with members ranging in age from 10 to 13 years. We have named our group "The Fairfax County Aquarium Society." We are open to new members. We are wondering if some other juniors, and junior societies would want to correspond and exchange ideas for programs and subjects of interest to junior hobbyists. All juniors in the vicinity of Annandale, Virginia, are invited to meet with us. For complete information as to when and where we meet, they can write to Linda Glenn, Secretary, 115 Pine Drive, Annandale, Va.

Des Moines Aquarium Club's Film List

One of the excellent projects that the Des Moines Aquarium Society has taken out during the past year, is the searching out of films that would be suitable to be shown at an Aquarium Society meeting. That they have succeeded is obvious. They have had many inquiries, and feel that the lists are now sufficient to warrant passing along to all interested program directors. Considering

that these films are few and far between, and that they have searched through most of the catalogues to find them . . . they have done a remarkable job. It would be exceedingly helpful, if secretaries of other societies, who might know of films other than those listed here, would contact and advise the Des Moines Society of their information by writing to Mrs. Harry M. Dunn, Jr., 4929 Waterbury Road, Des Moines 12, Iowa. The following films they have seen and recommend:

"Life in a Drop of Water" "Born to Die"	J. G. Kretschmer Co., 316 — R. U. Bldg., Des Moines, Iowa.
"Aquarium Highlights" "Unusual Tropical Fishes" "The Blind Cave Fishes of La Cueva Chica"	New York Zoological Society 185th St. & Southern Blvd., New York 60, N. Y.
Marine Fish No. 1 Marine Fish No. 2 Marine Fish No. 3	Marine Studios, Marineland, Fla.
"Eyes Of The Deep"	Swank Motion Pictures Co. St. Louis, Mo.

Aquarium Show June 12 - 22

The Alamo Aquarium Society has developed a broad program for the coming months to include an Aquarium Show in the Cos House in La Villita, one of the most historic and beautifully picturesque sections of San Antonio. The show gives promise of many fine tanks of exotics, excellent plantings, and perhaps some of the finest specimens in the country.

Part of their program also includes

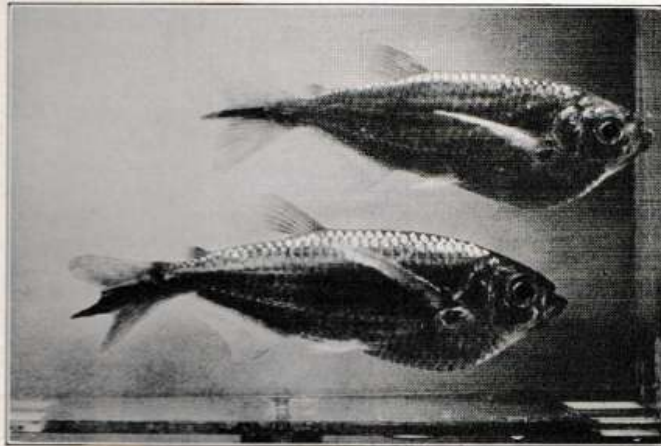
the maintenance of a large number of aquariums at the Brooke Army Hospital for Korean Veterans. They are also putting on frequent showings of films and slides with tropical fish and travel motifs, which seem to be the preference of the majority.

Hobbyists in the San Antonio area who are not already associated with this progressive group, may inquire about participation in their activities through their corresponding secretary, Mr. J. D. Thiele, 2510 N. Zarzamora, San Antonio 1, Texas.

TRIPORTHEUS ELONGATUS (Guenther)

FORMERLY known as *Cbalcinus elongatus*, this species can properly be placed among the rare fishes. Live specimens first reached the U. S. about

1933 and there have since been a number of importations. They are closely related to the Hatchet Fishes. It is claimed that they live better than their near relatives in the aquarium.



Triportheus elongatus (GUENTHER)

1933 and there have since been a number of importations.

There are no records of spawnings, and are claimed to be long lived. Aquarium specimens grow to a length of about 4 to 5 inches. They are indeed an interesting novelty and thereby a source of intense interest to the serious hobbyist. It would of course be quite a feat to spawn them.

Their outstanding feature is the dark spike extending out through the center of the tail fin. They have large pectoral

Although they will take any ordinary fishfood, it is best that it be alternated with live foods such as chopped earthworms, bits of shrimp, Tubifex, White Worms and of course Daphnia when available.

There is little required in the matter of color description as they are a silvery fish with dark lines on their sides which are a grayish-black. They seem to do very well at a temperature of about 75 degrees.

Boiled egg-yolk — an essential ingredient

by HENRY H. VALLOWE

In recent publications the use of liver-pabulum paste as a food for live-bearing fishes has been suggested. A modification of this paste food using strained baby foods has been found to be quite satisfactory for feeding growing and adult live-bearing fishes.

A small can of strained beef liver and a small jar of strained spinach are mixed together and then a pre-cooked cereal, such as pabulum, is stirred into the mixture until it is the consistency of a stiff dough. Packed into small jars, the food will keep for several weeks at normal refrigerator temperatures. The food can be used as a supplement for live foods such as whiteworms, mosquito larvae and daphnia.

During the winter months when live foods are not readily available, it has been found that this food fed alternately with whiteworms is insufficient to maintain live-bearers such as sword-tails and guppies. The male fish show no outward signs of malnutrition but the females rapidly become emaciated and cease producing young at regular intervals. Microscopic examination of the ovaries of these females revealed a lack of yolk material in the undeveloped eggs within the ovary. The ovaries became extremely small in size and no developing embryos could be discovered.

Addition of raw egg yolk to the paste food resulted in a rapid return to normal healthy condition. The female fish gained weight rapidly, the body again assumed the normal rounded contours and regular production of young began again. During this time no live food except whiteworms were given to these fish.

Such findings indicate that food materials found in certain live foods such as mosquito larvae and daphnia are necessary for normal egg production in live-bearing fishes and without these reproduction is seriously impaired. Fortunately egg yolk contains materials which substitute for these essential elements.

Spanish Speaking Aquarists Attention

The Minnesota Aquarium Society is again operating in full swing with James C. Conley of Route 4, Excelsior Minnesota, as their Secretary and Editor of their bulletin, "Aqua News." They would especially like to exchange publications with some of our Latin speaking Societies here or abroad, as they have an excellent translator in their group. They will continue to exchange bulletins with all other societies as previously.

Membership Drive

A new program and a new member drive is under way in the re-organized Rhode Island Aquarium Society. All fish fanciers in the area surrounding Providence are cordially invited to meet with them and participate in developing these new activities. Complete information can be readily obtained by telephone or letter direct to Mr. William O. Thomas, 45 Fostmere Ct., Warwick Neck, R. I., telephone No. Bayview 1-0144-R or from Mrs. Alice Bogue, 74 Lindy Ave., Warwick, R. I., telephone No. Bayview 1-0748-W.

AQUARIUM GADGETS

Eighty-fourth of a series

(Stick-on Thermometer)



This little gadget appears to have been designed to avoid breakage, permit quick and easy readings and reasonable accuracy in a moderately priced instrument. It is small, measuring 1"x $\frac{3}{4}$ " thick, and is of the dial type, cupped in shape, with a waterproof green rubber covered suction ring for placing the instrument in a permanent position at any level on the side of the tank facing the aquarist. It remains below the water

line, and should not be moved about as in so doing the rubber suction cup may be damaged.

The dial readings range from 40 degrees to 110 degrees Fahrenheit and are tested to an accuracy of plus or minus $\frac{1}{4}$ degree at 70/75 Degrees.

Distributed by the Westchester Aquarium, 454 Mamaroneck Ave., White Plains, N. Y., to retail for about \$1.60 each.

THE "AMERICAN MAGAZINE" LOOKS AT OUR HOBBY

by William T. Innes

TO US it never becomes monotonous reporting the widespread free publicity given our hobby by the great magazines. We hope our readers feel the same way about it, for here is a recent one to add to the already long list.

The American Magazine for February of this year has a really splendid full-length article by Jack Long, with the tricky title of "Angels in Your Living Room." Aquarists, of course, recognize that the play on words is made on the name of the popular Angel Fish (*Scalare*).



from American Magazine, February 1952

If we were commissioned to write an article aiming to arouse popular interest in exotic fishes we could not have done a better job than Mr. Long has turned out. He has covered the subject from many angles of interest, all of them appealing.

It is recognized that business in general has been falling off, but aquarist shops still feel the ground swell of increase, due no doubt to the many fine articles in big magazines that have con-

stantly appeared. Such effective advertising could not be bought at any price. We are not naive enough to think that the publishers set out to do the hobby a favor. They simply selected an interesting subject that is comparatively new to the masses, and one that is growing on account of its strong appeal.

We believe there were several factors leading toward this big push. The fascinating variety of the fishes themselves, plus the fact that they can be successfully kept and bred in limited space in homes, must account for the basic appeal. With that favorable start the hobby received its primary forward push by the combined efforts of aquarium societies, enthusiastic amateurs, enterprising dealers and publishers of aquarium magazines and books that pointed out the beauties and possibilities of the modern home aquarium. That team "carried the ball" up to where the great magazines took hold and are still pushing with us.

In reference to bigness, Mr. Long touches a question on which we have been rather timid. That is in reference to the approximate number of aquarists in the U. S. A. He quotes an authority, Dr. Christopher Coates, Curator of the New York Zoological Society as having made a national survey in 1937, indicating that there were 10,000,000 Americans who kept fish. Assuming that to be correct, there should be *at least* twice that number today, and now we have only made a good start.

We do not know all the reasons, but it seems likely that the growth of aquar-



Copied, with permission from the full-page color plate in the American Magazine, for February, 1952. Fortunately we were "tipped off" on the appearance of this splendid article, and were able to give advance notice of it to our readers.

ium-keeping in England in the last dozen years has expanded more rapidly than anywhere else. There too they have had fortunate publicity. The country has been harrassed by many hardships, and aquarium-keeping offers, at small cost, a calming diversion to a people who take naturally to all sorts of Nature study. We trust our English friends will not object to this interpretation.

Our outstanding feature of the article in the American Magazine is an original concept of illustrating an aquarium. Our black-and-white copy of their full-page color print is comparatively flat but it conveys the main idea—the boy on the other side of the tank, blissfully contemplating his pets.

The Story of Arthur

by GRACE WESSEL
Ripon, Wis.

The story I have to tell is not about a very glamorous member of our finny friends. He doesn't have the distinction of unusual breeding habits as do some of his more exotic cousins. He doesn't have the glowing color of the aristocratic neons and he doesn't have the long flowing fins or the pugnacious disposition of the beautiful but brutal bettas—in fact he has no distinction at all with the exception that it is a miracle that he is alive. This is the story of Arthur the Minnow, the Milwaukee Golden Shiner.

My husband and I are ardent fishermen and we purchased Arthur along with a few more dozen of his brothers to take on a week-end fishing trip for use as bait for the wiley black bass. The only reason Arthur is still with us is that either he must have been protected by a kind Providence that was looking out for little fish or his own remarkable

agility in avoiding our hands all day long as we baited and rebaited our hooks. When we returned home on Sunday night—wonder of wonders—Arthur was still with us all alone in the bottom of the minnow bucket. He was rather a sorry looking minnow—the last of his family—the others having gone the way of all flesh. It seemed awfully silly to save one lonely minnow but somehow I felt very sorry for him so I brought him in the house, gave him a short salt treatment which he didn't seem to relish and then placed him in my aquarium along with my Black Mollies, Neon Tetras, Black Tetras, Platies and Swordtails.

Arthur was duly appreciative from the very first and has certainly proved he was well worth saving. His manners are admirable, he gets along well in my community tank and never nips fins as the Tetras are apt to do. He is aggressive enough to get his share of dry food and he does love a few white worms. He loves cooked spinach and does his share to rid the tank of algae. He is graceful, and is like a silver streak mingling with the other fish who are far more brightly colored but not half as happy to be alive as Arthur. He has a silver and dark streak down his 2½-inch body from his eyes to his forked tail and it makes him look rather luminous. He is not a special minnow just an ordinary type known as a shiner (*Leuciscus americanus*), but we feel that he is special because he has shown that he can adjust himself to conditions that would be beyond believing for a cold water fish.

About a year ago an attack of Ich ran through my tank and poor Arthur was really peppered with it. He responded to the cure very nicely as did all the rest of the denizens of the tank.

Then about two months ago we noticed that Arthur seemed to be putting

on some weight, we wondered could we have been mistaken in giving him the name of Arthur, and then I realized that poor Arthur had contracted the dreaded dropsy. He seemed to feel all right as he never missed a meal, but he got so large that I didn't know how his skin would hold him. Two weeks ago I went into the den to give my fish their morning meal and Arthur was back to size. He looked weak and unsteady so as to give him a chance to survive I put him in a small five gallon aquarium with very little hope. That was two weeks ago and Arthur is his old graceful self. He has been returned to the large tank, and seems to be very happy to be home. The water in the aquarium has not been changed for the past three years and Arthur has been with us for over two years. He is very tame and comes to the top of the water to get the first bit of food and will take white worms directly from our fingers. He loves attention and becomes very active when we have guests. Everyone admires him and some people think that he is the prettiest fish in my collection.

New Society

Wichita Aquarium Society

This newly organized society is open for memberships of all hobbyists living in the area in and nearby Wichita, Kansas. The group is headed up by Mr. John H. Ackley of 1423 South Waco, Wichita 11, Kansas. Mrs. J. Hubert Martin is the secretary-treasurer, 1651 South Volutsia, Wichita, Kansas. Those living in the vicinity who would like to meet with and join a progressive and very active group of tropical and native fish enthusiasts are cordially invited to get in touch with the secretary.

MAY, 1952

New Newark (N.J.) Society

The Exotic Fish Fanciers is the name of a new society formed recently in Newark, N. J., for the benefit of those living nearby to enjoy the benefits of the hobby. One of their first activities was to set up a small but attractive exhibit in the Newark Alexander Street Library. The interest created in this exhibit carried considerable weight in adding new members. A larger exhibition is planned for next year. Those who wish to join with this new group can do so by contacting Richard Zink, 269 West End Avenue, Newark 6, N. J.

Winston-Salem (N. C.)

Activity

Bobby Brooks of 2352 Westover Drive, Winston-Salem, N. C., has been instrumental in getting together a group of junior enthusiasts to form an aquarium society. They are planning a full scale program in which everyone can take an active part, expand their knowledge, broaden their experience and enjoy their hobby to a greater extent. All juniors in and nearby Winston-Salem are especially invited to get in touch with him by either telephone (2-3765) or by letter.

Waterbury Tropical Fish Society

A new society known as "THE WATERBURY TROPICAL FISH SOCIETY," was recently formed by enthusiasts from Waterbury and vicinity. Meetings are held on the fourth Tuesday of each month. Interesting and extensive programs are being arranged. Visitors and fanciers are especially welcome to meet with them. Further information can be obtained by addressing the secretary; Mrs. Isuara Bartolini, 30 Roland St., Waterbury, Conn.

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Here Comes That Summer Sun!

by C. J. LUMB, JR.
New Milford, N.J.

Since the Winter solstice of December 21st, the sun has been moving northward slowly but steadily. We become aware of its progress as we note the lengthening days and feel the warmth of the sun's rays. But as we welcome Old Sol from his Southern migration, we must remember that he can make many changes in the conditions of our aquarium.

While the Spring season advances, we may discover a new, more luxuriant growth in the plants of our aquarium. Leaves that were light green or even a yellowish hue now take on a deeper, more brilliant shade of green. During the Winter, we may have been concerned about the health of these plants but now we observe new runners growing from them or perhaps seedlings sending up tiny leaves from the aquarium gravel.

But like the rain which "falleth on the just and the unjust" so do the rays of the sun shine not only on the plants but the glass sides of our aquarium as well. And soon, we see a film of dark green appear on the inside part of the glass. This ever-widening film is formed of minute growths of algae that are encouraged by the stimulating light of the sun. At first, this film is so light and transparent that we scarcely notice it but it grows so rapidly that our tropical fish are hidden from view and we must remove it with an aquarium scraper or some fine steel wool. Of course, the algae is not objectionable to the fish who enjoy nibbling at it hour after hour. However the fish must forego that pleasure so that we may have the pleasure of watching them!

With the sun rising higher in the heavens and shining for longer periods on our aquarium, we may also find a

problem of oxygen supply confronts our fish and it is wise to solve this problem before the summer sun really arrives. If our aquarium is too well stocked with fish, the increased temperature of the water reduces the oxygen content. The fish rise to the surface more and more, seeking more oxygen. If not already provided, artificial aeration will ease the situation. Or if it is already employed, the supply should be increased.

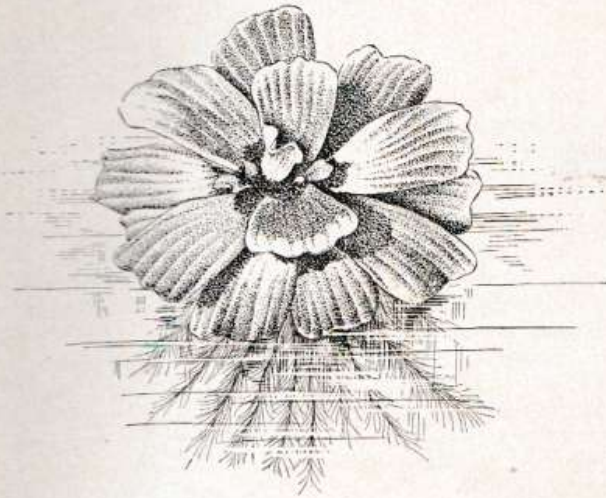
A simple and effective way to keep our aquarium cooler is to shield it from the sun. Fastening pieces of light cardboard to the sides with Scotch tape or masking tape will do this. Or if our aquarium is exposed to the sun for a long period each day, it should be moved to a more shaded location.

During the months of May and June, be sure to guard against the increasing power of the sun. A good indicator of changing conditions is your aquarium thermometer. Watch it daily. And when it climbs into the eighties and nineties, that is a signal to start your protection program against "ol' debil Summer sun".

Canton, Ohio, Fanciers — please note

Starting out with a new and impressive program for their members and all hobbyists in the vicinity . . . the Canton, Ohio, Aquarium Society invites all fish fanciers throughout the area to meet with them in expanding their activities in all directions in which the modern hobbyists are interested. Fanciers who are interested in breeding the so-called "hard to breed" fishes should be especially interested in this group. For complete information phone Andrew G. Plant on 4-9227 or write him at 1013—25th St., N. W., Canton 9, Ohio.

PLANTS—



WATER LETTUCE (*Pistia stratiotes*) (about two-thirds size)

Now that Spring is really making itself felt in many sections of the country, some thought may be given to some of the more unusual floating plants that can be put in outside tanks or pools. Water Lettuce is one of them. It is a beautiful thing when in a spot that is particularly suited to it. This plant likes plenty of heat, 75 degrees is about right, with a moist atmosphere and not a great deal of direct sun.

It is a good "floater" with fluted, light-green, velvety leaves that form

attractive rosettes on the surface of the water. Under favorable conditions it grows to a diameter of about four inches or more and multiplies rapidly if in an environment that does not permit it to dry out. While its root system is not as long or as thick as the Hyacinth, they do sometimes reach a length of nearly eighteen inches, and will in some cases accommodate the eggs of spawning fishes such as the Goldfish.

Obtainable from most of the larger dealers in aquatic plants.

CORRESPONDENCE



... Please ...

A stamped, self-addressed envelope should accompany every letter, as each one is answered personally, regardless of whether it is selected to appear here. To those who fail in this courtesy, replies will be sent postage collect.



From: Mrs. E. J. Arena, Hempstead,
N. Y.

I have a 25-gallon tank, well aerated, filtered, and kept at a temperature of 74 to 76. My fish seem to prosper quite well on a diet of Tubifex Worms, frozen Daphnia and an occasional meal of dried Shrimp, dried Daphnia, or cooked fish and seafood. Despite my efforts to keep my "family healthy and happy", I do seem to have an occasional death for no apparent reason. This I take in my stride, as I am fully aware of the fact that I will lose fish, but . . . when it comes to the point that I cannot keep Catfish, I draw the line, and beg for advice.

I have 3 Angel Fish, about the size of a half dollar, 3 White Clouds, 2 Rasboras, 3 Zebras, 2 Black Tets, 2 *R. heteromorphas*, 2 *R. trilineatas*, 2 *P. riddlei*, 2 Green Wagtails, 2 Rosaceus, 2 Green Swords, 1 small Plecostomus (doing nicely), 3 Aqua Strain Guppies, 2 Red Velvet Swords, 2 Serpae, 1 blue Betta (male) and 1 Barb.

With the exception of the Plecostomus, I have been unable to keep any Catfish more than one to five days. I have one dozen extra tall Vallisneria, about 1/2-dozen Corkscrew Vellisneria, 2 large *Cryptocoryne willisii*, and one small group of Hygrophila. The tank is set up with one large rock that is most beautiful but covers about half of the bottom space, with three small rocks appropriately arranged, and a sunken ship and diver air-release. I mention all of these items because I feel that I might not have sufficient plants. I used

so many rock ornamentations because the tank is short and very deep, thereby assuring the fish hiding spots without losing swimming area.

Recently while siphoning the bottom, I noticed small air bubbles arise from the gravel. I increased the aeration, eased up on the dried food and have since almost eliminated this. The only other fish that I have lost that seemed to remain close to the bottom were 2 *Ambassis lala*. The catfish that I have lost were 2 fully grown *Corydoras aeneus*, 1 *C. hastatus*, 1 *C. julii* and 1 *C. melanistius*, none of them lasted more than five days.

I realize how lengthy this letter may seem, but in my desire to get some advice, I did not want to omit any details that would make the situation incomplete.

ANSWER:

From your letter we are impressed with the fact that there may be two basic reasons why you have so much trouble with the little "Cats."

First—they are strictly bottom feeders . . . and as you have quite a large number (in proportion to the size of your tank) of fast moving "top" and "mid-depth" feeders, it is reasonable to believe that a good portion of the food was eaten before the little bottom feeding catfishes could pick it up. The others like to catch their food on the fly and if fed in proper quantities, they would just about clean it all up before it hit the bottom. The food that did escape

the faster moving mid-depth feeders would hardly be enough to keep the catfish going.

The next point is that it is possible that your excess rockwork on the bottom would create a number of small pockets under which the food that did manage to get down to the bottom, would lodge and get buried in crevices too small for the catfish to dig it out. This would ultimately result in considerable decomposition in and around the rockwork.

It follows that the catfish being on the bottom constantly, might be the first victims of gas generated by the decomposition under the sand and rocks. Look closely here too, and see if the sand has turned black under the surface. Look under the rocks too. Lift them out and smell them and see if they are fouling up on their bottoms. If so, clean out the tank, wash the rocks and sand thoroughly and replace.

The remedy: feed sparingly . . . but enough for the cats to get their fair share. On the other hand, another way to give the cats a good feeding is to take them out once in a while and let them feed in a separate tank or container for a day or two. Feed them good nourishing foods including some live foods.

By the way, frozen Daphnia is an excellent food, if handled carefully. But it must be cleaned up immediately when fed, otherwise it begins to decompose within a very short time and do a lot of damage if it gets down in the rock crevices and sand where even the cats cannot get it out.

* * *

*From: Charles S. Brandriff, Jr.
W. Collingswood, N. J.*

I have been told by a dealer that Albino Paradise fish and Bettas have a

poisonous bite and will cause a fungus to grow on the other fish. However, I have also seen these fish kept in community tanks with no bad results. Would you please inform me as to the correctness of this statement?

ANSWER:

It is a well known fact that any fish having spiny fins or teeth that are large enough to penetrate the scales or skin of other fishes, can inflict a wound on another fish that will cause fungus.

Fungus will attack any fish that has an open wound or even a dislodged scale, regardless of what kind of fish does the damage. Albino Paradise Fishes and Bettas are no different from other aquarium fishes in this respect, and you can put at least one in each tank without worrying about your pets being poisoned.

* * *

From: John Pisaneschi, Swoyersville, Pa.

Why are my Red Moon's fins closed (especially the females)? Why do my Barbs rub against plants and sand? Why are my plants falling apart, especially the Corkscrew Val.? Why is my water cloudy? Why are my Guppies' fins closed (I had over 50, now, I have 15)? I've tried salt for them, the moons too. How can I stop algae from growing or growing too thick? Why does my water get dirty quick? I don't have a filter, heater, etc.

ANSWER:

We would like very much to answer all of your many questions . . . but how can we do it if you do not tell us what the actual conditions are in your tanks?

Some of the things we should know in order to give you an intelligent reply should be—how many fishes do you have or have had in your tank . . . what

kind are they . . . how large is your tank . . . what is the temperature of the water . . . what have you been feeding them . . . how deep is the sand . . . how thickly is your tank planted, and with what kind of plants?

All of these things are important to know if we are to give you any kind of a reply that will help you straighten out your Moons with the closed fins . . . maybe they are too cold! Maybe they have the "Ichthy." Maybe they are not getting the right kind of food, or too much of whatever you are feeding them. The same things apply to your Barbs.

As for the plants. Maybe they do not have enough light, or the sand is too deep, or they are too crowded, or you put so much salt in the water that it is killing them!

What kind of algae is growing too thickly for you? Green Algae—Long Hair Algae — Brown Algae — Blue-Green Algae?

You see, Jon, it is pretty hard for us to just guess about some of your problems unless you explain them to us more fully. So the next time you write tell us the complete story, and state all of the facts clearly, then it is possible that we may be able to really help you.

* * *

From: Peter R. Morley, Providence, R. I.

Could you tell me what the growth is that is in this bottle? I found it today in my fish tank. It was on the bottom resting on the sand. It apparently weighted the plant down that it is attached to. Should I be worried? It was in a clear five gallon tank, with young live-bearers in it. There is no more that I can see but if it should return please advise me what to do.

Also in the upper stratum of my 8-gallon tank there is a brown layer of protozoa life (I think). The tank has been set up now for about a year and only in the last month has it become noticeable. It is so thick I can't even see the rear of the tank. The rest of the water is clear as crystal. I'm trying to breed some Albino Paradise fish in this tank. They jog and move so I think it's protozoa. What caused this intense concentration? It receives 3 hours artificial light per day.

ANSWER:

You need not be alarmed over the little aquatic animals that are in your tank as represented by the sample you sent in to us. They are extremely interesting bryozoan animals called Plumatella. An animal lives in each little terminal point of the casing you have discovered.

Far from being injurious, it will be apparent that in their tiny way they have a tendency to clear the water.

There is no possibility of their catching even the smallest of newly-hatched fishes.

The trouble with your 8-gallon tank seems to be that there is a growth of Brown Algae in it. About the only thing to do is to empty out the tank and clean up the bottom and sides thoroughly, put in clean aged water and return the plants and fishes. If you do not want to do this, try adding about two teaspoons of salt to the gallon of aquarium water, and give the tank a little bit more direct light, or, at least twice as much artificial light as it is getting now.

* * *

From: Peter Mendelis, Detroit, Mich.

My fish are condemned with tail rot and most of the females are ready to

give birth. Please tell me what I can do to cure this.

ANSWER:

Tail Rot and Fungus are very similar diseases, and should be treated with a good salt bath lasting for several days, or, until some real progress is observed.

Use two level teaspoons of salt to the gallon of aquarium water, then add two more teaspoons the second day, treatment should last at least for three days or more.

Friend Peter, you must be doing something radically wrong to get your fishes in such run-down condition. Remember, if you handle them right, you won't be troubled with such things as tail or fin rot. Check up to see if you have chilled them, given them a sudden temperature change or untempered water. Overfeeding will also start them going this way. Maybe they have poor aeration, or are too crowded for their tank, or need more light . . . and above all KEEP THEM CLEAN.

* * *

From: Don Hilbert, Omaha, Nebr.

I have long been waiting to spawn Goldfish and had prepared a 19-gallon container for them. Last night, when I was going to buy a few larger than I have at present, the dealer, pointing to a container of about 125-gallons, told me that Goldfish are seldom spawned except in such containers outside.

This came to me as quite a surprise as well as a disappointment. It climaxed the many contradicting things that I have read and been told, so I have finally written to you who would know the answers to these questions:

If a 19-gallon container is too small, I have a 47-gallon aquarium I could use. Is this also too small? How large must it be? Must it be outside? Would a closed-in porch do? I would also like to know where I could obtain some really fancy Goldfish?

ANSWER:

Since 1920—We know of a breeder who has spawned an advanced type of Jap and Telescope Broadtail Goldfishes as well as Commons and Comets, every year, in 15-gallon aquariums, located in an inside sun-room. Need we say more?

If you have a pair (male and female) Goldfish, and they are in top breeding condition, simply give them a 15-gallon tank, with a good sized bunch of Anacharis, Cabomba, Lesser Bladderwort or a Water Hyacinth with a long root to spawn on and let them go.

As soon as the spawning is over, which should be about 10.00 or 11.00 o'clock (they start at daylight), simply lift out the plants with the spawn on them and hatch them in another tank with water in it that has been drawn from the same tank in which the eggs were spawned.

Or—just lift out the breeders and let the eggs hatch right in the spot where they were spawned.

Have some Brine Shrimp ready for the babies to eat immediately upon their becoming free-swimming. This should be within two and a half to four days from the time they were spawned if the temperature is about 72 degrees.

Place your spawning tanks right in the house near a window where they will get some good sunlight, or as you mentioned it, the closed-in porch should be an ideal spot.

Really fancy Goldfish are not on the market today at any price. But there

are indications that they are coming back. We think that within a year or two there may be some nice stock available.

* * *

From: Rollin H. Johnson, Boulder, Colo.

There seems to be some disease in my aquarium that I can't get rid of. Several weeks ago the fish had "Ichthy" so I treated the tank with Sulphate of Quinine at the rate of $\frac{3}{4}$ -grain to a gallon of water, turned off the light, raised the temperature to 80 degrees and used the aerator. I gave the same treatment every other day until they had 3 treatments.

The "Ichthy" disappeared, but I noticed that even before they came down with it they would scratch their gill coverings (not stomachs) on leaves as if they had a terrible itching in their gills, they would almost go crazy doing it and then would dive under a leaf on the bottom as if to hide from something. My blue Betta about 5 months old acts as if he is going to die from it. He won't eat, tears around like mad for a few minutes, then comes up for air and hangs limp in the water. I have Bettas, Guppies, Swordtails in my tank and they all act the same except not nearly as bad as the blue Betta. From this description can you tell me the cause and cure?

I have a tank of baby Bettas 5 days old. When I put a few Brine Shrimp in they gobbled them up. Is there any objection to feeding baby Bettas Brine Shrimp at that age?

ANSWER:

From your description, it appears that your fishes have been attacked by Flukes (animal parasite *Gyrodactylus*) . . . very contagious . . . and hard to treat without hurting the fishes themselves. Even the Quinine treatment that cured the

"Ichthy" did not effect them very much. One reason for this was that it was not long enough, or strong enough to hit into their gills. Flukes are hard to handle because they are so tough to get at . . . being usually buried deep in the gills and tender spots. However, they have been successfully treated in a bath of one part of glacial acetic acid to 500 parts of water (one drop to an ounce), the treatment should last about 20 seconds and repeated in two days.

Another treatment is 20 drops of Formaldehyde to a gallon of water. Leave fish in this bath until it shows signs of exhaustion (usually in 4 to 10 minutes). Repeat in two days. Keep all fishes attacked completely segregated.

Treat all fishes separately so that you can control their actions and take them out of the chemicals in time to prevent serious injury. Expect to lose some of them if they are already in a weakened condition.

Treat tanks and sand and plants to strong solutions of permanganate. Use a dip treatment for the plants of 1-grain to a quart, dip for about 3 or 4 minutes, longer might kill the plants. "Slosh" them around well and then rinse in running water. Treat your infected tanks and sand for several hours in the same strength of solution. It takes several days to destroy the parasite and unhatched eggs, etc.

There is still another treatment that is not so stringent as mentioned, which consists of the progressive salt treatment, starting off with three teaspoons of salt to the gallon of water and at the same time add about 10 drops of a 2% solution of Methylene Blue to each gallon. Add two more teaspoons of salt to the treatment each day until up to six per gallon has been reached. This treatment can be made with all of the fishes at one time. It is best to use a shallow

container such as an agate dish-pan which can be easily handled. It is also well to make up a new solution each day for about five days. This is a bit slower than the fast dips, but has the benefit of being easier to apply and can be given to all the effected fishes at once.

Regarding your baby Bettas, there is nothing better to start off any kind of baby fishes that are able to swallow them . . . than newly hatched Brine Shrimp.

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From: Mrs. Sara F. Wilkins, Park Forest, Chicago Heights, Ill.

In the case of my most recent problem with Betta fry, which it was thought was a case of "Flukes," the source itself of the disease puzzles me. It couldn't have been transmitted through other fishes or plants since I bred the Bettas myself in a never before used aquarium, with a total absence of plants and gravel, which means, I would think, that the disease could not have originated from any outside source. In any case, I'll be encouraged by the thought that such ill-luck should not recur!

ANSWER:

The Fluke or *Gyrodactylus* parasites are so small in most cases, that only a high power microscope can detect them to any degree of assurance. In many cases they become well established before the aquarist is even aware of them. This obscures the start of the trouble so much that it is difficult to construct the actual conditions that might have contributed to the original means of infection. For this reason we cannot be completely sure just how such epidemics start, or when, but as a rule, it has been repeatedly observed that they usually happen where small fishes are kept together in crowded quarters.

With Goldfish (Gill Fever or Flukes) frequently occurs when large spawns are kept together in small spaces for a month or two, but seldom if ever has it been known to break out when they have been split up early and given plenty of good space and live foods such as Micro, White Worms (crushed) or Brine Shrimp. Many breeders have been of the opinion that some of these animal parasites get into baby fishes when they are fed sifted live foods that have been taken out of ponds or streams, such as finely sifted Daphnia. It has been felt that it is best to give them foods that cannot possibly have any chance parasites in among them. This same idea applies almost to any species of fish fry that we know of.

It is the opinion of the majority of experienced breeders that all fry should be split up in several containers, so that they will have a far better chance of escaping many of the prevalent diseases that ordinarily take a heavy toll of them. Their opinion is that the safest way to treat them is to thin them out immediately upon their ability to swim about on their own.

Where the minute animal parasitic diseases originate from is a question that has no apparent answer in a general sense. For instance, where or how does "Ichthy" suddenly appear in a tank that is spotless, and under rigid control? Frankly, we have never had a confirming answer to this, and similar questions.

True, many of these diseases can be transmitted, there are unlimited ways in which "things" could happen, but, (as in your case for example) when rigid and careful supervision is exercised . . . still they do creep in . . . how . . . candidly, we do not know.