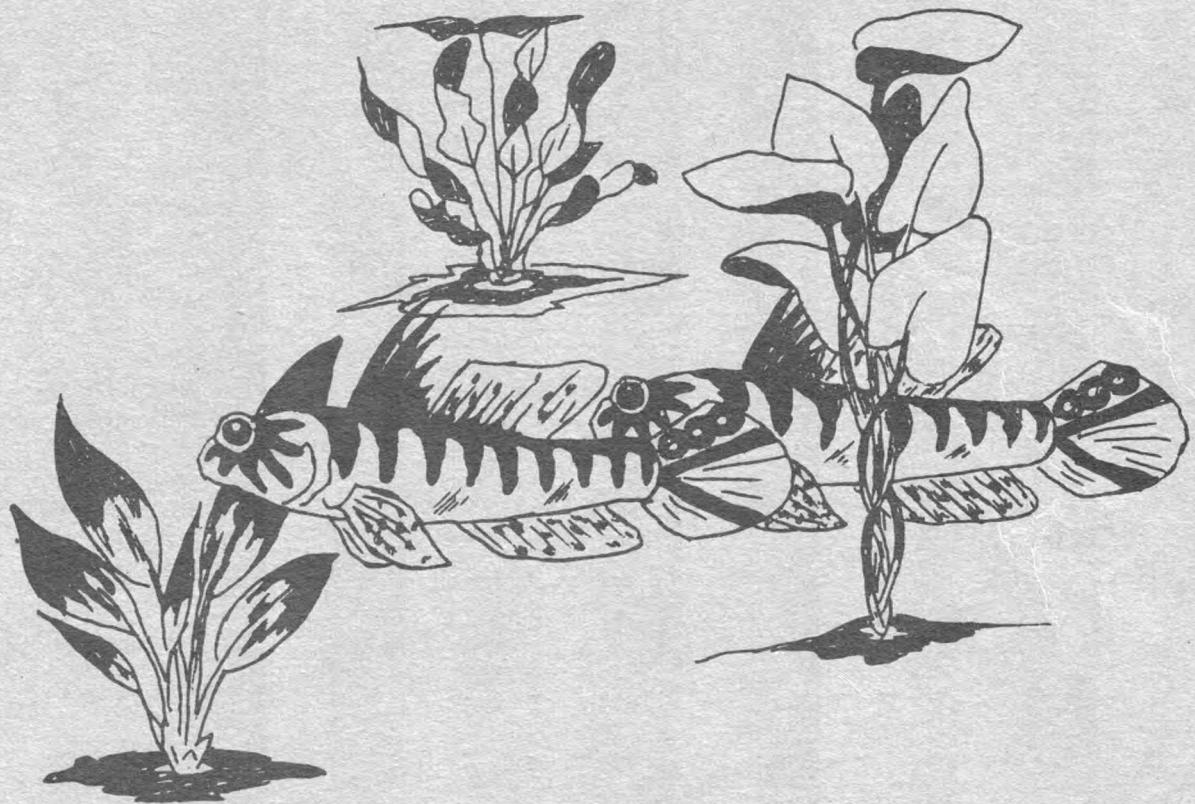


June 1977

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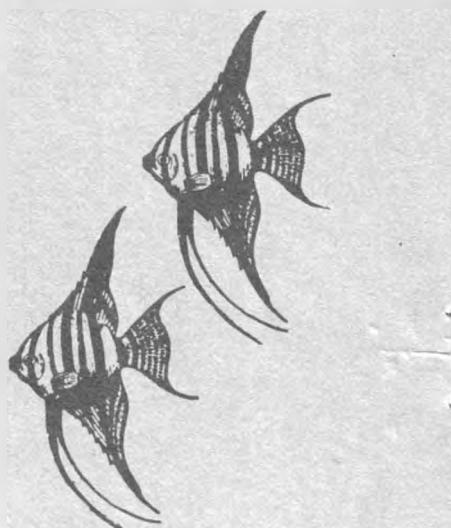
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Simmons and Ralph Wilhelm

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THE DARTER - M.A.S.I.
9407 Tilles Drive
Brentwood, Missouri 63144

Failure to receive three consecutive issues of a club's publication will be considered as a termination of our exchange with that club, unless advised to the contrary.

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PRESIDENT'S MESSAGE

In July you will have new Society officers. The past twelve months have gone swiftly; the experiences of being president have been widely varied; mostly pleasant, sometimes exhilarating, occasionally frustrating and/or disappointing. My fellow officers and the Executive Committee members have done their jobs well - as I hope I have - and I thank them. The nucleus of willing workers which we always have was enriched by the addition of several of the more recent members. To those of you who have joined recently or will join in the near future - by all means, participate in club activities.

We have had zeniths and nadirs in the past year's activities. The Annual Show/Workshop/Auction went off quite well despite last minutes trepidations, although as always, the number of entries in certain classes was disappointing. The Super Bowl was certainly a success. "The Darter" published twelve more outstanding issues, but more original articles were and are needed. The TV raffle was a low point. It could barely be called successful, but at least it avoided failure. The Christmas party was a social highlight, as was the annual Dinner/Dance.

In my first President's Message last July, I wrote about entering the annual show, and I will be going out of office on the same note. The central theme of our organization is fish, our common interest is fish. Half of the enjoyment of our hobby is keeping and raising fish, the other half is talking about them and showing them to others. What better way to have others see them than in the monthly bowl shows, the Super Bowl, and the Annual Show in April?

In conclusion, I pledge my full support, to the best of my ability, to the incoming officers, and I hope all of you will do the same. Thank you for the privilege of serving as M.A.S.I.'s president for the past year.



JUNE MEETING NOTICE

Time and Date:

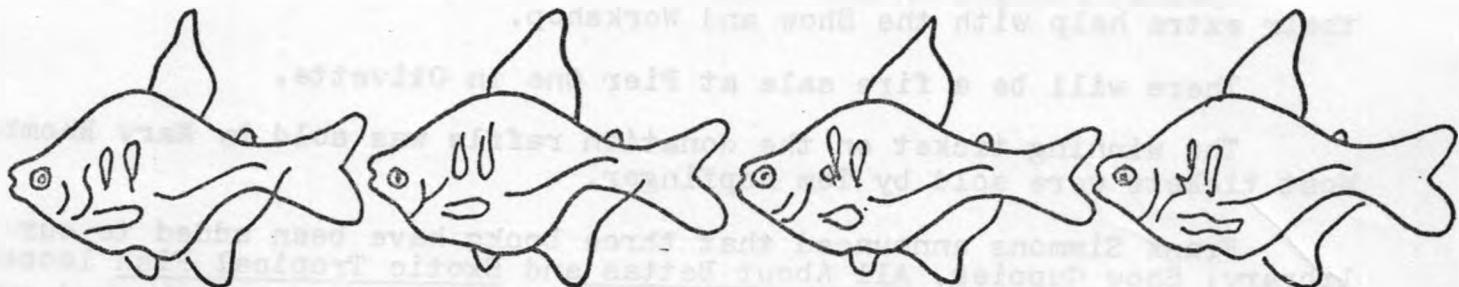
8:15 P.M. Wednesday June 8th

Place:

Prudential Savings and Loan
Community Room 6th floor
8020 Forsythe, Clayton, Missouri
Park in garage - lower level

Bowl Show:

Catfish - Corydoras only
Danios - all varieties
Open



MAY BOWL SHOW RESULTS

Guppies - male only

Hobbyist

(1 entry)

1. Don Epple

Novice

(No entries)

Bettas - male only

(2 entries)

(No entries)

1. Alden Joice

2. Bill Miskelly

Open

(2 entries)

1. Rich Crabtree

2. Carol Willemin

July:

Angels - all varieties

Goldfish - all varieties

Open

August:

Bettas - female only

Cichlids - dwarf, 4 inches or less at maturity

Open

GENERAL MEETING MINUTES

The regular, monthly meeting of the Missouri Aquarium Society, Inc. was called to order by the President, Ralph Wilhelm, on May 11, 1977.

Guests were introduced and Mr. Wilhelm announced that the Executive Council will meet at the Pozarics on May 21 at 8 p.m.

The minutes of the April meeting were approved as printed.

The Treasurer's report was received and filed subject to audit.

Tom Hopfinger gave a breakfown of Show and Workshop entries as well as attendance at the dinner dance. Mr. Wilhelm commented that now is not too soon to consider entries for next year's show. Member participation should be higher.

Special recogniton and thanks to Tom Hopfinger and Ken Cope for their extra help with the Show and Workshop.

There will be a fire sale at Pier One in Olivette.

The winning ticket on the donation raffle was sold by Mary Rhomberg. Most tickets were sold by Tom Hopfinger.

Frank Simmons announced that three books have been added to our library; Show Guppies, All About Bettas and Exotic Tropical Fish looseleaf. The last of the three is to be used at the meetings and not checked out.

Judging slips from the show are available and the summary sheets are here for inspection. The summary sheets must be retained for the club's records.

Tom Hopfinger told of a new publication, Canadien Fish Fanciers. Information is available for subscription.

Mr. Wilhelm read the proposed slate as published in the Darter and asked for additional nominations from the floor for each office. There were none and nominations were closed. Election to be held at the June regular meeting. Roy Maechler declined his nomination.

The Bowl Show winners were announced.

There will be an International Guppy Show at the Holiday Inn North on June 25 and 26.

Bill Miskelly asked if consideration is being given to larger quarters for our show. Council will take his question under advisement.

The Fulton Aquarium Society will have a collection trip on June 18. See Rick Smith for details.

Door prizes were awarded and the meeting adjourned.

A program of slides taken at the show and awards ceremony was shown.

Respectfully submitted,
8 v Richard / marie

EXECUTIVE COUNCIL MINUTES

The Executive Council was called to order by the President, Ralph Wilhelm, at the home of the Pozarics on May 21, 1977.

Present were: Steve and Barbara Pozaric, Ralph Wilhelm, Tom Hopfinger, Dave and Sharon Masters, Ken and Thelma Cope, Frank Simmons, Jim and Joy Bogacki, Rich and Louise Crabtree and Carol Willemin.

The Minutes of the previous meeting were approved as printed.

Tom Hopfinger gave the Treasurer's report which was received and filed subject to audit.

No Show Report.

The Council decided that the discs from the auction will be retained for future club purposes by Dave Masters. Comment was made that they are still relatively small for disposal.

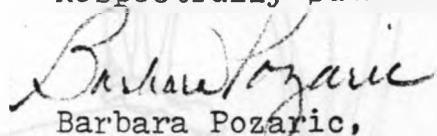
Mr. Wilhelm said that place and dates for the fall auction and 1978 Show/Workshop must be decided tonight. After discussion, it was moved, seconded and approved to contact Holiday Inn North for 1978 Show dates of April 22&23 and a fall auction date of Nov. 13 or 20. Mr. Hopfinger will contact the motel immediately.

It was noted that a Show of any greater size will require larger quarters and inquiry should be made now for a move in 1979.

In the future, the Treasurer's report will be read at the regular monthly meetings.

Meeting adjourned.

Respectfully submitted,


Barbara Pozaric,
Secretary

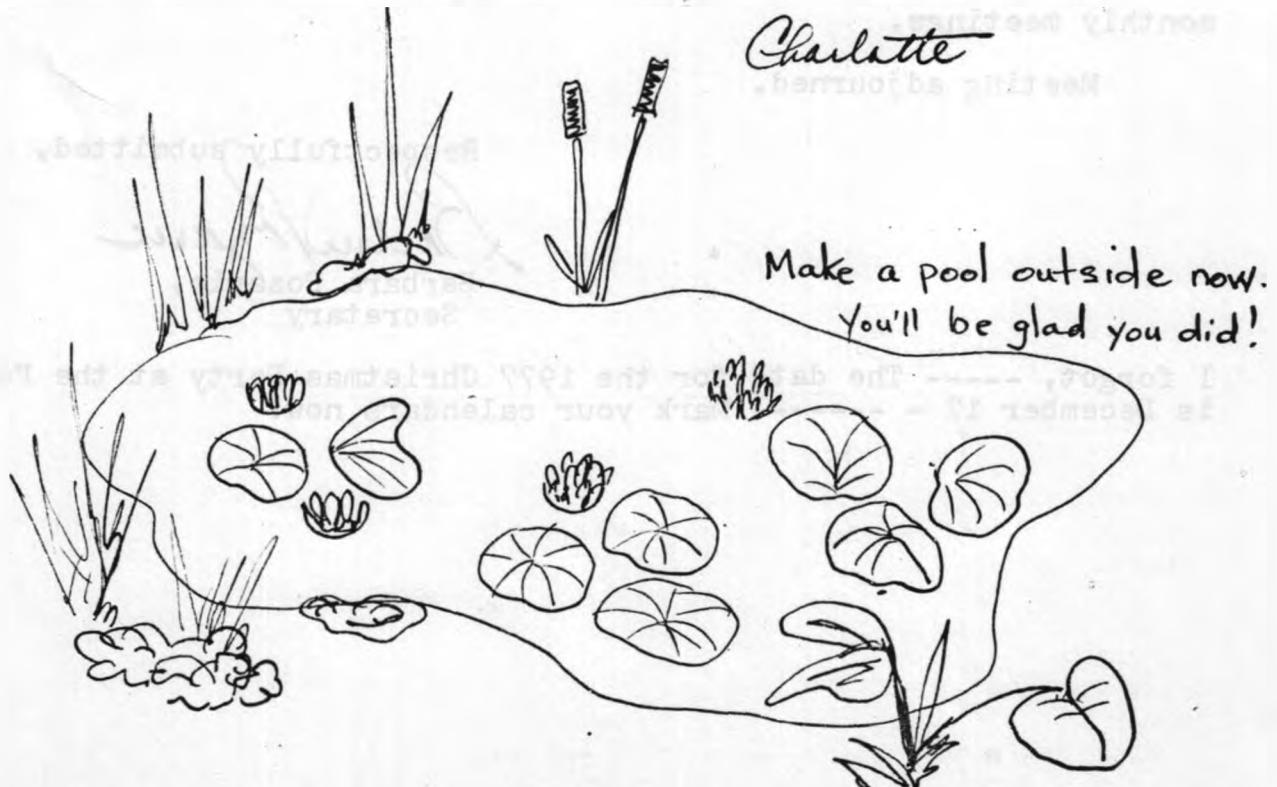
I forgot, ----- The date for the 1977 Christmas Party at the Pozarics is December 17 - ----- Mark your calendars now!

EDITORS MESSAGE
C. Hopfinger

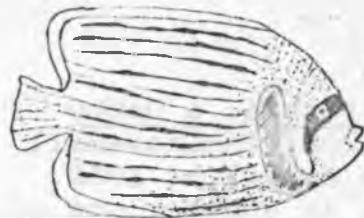
Another month, another issue, and with this month's election, comes a new slate of officers for M.A.S.I. As the changes occur we will also see a new Editor take over our club magazine, the Darter. It is with deep regret that I feel that I must leave this position in our club; however, since returning to a full time job, I never seem to be able to find enough hours in the day to complete all the many things that I have to do. Carol Willemin has kindly consented to take over the helm as our new editor, and we will be working together over the next few months to make the transition as simple as possible. We all know the capabilities and never ending abundance of talent and energy that Carol has shown. I, personally, can't think of a better person to take over the editorship. Good luck, Carol, and THANK YOU!

The exchange address for the Darter will remain the same. This should facilitate any difficulties we could have with receiving other club publications.

Please come to the June meeting and vote for our new officers and council members. They will have a big task ahead of them in the coming year. Give each candidate of your choice the support he or she needs.



Book Reviews



By Marilyn Waterston

The Fresh and Saltwater Fishes of the World, by Edward Megdalski and George Fichter, (Knoph Pub. 1976, New York, \$25.), was an interesting change from the typical aquarium book. Classification was in three sections: the jawless fishes, the cartilaginous fishes, and the bony fishes. Additional information on fish in general could be found in sections such as "Fishes from past to present", and "The fish's body and its functions".

In the section on Jawless fishes we find fish found, sometimes, in public aquaria- but not in the home aquarium. Representative fish from this category are lamprey and hagfish.

The Cartilaginous fishes also are suited for large public aquaria-- with members such as; sharks, skates, stingrays, eagle rays, mantas, and chimaeras.

The bony fishes are what is most interesting to us. Of course this section contains quite a few fish that are not suited for our homes, but are interesting anyway. I think that almost all of the fish usually found in the aquarium trade can be found in this book, along with good illustrations of almost all the fish.

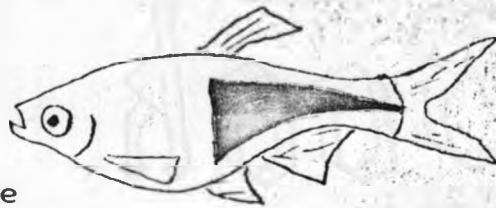
One of the very good points of this book is the fact that it gives the reader the kind of information that typical aquarium books do not. Some books will give you a general idea where the fish comes from-- but will not give the full details on water conditions etc. I found one catfish in this book (the three striped catfish, *Etropiellus debauwi*) that I had found no written information on in any other book I checked.

Over all, it is a very informative book-- but it does have its bad points. One thing I found to be somewhat difficult to manage was the way the book was organized. In the section on bony fishes, saltwater and freshwater fish were all commingled, and it seemed that there really was not much order to the book. The order was a biological one, not a geographical one. Still, it is a very interesting book, and basically well written.

Tropical Fish as a Hobby
by Herbert Axelrod, (McGraw-Hill

Book Co., First Copyright 1952,
Revised, 1969), is another one of the

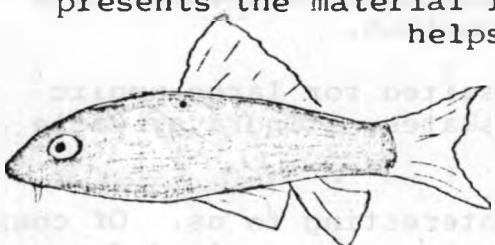
plethora of beginners books on the market today. It has the usual chapters on livebearers, eggayers, scavengers, three pages on "annual" fishes, and plants. There are a few sections however, that have some originality.



Section #8 is a section on how to keep fish healthy, and gives an interesting method on how to raise daphnia. Basically, Axelrod says that you need beakers or jars that hold at least 2 pints of water. You then select six adult daphnia and put them in the jars. You then add dried shredded lettuce, Horlick's malted milk, infusoria or hay (as food). He then adds that the culture may turn cloudy which is ok, as long as it does not turn moldy. The culture should be changed once a month. Axelrod also explains how to set up white worm cultures, hatch brine shrimp, and set up tubifex cultures.

Chapter #9 is a section on the use and repair of appliances. While Axelrod does a very good job explaining how to use the various appliances available in the trade, he does not say much about their repair.

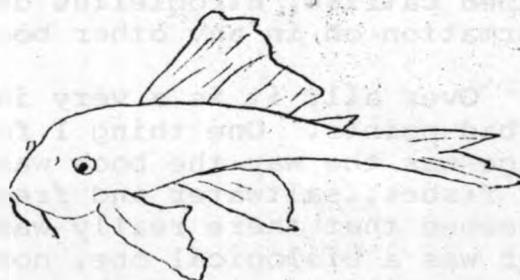
Chapter #12 is on genetics. For a non-scientific person like myself, this section seems quite baffeling. However, Axelrod presents the material in a clear and concise manner, which helps greatly.



The Fresh and Saltwater Fishes of the World, and Tropical Fish as a Hobby Are both available from the county

library. I assume that Axelrod's book is still in print since it was revised in 1969. Probably it could be ordered from a book store. The Megdalski book is so new that you probably could find it in one of the area book stores.

Till next time, keep reading!



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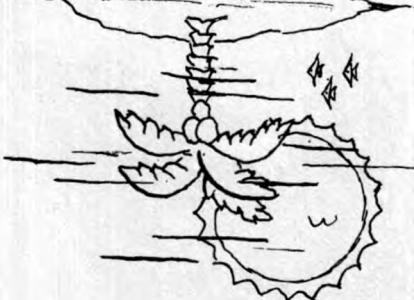
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LIVE FOODS FOR AQUARIUM FISH

by Stan Marlin R.A.S.*

(This is the third in a series of articles concerning the proper maintenance of live foods)

TYPE THREE: ENCHYTRAEUS ALBUS - - WHITE WORMS

Without a doubt, the above topic raises extreme doubts in the minds of many aquarists. White Worms have been accused of doing more harm than good to the aquarium hobby. Yet despite all accusations such as disease spreader, dropsy causer; the White Worms have outlived criticism and are maintained by many aquarists as a food supplement. I have fed White Worms in my feeding cycle for the last few years and hope by this article to relieve the fears many aquarists have about this food source.

The White Worms are of the Invertabrate Phylum ANNELIDA, Biology text books immediately identifying them as a first cousin to the Earthworms and rightly so, the common Earthwork being further grouped into the same class OLIGOCHAETA which by coincidence also contains the Tubifex species. The White Worms show the major characteristics of the class such as segmented body, clitellum for cocoon secretion, lack of appendages, bristles for locomotion, and respiration through a moist skin. White Worms are much smaller than the Earthworm, being at most two centimeters in length.

To maintain an adequate feeding supply, I have discovered one major rule: ignore many rules that fish-keeping books stipulate about the raising of these worms. Let me relate some examples:

One author states: "Feeding White Worms lightly by inserting small pockets of food into the soil." I flagrantly violate this rule by throwing an entire damp slice of white bread or a cupful of mashed potatoes over my culture. This brings the worms to the surface adding to an easier collection process.

Another author states: "Keep the soil damp but not too moist as excess soil acidity will reduce the worm population drastically". I always violate this rule by keeping my culture in a very wet state; but not to the mud state, of course. I find that by keeping the soil overly wet, the worms will tend to stay closer to the surface, thus being near the food source piled on top.

Another adage I have read is: "Beware of mites that may reduce your worm population severely". The author fails to state how to rid your culture of mites other than by setting up a new one. But why worry! Mites have lived harmoniously in a culture that I have had going for more than a year now and the worms keep producing abundantly.

LIVE FOODS FOR AQUARIUM FISH CONTINUED:

And a fifth rule is: "Use a very rich rich loam soil high in organic content spread thickly over a sandy base". I have tried cultures in various ratios of loam to sand and have had very poor results. My prize producing culture consists of a peat moss medium. This I find is the medium in which to produce worms.

And for some unknown reason, many authors suggest only to use wooden trays as containers for a culture. I keep cultures in old, discarded refrigerator crispers; the type with sliding plastic tops being ideal.

Many aquarists have found it difficult to remove worms from the medium. Some suthors suggest picking them from the culture using a tweezers. A commercial product now on the market makes use of a heat source to drive the worms from soil clumps after which they fall into a water filled collecting jar.

Here are some methods proven to make worm removal easier: Usually, I leave a square glass sheet over part of the culture. The worms will congregate under this cover (probably because of humidity) and when the glass is picked up the worms will adhere to it and can be easily picked.

Another method is to place a soaked piece of white bread over the culture. After an hour or two the worms will congregate "en masse" under the bread and can be picked up in scores using only a toothpick.

No matter how you collect your worms do not feed them directly to your fish because the slime layer on the worms' bodies and their intestinal debris may be harmful to your fish. Drop the worms into a dish of cool water. Let them soak for a day and their appearance will be much whiter and cleaner. Using a toothpick around which the worms will entwine, drop adequate portions into your tanks. Fish get so excited when wiggling worms slowly descend into the tank depth. "Immediate attack" is foremost on the minds of all fish!

I do not feel that White Worms are a major or even aminor agent of disease, providing the aquarist allows his worms rinsing time in cool water. Certainly, overfeeding of such rich food could result in Dropsy but any aquarist "worth his salt" has a varied feeding program consisting of live, frozen, and dry foods, and White Worms are an easy way to provide one more supplement to a balanced feeding program.

This article was re-printed from the May '77 issue of Fins & Friends - Published by the Regina Aquarium Society.

PLANTS IN YOUR POOL

By: Sheri Williamson

Reprinted from the Mid-Cities Tropical Fish Hobbyists.

For many years I was convinced that I had a "brown thumb" - up to the elbow. Nothing grew for me; everything from duckweed to roses withered as I watched. Plastic aquarium plants were a blessing, but the neighbors sneered at my plastic oak tree. Alas, what to do? My yard looked like the Bonneville salt flats. Then, miraculously, I discovered my yard's (and ego's) salvation. About a year ago, I became enraptured with koi and made a fifty-dollar investment in a kid's wading pool and filter. After curing and testing with "feeded" goldfish, I felt safe enough to add my koi. The poor fish promptly had a nervous breakdown, no place to hide. Panic-stricken, I bought some rather sickly water hyacinths, which died. Not being able to afford a poolful of plastic plants, I turned to my last viable alternative, water lilies. Amazingly, they grew and reproduced! I am now thoroughly hooked on all phases of water gardening and wish to share what I've learned.

TYPES OF COMMON POOL PLANTS

The traditional pool plant is, of course, the water lily. What many people don't know is that there are four basic types including over one hundred species, subspecies and varieties from dwarfs with leaves as big as a silver dollar to the giant Victoria with leaves up to four feet across. In addition, there are many domestic hybrids; some of which have been issued patents.

The most commonly kept in the U.S. are the hardies, those species, subspecies and varieties of the genus Nymphaea which can tolerate cold climates. Within this group there is much diversity. For example, some cannot survive our hot summers, while a few can't stand cold northern winters. Flowers range from the size of a shot-glass to 10" across and come in all shades of red, orange, pink, yellow and white. A few varieties change color as they age, being one color when they open and continually deepening in color until they wilt. Some have a strong perfume while others are practically scentless. Most are good, inexpensive and readily available for the beginning water gardener.

The next two types are the tropical Nymphaea lilies of the day-blooming types we find the most beautiful flowers in the water garden. In addition to the colors found in the hardies, many produce "blue" flowers ranging from the palest powder blue through lavender to royal purple. Blossoms may resemble tulips, roses, or chrysanthemums but are most often star-like with long narrow petals. Leaves are often wavy-edged and spotted or streaked with red and brown.

Two species are found in Texas. All tropical lilies require high temperatures and cannot survive temperatures below fifty degrees.

Night-blooming lilies, as the name implies, open at dusk and close at dawn. Flowers are mainly white, peach, pink and red and are often odorless.

The fourth type is more commonly known as the spatterdocks. Their genus, *Nuphar*, includes the Cape Fear spatterdock, a common aquarium plant. Flowers and foliage are not as attractive as in the *Nymphaea* lilies, but the plants are hardier and therefore worth a try. Flowers are cup-shaped, typically yellow, and often have a butter or rum odor. Leaves may be carried above the surface in shallow water.

The next major group of pool plants is the lotus, genera *Nelumbo* and *Nelumbium*. These are large plants, some growing as high as four feet out of the water. There are several types, including the American lotus, which grows in great profusion in local lakes. The true lotuses should not be confused with the Nile lotus or other *Nymphaea* lilies commonly called lotuses. Dried lotus seed pods are often used in flower arrangements. Plants may be grown from tubers or seeds; care must be taken as the tubers are rather delicate. The seeds must have a hole filed in the pointed end and be planted in soil, perhaps in an individual pot in the pool. An amazing fact, seeds of a Japanese form were found in an ancient lake bed. Three seeds, dating at 2,000 years old, were planted. One germinated and grew, producing large pink flowers two thousand years after the death of the parent plant!

Other similar plants, less common than water lilies, include *Nymphoides*, the water snowflake, *Hydrocleis*, the water poppy and certain *Cryptocorynes*. All are small plants suitable for aquaria or small pools. The water snowflake produces a delicate white blossom; the water poppy is named for its poppy-like golden flower. All three may be grown like lilies.

Bog and shallow-water plants can add a natural look to ground-level pools. Plants such as iris, cannas, umbrella plant, caladiums and taro thrive planted in the ground at the pools edge. They may also be planted around above-ground pools to mask the stark vertical sides. Shallow water plants such as cattails, rushes, sweetflag, arrowhead plant and water or swamp iris may be planted in the pool in raised containers. Tubs like those used for lilies may be raised on bricks or another inverted tub so that water depth is no deeper than four inches over the soil level.

Many aquarium plants adapt readily to pool life in warm weather. *Sagittaria* and *vallisneria* may be planted in gravel or coarse sand in shallow water. Amazon swordplants, *aponogetons* and *cryptocorynes* should be planted in small pots containing light soil covered with gravel, and in shallow water. *Cabomba*, *anacharis*, *ludwigia*, *hygrophila* and similar "bunch" plants do well planted in mud, putting out profuse root systems. Some species, such as *myriophyllum* and *ludwigia*, produce stalks above the water; many varieties will bloom outdoors, always above the surface.

STARTING OUT

Waterlilies and their relatives are adaptable plants by nature; they grow in water from soil level to six feet deep. Pool size, therefore, varies from a foot-deep tub for a dwarf variety to a huge formal pool.

The best depth is between twelve and thirty inches; growth is inhibited in deep water. Almost any container, from washtubs to bathtubs to watering troughs to stock tanks may be used for the propagation of water plants.

Most pool owners will find it more convenient to plant in containers filled with soil rather than have a mud bottom in the pool. Containers allow for easy removal of plants and a cleaner and more spacious environment for the fish. "Pots" may be anything from large clay flower pots to plastic dishpans to wooden boxes, depending on the size and type of pool. I find large plastic tups 12"-24" across and 6"-12" deep suit the purpose nicely for most plants. Remember: "weather" plastic tubs to rid them of excess chemicals and don't use metal tubs.

There are four places to obtain plants: 1) Large mail-order nurseries, 2) local nurseries, 3) local individuals, and 4) native waters. Mail order nurseries offer by far the best selection and prices, but the shipping can be rough on the plants. Local nurseries and individuals offer a smaller selection, but you can be sure of what you're getting and it's convenient. Collecting native varieties of which there are many, is timeconsuming, but a lot of fun; the plants are probably hardier as well. Beware of bringing in pests and parasites which might harm your fish.

When you get your plants, they must be planted as soon as possible to avoid set-backs in growth. The best time to buy and plant is in early spring for the hardies, late spring to early summer for the tropicals. The planting medium should be rich, a good type being heavy clay soil mixed two parts to one with composted manure (cow manure is available commercially, but if you happen to own a cow or horse. . .). The mixture should be wet but not muddy. In each container leave two inches at the top for a layer of gravel.

Most water lilies and their relatives spring from a horizontal rootstock or a bulb. Locate the growing end on the tubers and leave this about 2 inches above soil level, the rest being about 2 inches deep. Plant up to the base of the leaves and no deeper. Be sure to spread the roots well, avoiding breakage. When planted, cover each tub with a layer of pea gravel up to 2" deep, taking care not to cover the crown of the plant. This will keep the soil in and the fish out.

Water depth is not critical. Remember, however, that the water will be warmest in the upper layers. Tropical lilies do best in water 4"-10" deep; hardies will blossom sooner in spring if the water level is low. Also, the pool should receive as much sunlight as possible, even during the summer, as lilies don't thrive in the shade.

WINTER CARE

When fall comes, hardy lilies and other non-tropical plants will go into a dormant state, losing all but a few submerged leaves. Tropical lilies will continue to bloom until the first freeze; then they too will go into dormancy. Hardy plants may be left in the pool provided it never freezes solid. If any shallow water plants are in the pool, they should be removed before the first hard freeze and buried below the frost line until spring. There is no practical way to winter tropical plants like water hyacinths and tropical unless you have a greenhouse; the eyacintns may be replaced cheaply, and tropical lilies may be propaged from tubers found on the root of the parent plant.

These are removed and stored at about 60°F, until late spring. They are then planted like the original root or may be started in pots in aquarium indoors in February or March. Most other plants may be propagated by division of the rootstock in spring after new growth starts.

You may get wet and muddy twice a year from now on, but it will be worth it when you can sit in the yard and enjoy a galaxy of beautiful flowers without having to water and fertilize them every few days. Even your aquariums will look nicer, lush and green with pool-raised plants. Best of luck,

Lily-lovers everywhere!

ELECTIONS ELECTIONS ELECTIONS ELECTIONS ELECTIONS

We will elect our new officers at the June meeting. The slate of officers as proposed by the nominating committee was published in the May bulletin. There were no additional nominations from the floor at the May meeting so the list remains unchanged.

Be sure to attend the June meeting. Your vote is needed to reflect the views of the membership as to who will head up our society for the next year.

COLLECTING TRIP COLLECTING TRIP COLLECTING TRIP COLLECTING TRIP

At 10:00 AM on June 18th 1977 the Aquarists of Central Missouri will meet for a collecting trip. Live foods, native fish, rocks, etc. Bring your own lunch. Anyone prone to falling in should bring dry clothes. For more information call our member Rick Smith. His phone number is (314) 721 - 3741. Weekdays 4:00 P.M. to 12:00 A.M. Friday and weekends 4:00 P.M. to 6:00 P.M.

SHOW TIME 1978

Yes, it's show time again. We have set the date for our 1978 annual show and workshop. We will be again at the Holiday Inn North and the dates will be April 21, 22, and 23, 1978. Start planning now to attend. Be sure to mark your calendar.

AUCTION '77

Our next M.A.S.I. auction will be held on December 4th 1977. We will be holding the auction at the Holiday Inn North - I 70 and Lindbergh Blvd. More details will be announced as auction time draws nearer.

CHECKLIST BEFORE MEDICATING

by Nancy White G.A.A.S.

Your fish are not acting right. They're not as anxious to eat as normal. Maybe one or two have dies recently. What should you do?

1. Make sure heater is not stuck on or off. Check temperature with a reliable thermometer. To check thermometer accuracy, place under arm against the skin for 5 minutes. Should read 95°-96°.
2. Check pH of your tap water then check tank pH. If your tap water is consistant, and if you are doing nothing to alter pH in tanks, and if you are making regular partial water changes (which you should be doing) then the pH reading of your tap and tank water should be very close to the same. If there is a definite color difference in the test solution, something is wrong. Possibilities: Not making partial water changes regularly; excessive uneaten food or dead fish/plants decomposing; pH altering substance in tank (rocks, shells, some gravels, etc.).
3. If just one or two fish died for no apparent reason, think about the species that dies and ask yourself - is it usually tank-raised or imported wild? If wild and adult, it could have been old when you got it. If you have had it for a couple of years, it could be old (for its species) also. The point being, fish do not live forever. Excluding cichlids and acavengers (cats, loaches, etc.) life span of the most commonly kept aquarium fishes is a 2-4 years (barbs, tetras, gouramis, livebearers), with exceptions, of course. If you start with juveniles, you can usually assume they are under 6 months old and add how long you've had them to determine age. If you buy adults and don't know the background, you're taking a chance on age.
4. Check floating plants. They can catch uneaten food and debri and restrict water/surface exchange of carbon dioxide and oxygen due to reduced water circulation. Swish plants around now and then to keep them clean and thin them out if prolific.
5. Make sure air flow is properly set and that water circulation is not impeded by dirty, clogged filters.
6. Could you be experiencing the "New Tank Syndrome"? In a newly set-up tank, with new (even if aged) water, there is a lag before the "good-guy" bacteria are established enough to break down the amonia produced by uneaten food and fish wastes. This can be speeded up by adding water/gravel from an established tank. The first 1-4 weeks of an all new set-up are critical and if you haven't planted' bacteria via some used water and/or gravel, you should make frequent (2/week) partial (15%-20%) water changes to dilute the amonia buildup until the bacteria are established enough to handle the amonia load (usually established by 4-6 weeks). As always, but especially in a new set-up, DO NOT OVERCROWD. After 6 weeks, a 20% water change per week should be adequate. If this amount seems to stress fish, reduce to 15%, etc.

CHECKLIST BEFORE MEDICATING CONTINUED:

7. Check fish food. Frozen food should have good color, flake foods should be kept dry to avoid mold, live food should be lively for its kind.

If you have found a problem and corrected it, WAIT a few days for the fish to resume normal activity. Don't expect them to snap back immediatley if they have been under stress. If 1-7 are O.K. and your fish still aren't acting right, change water a little more frequently (not more per-cent; more often), add a teaspoon of salt to each 5 gallons, gradually, and increase the air. WAIT a couple of days for improvement.

Internal problems baffle the experts, so don't guess at medicating for something you can't see. Those external diseases we can see are mostly preventable by good aquarium management. As a matter of fact, should we ever medicate our fishes? We personally believe the answer is seldom, but if you feel you must, eliminate possible causes first, THEN decide if medication is necessary. If so, proceed with caution, wait patiently for results and keep your fingers crossed, which may help as much as the medication.

THANK YOU THANK YOU THANK YOU THANK YOU THANK YOU THANK YOU

The members of Missouri-Illinois Betta Breeders wish to express their appreciation to the members of Missouri Aquarium Society for their help and cooperation in making the International Betta Congress District show a success. Thanks again for everything.

Ken Cope
Show Chairman - M.I.B.B.

WINNERS WINNERS WINNERS WINNERS WINNERS WINNERS WINNERS

We are pleased to announce the winners of our latest donation prizes:

- 1st - 19" color TV - Albert Boxley - Kansas City
- 2nd - TV game - Charles Kell - St. Louis
- 3rd - AM-FM Clock Radio - Donna Miskelly - St. Louis

The winning ticket was sold by Mary Rhomberg - The most tickets by Tom Hopfinger. Thanks to all of you who were so generous with your donations.

A further word about winners - There were many nice prizes given away at the Peoria one day workshop. They had a 70 gal tank, a 55 gal tank, some small tanks, many filters and miscelaneous items. Ralph Wilhelm was the first of our members to be given a prize. Frank Simmons brought home a 55 gallon tank.

ELECTIONS ELECTIONS ELECTIONS ELECTIONS ELECTIONS
THIS MONTH THIS MONTH THIS MONTH THIS MONTH THIS MONTH THIS MONTH

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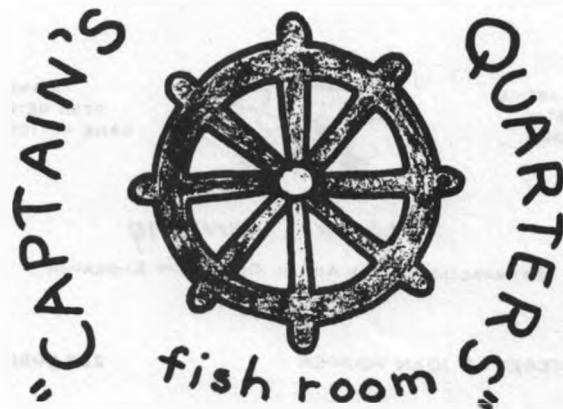
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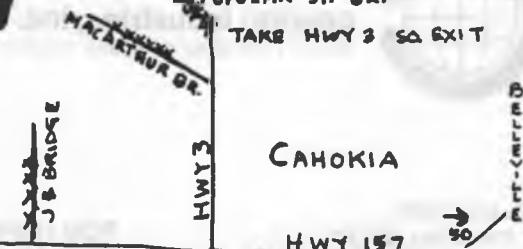
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VACATIONIZING FISH

Reprinted from The Hobbyists' Center, No 3. May-June, 1976. Golden State Aquatics, 717 E. Juanita Ave. Glendora, California 91740.

By: Lidge Hill

Mention the magic words "vacation" and I eagerly throw a few clothes into a suitcase and am ready to leave almost instantly. I say "almost instantly" because through the excitement slowly seeps the knowledge that a fish room full of fish needs some sort of attention if there are to be many fish left to carry on prize blood lines on return.

Through the years I have tried many different 'vacationizing' experiments, with varying degrees of success. At first it seemed that the most logical answer was to hire a 'fish-sitter'. So-o-o, blithely I hired a boy down the street to come in once a day to feed the fish a carefully detailed amount of specified foods. Results-disaster! Lost kids have never tended more than a single goldfish in a tiny bowl and do not seem to grasp the principle that each of the breeding tanks in a fish room contain different sized fish with different sized appetites.

Our meticulous 'fish-sitter' carefully measured the exact amount of food, as per instructions, and put the same measure into each of the tanks, regardless of the number and size of occupants. Inexperienced at recognizing uneaten food on the bottom of the tank, he compounded the error daily by adding more and more food even though past meals hadn't been eaten. As some of the fish began looking rather poor he began browsing through my collection of fish books for the answer. Several of these books stressed that guppies should be fed several times a day to get good growth, so our eager budding aquarist did me the favor of encouraging the growth of my fish by coming twice a day to feed the prescribed daily dosage. I think by now you can imagine what the situation was at the end of three weeks. . . . cloudy, fouled tanks full of dead or dying fish. . . . a fish room that smelled like a stagnant bog and a fish sitter that was close to tears because he could not find the solution to the 'disease' that had gotten into my tanks. Moral: Don't hire a fish sitter unless you are sure they actually know the ins and outs of fish keeping.

The next experiment was just as drastic in its own way as the first. Much literature assures one that fish can live 14 days without food. Since this seemed preferable to the polluted tanks from mis-feeding. I just walked out, closed the fish room door and left. Well, the literature may be right about 14 days but that 15th day is literally murder. The percentage of fish alive on my return was really considerably hight than before, but peering resentfully back at me from most of the tanks were a sad array of skinny, hollow bellied, emaciated guppies.

I immediately threw in generous portions of food to attempt to fill up those hollow bellies. This was a big mistake! The hungry gobbled up so much of the dry food that many had bloated and died before the next day. End result: I had more live fish than after the first

experiment, but I had learned some vital facts. (1) Don't leave fish unfed for over 14 days; (2) Feed very lightly upon returning to hungry fish until the fish get used to eating again; (3) Try to discover why fish in a few tanks look fairly well fed and why no fish were lost from these tanks.

Puzzled over item 3 above, I finally realized that in these tanks which had come through the famine in good shape, there were several large females. Knowing that guppies produce large litters of young fish, and that these young frequently become tasty tidbits for even well-fed fish, it was not hard to deduce that the occupants of these tanks had had fairly regular feedings of live food during my absence. Ah ha! Now I had the answer.

During the months preceding my next vacation, I began putting expendable virgin females into tanks containing males...a few each day, ...so that young could be expected to be dropped almost daily during our entire absence. End result: (1) Adolescent and adult fish were lean and hungry after 3 weeks, but all were lively and healthy and quickly filled out again after feeding was resumed; (2) Baby fish and very young fish were just as starved (and dead) as in the past. Deduction: I now had part of the answer, but more experimentation was needed to save the younger ones.

As it did not seem too practical to try to supply 54 tanks with the handy dandy expensive automatic feeding devices, it was considerable time before any answer turned up for saving the younger fish, so 'vacationizing' the fish included making sure that there were no younger fish on hand at vacation time. This was hard on the breeding program (but no harder than losing them by starvation). By now I was also leaving a big ball of tubifex worms in each tank (but make sure they are fresh, well-cleaned ones!) The fish feed on these for the first few days and reduced rations are delayed that much longer.

Then I discovered two products that prompted further experiments. Both items were designed to feed fish during the breeders' absence. Could I now leave very young fish successfully? The two items tested were Aquatrol's "Banquet" and Wardley's "Vacation Food". Both products are blocks which dissolve gradually in the water, releasing fresh food daily. The dissolving base of "Vacation Food" is an aquarium neutralized substance whereas the "Banquet" base is a slowly dissolving food. Into half of my tanks I put "Banquet" and into the other half "Vacation Food." I didn't use specially bred females to supply live food as I wanted to test the food blocks alone.

After 16 days the end results were : (1) In tanks which contained the "Vacation Food":... (minimum crude protein 0.4)...no loss of fish but many were hungry, skinny and some were hollow bellied. The tank bottom was covered with a whitish scum from the dissolving neutralized. The water was clear but clouded when the fish stirred up the white scum. Fish grew little, if any, were not active. A small amount of each block remained by was ignored by the fish.

(2) In tanks which contained "Banquet"... (minimum crude protein 40% plus many vitamin supplements) fish looked well fed, were very

active and had grown at almost a normal rate. There was no loss of fish, water was clear, tank bottom was clean except for normal mulm, most tanks still had tiny amounts of the food cakes left and fish worked on them constantly.

One word of caution though...before using the food blocks, dispose of all snails that may be in your tanks as they will swarm over the block so that the fish cannot get to it. On the other hand, if you are raising mystery or any other kind of snails, a few flocks kept constantly in the tanks are an excellent way to feed them.

I originally wrote the above article in about 1968. Since then I have continued to use the food blocks successfully during my vacation times and have made a few more discoveries:

(1) The Banquet blocks are reusable...just remove them from the tanks when you get back and let them dry out and they will keep with no problems until the next vacation comes along.

(2) They are excellent to keep full time in tanks of baby catfish (and probably many other kinds of fry as well) for round-the-clock feeding.

(3) In addition to the Banquet blocks I now also keep gammarus in my tanks. Their young supply the fish with live foods to supplement the food blocks for well-rounded vacation feeding. (For more information on gammarus see Aquascope No. 2).

Fresh Water Ecology (cont'd from page 29)

Biogenic salts: This group includes the nitrates, phosphates, calcium, magnesium, etc. Nitrates and phosphates are limited in fresh water. Hard and soft water is created by the amount of magnesium and calcium in the water.

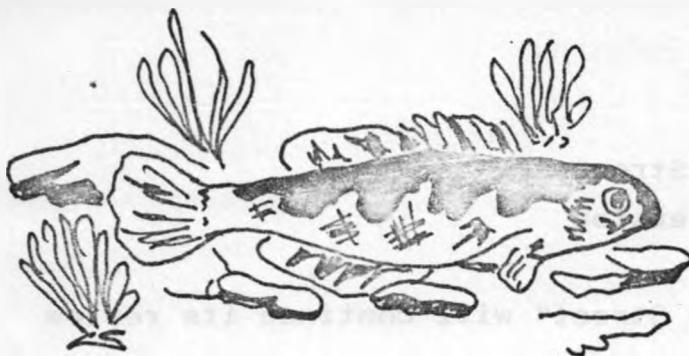
Animals in fresh water are classified in 3 ways: by their type of locomotion, by their feeding group, and by their zone occupation.

Next month we will look deeper into the types of animals in a fresh water environment.

HOW GOOD A CLUB MEMBER ARE YOU? USE THIS TABLE TO SEE HOW YOU RATE!!

MEMBERS ACTIVITIES	FAR EXCEEDS CLUB REQUIREMENTS	EXCEEDS CLUB REQUIREMENTS	MEETS CLUB REQUIREMENTS	NEEDS IMPROVEMENT	NEEDS VAST IMPROVEMENT
SPEED OF VOLUNTEERING	Is faster than a speeding bullet.	Is as fast as a speeding bullet.	Not quite as fast as a bullet.	Wounds self when shooting gun.	Volunteers when threatened with a gun.
WILLINGNESS TO PITCH IN	Will leap tall aquariums with a single bound.	Must take running leap over tall aquariums.	Can only leap over average aquarium with no stand.	Crashes into aquarium when leaping.	Cannot recognize aquariums much less leap.
CAPABILITY	Is stronger than aquarium cement.	Is stronger than a bull elephant.	Is stronger than a bull.	Shoots the bull.	Smells like a bull.
ADAPTABILITY	Walks on water consistently.	Walks on water in emergencies.	Washes with water.	Drinks water.	Passes water in emergencies.
INFORMATION Sharing	Talks with God.	Talks with the angels.	Talks to himself.	Argues with himself.	Loses those arguments.
PARTICIPATION	Makes countless motions.	Makes many motions.	Makes some motions.	Seconds motions.	Is motionless.
BREEDING	Breeds every fish known.	Breeds with other adult club members.	Specializes in breeding only a few fish.	Has enrolled in sex education course.	Has no breeding.
EXHIBITING	Exhibits fish on slightest provocation.	Exhibits fish in most shows.	Sometimes exhibits.	Raps on aquarium glass at exhibits.	Gets judged in court for exhibiting.
INTEREST IN FISH	Lives with fish, forgets people.	Sometimes remembers people.	Can think calmly of fish for a short period.	Sometimes remembers to go to work.	Eats fish.

Reprinted from: Bubble Blurbs, McHenry Aq. Club; from Milwaukee Aquarium Soc., P.O. Box 1416, Milwaukee, Wisconsin, 53201, from Aqua Engineers, Ortonville, Mich. from London Aquaria Soc. and St. Catherines; from Hamilton & District Society Monthly Bulletin.



FRESH WATER ECOLOGY - PART 1

By Rick Smith

Okay, I'm through loafing around, and I'm back with some new ideas and of course some old ones too. Two months ago I began thinking of how I could make this column more interesting. I thought of finding new fish or other creatures but I ignored the thought of Ecology. Here is an article on fresh water Ecology.

First of all, I would like to define Ecology, for those of you who are slightly unfamiliar with it. Ecology is the study of organisms and how they can relate to their environment.

In fresh water habitats, there are two types of water: standing water which is referred to as lentic, and running water which is referred to as a lotic habitat.

Here are some basic but important facts about the Fresh water habitat.

Certain factors can limit the types of organisms found in a specific area. Limiting factors of the Freshwater ecosystem are temperature, transparency, current, O_2 concentration and biogenic salt concentrations.

Temperature-All aquatic organisms have certain temperature tolerances. For example, a body of water has a lower amount of thermal changes than a section of air; so if moderate thermal changes occur in water, it may have a wide spread affect of certain organisms. Temperature changes can produce stratification and circulation fluctuations. An example of this would be the thermal overturn which occurs in the spring and fall.

Transparency: When light pierces through the surface it can be reduced by suspended materials; this of course reduces the photo-synthetic zone.

Current: This is a very important factor. Current can change temperatures and can stir silt and other materials. Current can also distribute vital gases, salts, and carry small organisms.

Respiratory gasses (O_2 & CO_2) : Concentrations of these vital gases will vary in the different aquatic zones. These gaseous concentrations can be limiting in fresh water. As you should know, CO_2 plays a vital part in photosynthesis and is therefore a vital gas for the ecosystem. Oxygen is necessary for an animal's respiration. Without these two gases, no organism could survive on earth.

Cont. p. 27

Just Down the Street
By Marilyn Waterston

This month "Just Down the Street" will continue its review of Beldt's Aquarium.

This part of the review is centered mainly on the wholesale department of Beldt's. Many hobbyists dream of the day when they can have their own fish room. Now imagine that same dream multiplied ten-fold, or twenty-fold, and you might end up with facilities approaching Beldt's "Hatchery". I use hatchery in quotes, because Beldt's is not the classic fish farm. A fish farm concentrates on a few varieties of fish, and thereby mass produces fish on an "assembly line" basis. Beldt's is far from that. Their hatchery is a kind of holding station for fish that have been shipped from fish farms around the world. The fish are then distributed to the smaller pet shops all through the Midwest, and beyond.

So- we now know what the hatchery isn't, (a fish farm). But this does not mean that breeding doesn't go on in the hatchery. Many kinds of fish are bred, including my favorites, Africans. Since Beldt's is not an assembly line fish farm, breeding pairs or breeding groups get lots of TLC. The main kinds of fish that are bred are; South American cichlids, including Oscars, Angels, and Discus, and many kinds of African cichlids.

Unfortunately, I can not write about all the fantastic fish that Beldt's has in the hatchery, so I will just hit what I feel are the high points. Forgive me if I dwell too long on the Africans. In the goldfish department I guess from the standpoint of variety I would have to place the black orandas at the top of the list. Also of interest are the Africans such as yellow Peacocks, P. Arora, and a magnificent C. Frontosa male. Also there are some breath-taking breeder discus.'

Beldt's hatchery is a fish-lover's dream. There are lots and lots of fish, all in a small space, requiring a minimum of maintenance. How is this accomplished? Each greenhouse has a filtration system that is hooked up to quite a number of tanks. In this manner the

tanks in the system are filtered continuoulsy.

Beldt's hatchery is not generally open to the public, but each year in the latter part of August an Open House is held for the public's benefit. If you have never seen Beldt's hatchery, watch for the Open House this year.

COMING EVENTS

June 8th - M.A.S.I. General Meeting - Prudential Savings - 8:15 P.M.
 18th - M.A.S.I. Executive Council meeting - Crabtree's - 8 P.M.

July 13th - M.A.S.I. General Meeting - Prudential Savings - 8:15 P.M.

August 10th - M.A.S.I. General Meeting - Prudential Savings - 8:15 P.M.

THANK YOU TO OUR DONORS

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INTERNATIONAL FANCY GUPPY SHOW

On June 25th and 26th there will be an IFGA show at the Holiday Inn North sponsored by the Gateway Guppy Associates. This show should be very interesting to those who favor Guppies. They normally have hundreds of entries from many parts of the country from many well known names in Guppy breeding. If you like Guppies this is where it's at.

Our yearly election will be held at the June meeting. Be sure to attend - Be sure to vote. We need you at the meeting. And when you come be sure to bring an entry for the monthly Bowl Show. See you at the June meeting.



ARE YOU A FISH PERSON?

Do you wear fish?

Do you think fish?

Do you support your local fish related society?

Do you search for the out of the neighborhood fish store?

Do you talk fish?

Do people say your fishey?

Do you plaster your walls with fish posters, paintings etc?

Do you travel around the country or county for a fish show?

Do you talk to your fish?

Do you wander up and down a river bank or lakeside searching for fish?

Do you receive mail and free samples just to read about and experiment with your fish?

Do your fish eat better than you do?

Do you pamper your fish?

Do you spend hours working with your fish?

Do you enjoy doing all this? If you do you are definitely a fish person.

But are we fish people human? I'll answer that after I finish my tetra min and frozen brine shrimp.

Rick Smith

THE CLOWN LOACH SPAWNED

By Werner Nowak

Reprinted from the Montreal Aquarium Society

A few months ago I received six Clown Loaches from a friend. He had kept them in an eighty gallon aquarium for almost five years, and found them very shy. He caught glimpses of them only when he cleaned their tank. He finally lost patience with the fish and sent them to me, wishing me luck with his "big monsters".

When I received them, they ranged between six and seven inches in total length. Two of the Clowns were very heavily bodied, while the other four were longer and quite slim. I decided to house them in a thirty gallon tank with a pair of Discus I had spawned some weeks earlier. The tank was planted with three large amazons and contained many pieces of driftwood. Water conditions were Ph 6.2, Dh 2, Coh 0.5 Nitrite (NO₂) less than 0.05, and the temperature was held in the neighborhood of 84 to 86 degrees F. The tank's water was filtered through a Supreme jet filter over Hykro filterpeat and polyester fiber.

As soon as I placed the Clowns in their tank, they disappeared among the plants and driftwood. Nothing remained to indicate that there were any fish in the tank. Every evening I would add a mixture of Tetramin staple food, shredded beef heart, spinach, and shrimp pellets to the tank before turning off the lights. The food was always gone by the morning; yet we never saw the loaches. In time we dubbed their aquarium the "Ghost Tank".

On one occasion I turned out the lights on their aquarium and sat watching the tank by dim roomlight. In a few minutes the loaches came out of hiding. In troops of three, they moved through the tank searching for food. As soon as I switched on the lights, the tank was empty; the Clowns had vanished in an instant.

One day I needed an unusually large Amazon for a customer of mine; so I decided to remove one from the "Ghost Tank". As I began to uproot the plant, a cloud of mulm rose into the water. It began to settle after a few seconds and I was amazed to see ten to fifteen baby fish swimming wildly through the tank. Off went my hand from the plant and a search for babies started. A close but cautious examination revealed baby fish hiding deep in the crown and exposed roots of both corner plants.

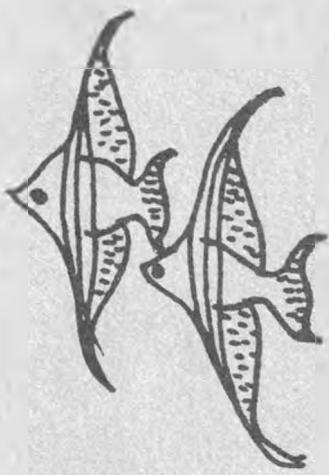
Now, after seven weeks, I have thirty-nine Clown Loaches. They average around three quarters of an inch in length.

Last year at this time I was diligently growing mosquito larvae for my fish. I did not realize that at the same time I was successfully growing bloodworms. This year I am again growing live foods, and I believe bloodworms to be as good a food source as mosquito larvae, if not better.

Bloodworms can be grown in the same pool as mosquito larvae. They are the larvae of the Chironomus fly, a small insect resembling the mosquito--which doesn't bite. The larvae usually congregate in rotting leaves at the bottom of a pool, so to propagate them in a freshly cleaned pool you can add a few leaves and a small piece of old wood. All this can be going on in the spring, while it is still too cold to put your fish out (with the exception of goldfish).

If you disturb the sediment on the bottom of your pool, you may find hundreds of bloodworms swimming in their typical figure eight pattern. They make excellent fish food, and they have one main advantage over mosquito larvae; they don't hatch into biting insects.

If you decide to put your fish out later in the spring or early summer, simply scoop up the leaves etc. and put them into styrofoam boxes with some of their original water. At this time it might be a good idea to give the pool a partial water change, and then put your fish in. By putting the leaves and wood in the styrofoam boxes with water, you can keep the bloodworms going all summer long.



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