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cover photograph

Cyclocheilichthys apogon, an Asian fish that has been confused with Rasborichthys altior by aquarists. However, the latter fish has more rays in the anal fin. For more information about C. apogon, see the article by Dr. Weitzman starting on Page 122. Cover photo by Gene Wolfsheimer, F.A.I.





Superintendent-Curator of Steinhart Aquarium
speaks on new activities in the aquarium world

Dr. Earl S. Herald Named 1964 Alvin Seale Lecturer

DR. EARL S. HERALD, Superintendent Curator of Steinhart Aquarium at the California Academy of Sciences, has been named speaker of the 1964 Alvin Seale Lectureship, sponsored by the San Francisco Aquarium Society, to be presented at the Morrison Auditorium, California Academy of Sciences, Thursday March 5, 1964, at 8:00 p.m.

Subject of Dr. Herald's talk will be "New Activities in the Aquarium World," which will be accompanied by slides and film.

Dr. Herald is well-known as a scientist, his field being ichthyology. He is also remarkably well-known to the television audiences in the San Francisco Bay Area, Los Angeles and thirty-five

other major cities in this country and abroad. He has acted as program host for "Science in Action," produced by the California Academy of Sciences, most of the 12 years the show has been on the air.

Born in Phoenix, Arizona on April 10, 1914, Earl Herald received his B.A. de-

knowledge and literature of his field. He served as staff ichthyologist to the George Vanderbilt Expedition of 1951. He has conducted tuna research in the Philippines and Indonesia, and was a member of the historic Bikini atomic tests, in the reef fish investigations.

Late in 1960 Dr. Herald traveled to

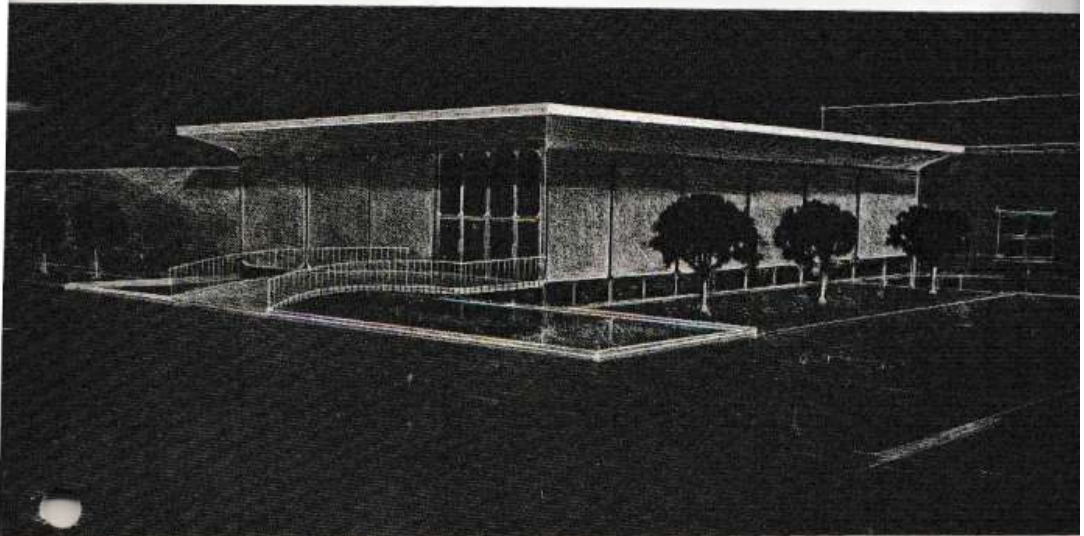


gree from the University of California at Los Angeles, his M.A. degree from the University of California at Berkeley, and his Ph.D. from Stanford University in 1943.

His special research and professional travels have contributed greatly to the

Europe and visited public aquaria in seven nations. Serving as chief of the American delegation to the First International Aquarium Conference, held in

Photo: Dr. Herald is shown with a skeleton of a South American catfish belonging to the family Doradidae. Several smaller species of this family are used by aquarists as scavengers.



Artist's Conception of S.F.A.S. Hall of Tropical Fishes

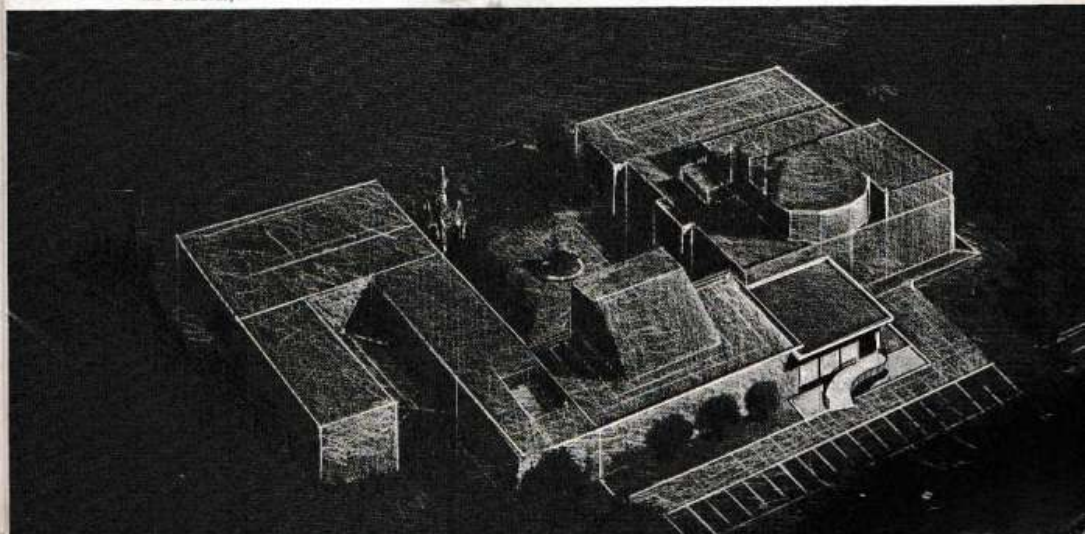
As a member of the San Francisco Aquarium Society 1964 Building Committee, Dr. Herald is vitally interested in a project dear to the hearts of all friends of the S.F.A.S. — the construction of the San Francisco Aquarium Society Hall of Tropical Fishes, to be located adjacent to Steinhart Aquarium at the California Academy of Sciences in Golden Gate Park.

The building, sponsored by the S.F.A.S., will consist of two floors, totalling 6,900 sq. ft. of space, devoted primarily to the display of tropical fishes and promulgation of the hobby. The main floor will afford another entrance to Steinhart Aquarium and will consist of approximately one hundred display tanks of tropical fishes.

The lower floor of the building will consist of a library of tropical fish literature, a fish pathology laboratory, meeting rooms of the Society and editorial offices of the Aquarium Journal.

Design of the building has been approved by the Academy of Sciences and the City of San Francisco. The S.F.A.S. is currently engaged in raising sufficient funds to complete building plans this year, and begin actual construction early in 1965. ◀

View below shows where the S.F.A.S. building will be located in relation to other buildings comprising the Academy.

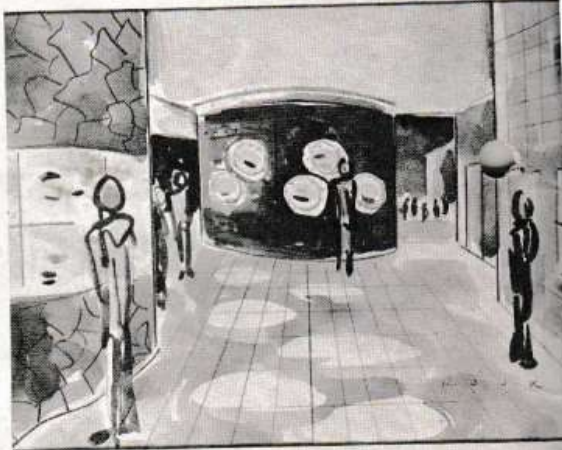


Monaco, he represented the San Francisco Aquarium Society and Steinhart Aquarium. He visited the Musee d'Histoire Naturelle in Paris to check on his research specialty, pipefishes.

Dr. Herald turned to television in 1949 with the same enthusiasm he puts into his job of making Steinhart Aquarium

one of the world's finest. "Television gives me the opportunity to demonstrate science to more people, on a single show, than can be reached as easily and effectively in any other way," he says.

Dr. Herald's continuing appearance on "Science in Action," piloting its many distinguished guest scientists through



CLUB NEWS

San Francisco Aquarium Society, Inc.

The next regular meeting of the S.F.A.S. will be Thursday March 5, 1964, Morrison Auditorium, California Academy of Sciences at 8:00 p.m.

Program for the evening will be the 1964 Alvin Seale Lectureship to be given by Dr. Earl S. Herald, Superintendent-Curator of Steinhart Aquarium. See the article about this year's speaker elsewhere in this issue.

Also at the March meeting will be the annual report on Society activities to be given by President Robert Dempster and Committee Chairmen for the year 1963.

Due to the Alvin Seale Lectureship and the annual report, there will not be any Fish-of-the-Month competition at the March meeting, according to Charles P. Bange, Chairman. ◀

Artist's Conception of Hall of Tropical Fishes

Illustrated is an artist's version of the interior of the main floor of the S.F.A.S. Hall of Tropical Fishes adjacent to Steinhart Aquarium at the California Academy of Sciences, Golden Gate Park.

Approximately 100 display tanks of various sizes will exhibit tropical fishes for the public to enjoy. And there are lots of people who visit Steinhart Aquarium each year—exceeding three million.

As the sketches show, the main gallery of tropical fishes will form another entrance and exit for Steinhart Aquarium. In the Master Plan of the Academy of Sciences, the road upon which the SFAS Hall of Tropical Fishes faces will become the main drive leading to the Academy, and therefore the additional entrance is a welcome addition to the Steinhart facility. ◀

the intricacies of the medium, is evidence of his continuing faith in television as a means of wide dissemination of public information. His one big "if" about science on television is that "it has to be good entertainment as well as good science if it is to hold its viewers."

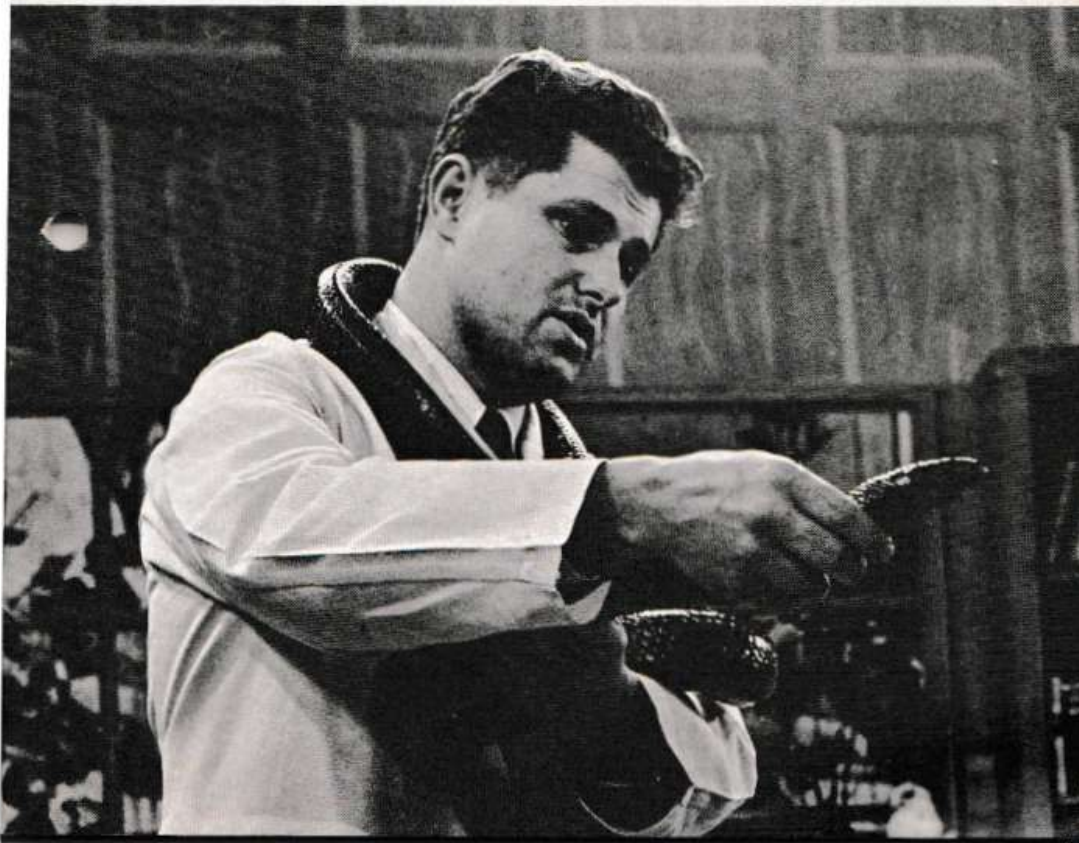
In his professional capacity, Dr. Herald has a list of many accomplishments and honors. He is a member of the Board of Governors of the American Society of Ichthyologists and Herpetologists. He is one of the founders and a member of the Board of the San Francisco Zoological Society and a *ex-officio* member of the Board of the San Francisco Aquarium Society. Dr. Herald is listed in the professional compendium, *American Men of Science* and *Who's Who in the West*.

Photos: Dr. Herald in a characteristic pose with one of his animals at Steinhart. Each week on the "Science in Action" television series, Dr. Herald introduces an "Animal of the Week." This particular week, a snake happened to be guest.

In March 1961 his new book, *Living Fishes of the World*, was published by Doubleday & Company, produced by Chanticleer Press. This copiously illustrated work, both in color and black and white, is one of a new science series. It has already achieved the stature of a definitive work in the field and is hailed as a major milestone in science publishing at popular level. It has been translated into Dutch, Norwegian, French and German.

Dr. Herald has been on the staff of the California Academy of Sciences since 1948. He is married and has three children. The family lives in Westlake, a suburb of San Francisco. ◀

Join the S.F.A.S.



WHAT IS THERE to write about aquarium temperatures except that they should be kept within a certain range and that the fish should not be subjected to sudden changes? Obviously those two facts are good advice but the subject is much more interesting than just that.

The very occurrence and distribution of aquatic animals throughout the world is influenced significantly by the temperature of waters. Some aquarium species can tolerate any temperature between 40

short length of time. There seems to be some indication that fishes are actually stimulated by a reasonable change in the water temperature during the night and day period and also as the seasons change. On the earth, each organism has a maximum and a minimum environmental temperature between which its life is possible.

Except for the various aquatic birds and mammals, all animals which live in water are "cold-blooded" meaning

Tropical fishes seem to have a narrow range of water temperature tolerances

Aquarium Temperatures

and 80 degrees whereas others are best limited to temperatures which never range outside the limits of 78-82 degrees, for example the betta.

Although many of the more hardy species from temperate regions can withstand cold water to the freezing point, they are sometimes killed by a very sudden drop in temperature. The average exotic aquarium fish seems to be happy at an average temperature of about 74 degrees Fahrenheit although the water can drop to 65 degrees or climb to as high as 85 degrees for a

Charles O. Masters

Walhonding, Ohio

that their body temperatures usually follow, within very close limits, the temperature of the surrounding water. Compared with the extremely great range of temperatures known to occur in the universe, life exists within a very narrow range and at a relatively low position.

The "living range" encompasses about 300 degrees with some "lower" aquatic plants and animals living in hot springs and others thriving in the snows of Greenland, but most species and most activity of animals seems to be restricted to a narrow band of temperatures. The zone of tolerance for certain temperatures has been called the "tolerable range." It definitely varies from species to species both in the extent of the range in temperature and also in

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the upper and lower limits. For example, it would be possible to group living things according to the width of the tolerable range as well as according to the temperatures which they seem to prefer. Some are heat lovers whereas others thrive in the cold.

If animals such as fishes are kept for indefinite periods at temperatures outside their tolerable range, they will die after a longer or shorter time depending upon the temperature and upon the species. Most fishes can survive short exposures to the lethal temperatures but if the exposure is prolonged the fishes die.

Aquatic plants and animals live in a more "temperate" climate, under water, where the temperature changes are gradual and extremes very rarely occur. The high heat capacity of water and its ability to hold onto heat are very important factors in maintaining fairly uniform temperatures. To express it more colorfully, water has a long hold on the warmth of summer and the cold of winter.

Since the specific heat of water is so great, a lake, for example, must absorb vast quantities of heat in order to increase its temperature by a single degree, and this obviously explains the slow rate of warming-up of lake waters in the springtime and likewise its slow-cooling in the autumn is due to the large amounts of heat which must be given off. The temperatures of the water always lag far behind the more rapid changes of the air temperatures.

There is definitely a relationship existing between the temperature of the water and the activity of the fish. Basic effects of temperature increases are metabolic. Within certain limits the rate of the chemical processes increase in direct proportion to the increase in environmental temperature. This is generally true in spite of the fact that some fishes are active at very low temperatures. In order to lead an active existence, fishes must maintain their body temperatures at sufficiently high levels for the various metabolic processes to continue at an

(Continued on Page 126)

★ IDEAS ★

BY HOBBYISTS

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

Accuracy of Thermometers

If accuracy is needed or desired from inexpensive aquarium thermometers which may vary several degrees they can easily be calibrated. Put all of them in a bowl of warm (90-106° water) with a clinical or fever thermometer. Read the clinical first. As a variance is noted mark it on top of each of the tank instruments with nail polish. Write it as +2 or -3 degrees, etc. — Ronald Forsyth, Rochester, N.Y.



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(See Cover Photo)

Cyclocheilichthys apogon is a large Asiatic minnow that is imported from time to time. It is a long-lived, attractive fish, reaching 4 to 5 inches in aquaria, but wild specimens are said to reach a length of almost 2 ft. Its native

Stanley H. Weitzman, Ph.D.

U. S. National Museum
Washington, D. C.



C. apogon has a big mouth and equally big appetite — so stay away small fishes!

Cyclocheilichthys apogon

range is Sumatra, Java, Borneo, Burma, Siam, and Malaya.

The photograph shows (see color cover) the basic color pattern of this fish fairly well. Essentially it is a silvery fish with black dots along its scale rows. The caudal spot is frequently darker than shown. The body often has a warm red flush, similar to that of a breeding male rosy barb, but the color is not as intense. The upper portion of the iris is bright red and the fins have a reddish hue. A breeding male was reported to have a golden colored body, deep red dorsal and tail fins, and pale red anal and pelvic fins. The pectoral has a pale green color.

Although beautifully colored, this fish is not especially active. However, it is very adaptable. In a large tank by itself, it swims slowly through the open areas, gracefully gliding from one spot to the next. If other large and more active fish are introduced, it will speed up its actions, apparently due to the stimulus of the more active fishes. When necessary, I have kept this fish in a half-filled gallon jar. In this container it became very quiet, adjusting itself to the reduced volume of water and smaller amount of available oxygen.

Cyclocheilichthys apogon cannot be

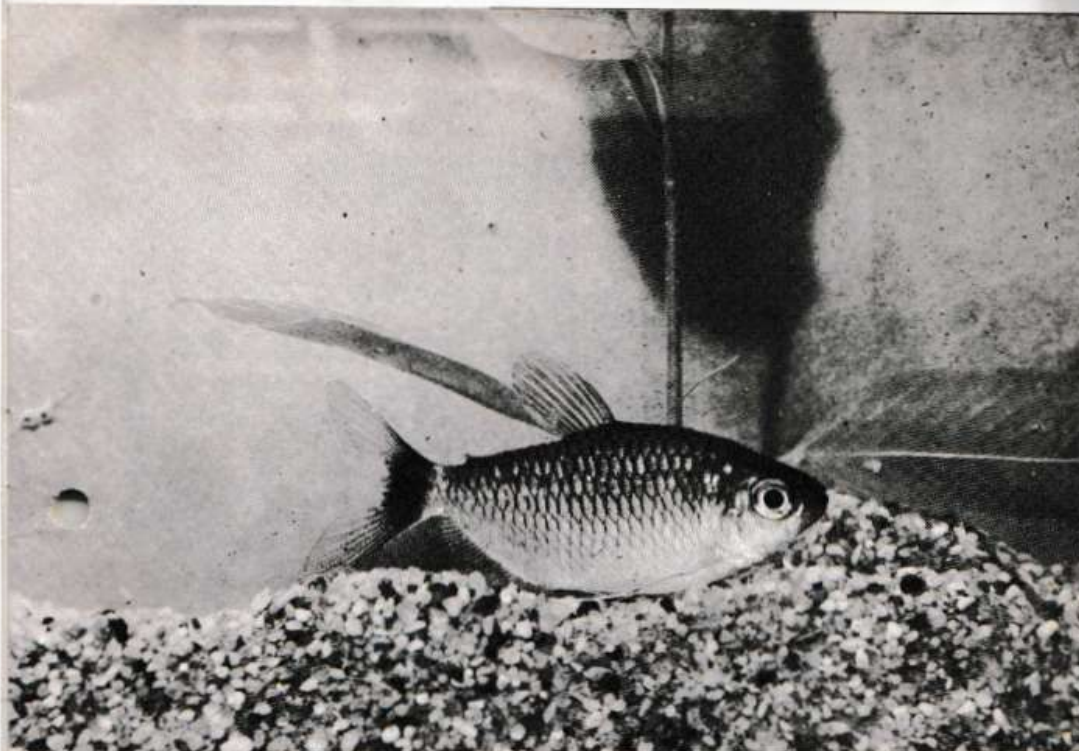
kept with smaller fishes. Its mouth is large and the fish has a habit of slowly "gliding" up to a smaller fish and engulfing it. It is easily fed and takes all kinds of live food, pieces of meat, fish and shrimps. Dried food is not readily accepted; however, *C. apogon* will clean it from the bottom. Like the carp and the goldfish, the present subject will take a mouthful of sand or gravel, mull it over for food and spit out the remainder. This tends to stir up the aquarium, but if the fish is fed well, this seldom happens. Unlike the carp and goldfish, it will only mull the bottom when there is food present there.

Cyclocheilichthys apogon is an excellent inhabitant of the community tank for larger fish. It neither disturbs fish its own size nor molests plants. In addition, it is a colorful addition, one that isn't tiring because of incessant activity. ◀

CLUB NEWS

Milwaukee Aquarium Society, Inc.

Robert Watking was elected president of the M.A.S. for the coming year; Elliott Giffen, vice president; Linda Yeek, secretary, Charles Worzala, treasurer, and Del Ratajski, sergeant at arms, according to Linda Yeek, secretary.



Sometimes known as the "giant head and tailight," *M. oligolepis* likes a large tank

Monstrous Moenkhausia

IF ONE could just apply a bit of shrinking powder, there is one fish that would be jim-dandy in a community tank. The number of aquarists who have purchased a little "head and tailight" only to discover that the "head and tailight" grew progressively bigger and bigger must be legion.

Moenkhausia oligolepis is often called a "head and tailight" but unlike the little fish that has first call on the name. (*Hemigrammus ocellifer*), *M. oligolepis* is frequently called the "giant head and tailight." Actually the latter fish possesses only a "headlight," the headlight being the vivid red iris of the eye. There is, however, a faint brassy spot behind

Diane Schofield

Burbank, California

the adipose fin, which might qualify for a dim "rear light."

Another of its more common names is "glass tetra." This name is derived not from the fact that its body is transparent but from the fact that the silver gray scales are almost reflective in appearance, reminiscent of a mirror rather than transparent glass.

This fish (from the Amazon Basin and Guianas) has scales that are propor-

Photo: *Moenkhausia oligolepis* as photographed by Cas Van Os.

tionately rather large and therefore are not so numerous. As a matter of fact, part of its name, *oligolepis*, means "with few scales." The first part of its name, is taken from the name of William J. Moenkhaus, a student of fishes near the turn of the century. These large scales have their edges outlined ever so slightly with black, giving them emphasis. The fins are of a yellowish color.

Obviously none of these colors are breathtakingly beautiful, and yet in a large tank, such as a 40-gallon, even one fully grown *M. oligolepis* will stand out. One reason for this is that they always stay in the open in the middle of the tank. Their bright, glowing red eyes are obvious too.

In spite of some reports that they prove to be somewhat testy as they grow older, I can truly say that all that I've kept, appear to have been peaceful. It is true, however, that almost any fish which grows to be four inches when fully adult, have a large mouth. Therefore a little neon tetra isn't going to be safe with *oligolepis*. Ideally, a grown *oligolepis* should be a member of a community tank that contains such fishes as adult angels, kissing gouramis, snake-skin gouramis, or other peaceful large fishes. Naturally a large tank is needed for this community. My *oligolepis* are never kept in less than forty gallons.

They do require meaty foods such as chopped earthworms, minced or raw fish, as well as the larger grades of dry food. Tubifex, white worms, daphnia, and brine shrimp are consumed too, but it takes a lot of these to make a meal. I have occasionally seen and heard reports of their plant munching, but mine have never nibbled a plant; however, they were always kept well fed. I have seen fishes that were never supposed to touch plants chop up a leaf or two when driven to it by hunger.

Moenkhausia oligolepis is a big "thick" fish, this makes it rather hard to sex them. One of the best ways seems to

be to look directly down on them. The female will bulge slightly more than her mate, although she never does get really fat. The male is slightly slimmer and smaller, although this difference isn't as obvious in the *oligolepis* as it is in some of the other characters. There also seems to be very little variation in either fins or coloring to distinguish sexes.

Fortunately they don't need to be their full four-inch size to spawn. At an inch smaller they are mature enough for this. Even at this size, a roomy tank of at least 25 gallons and preferably larger is required. One needs considerable experience to spawn these fishes. Even then success may not be easy. Soft acid water should be used. The temperature should be approximately 78'-80' F. The water should be slightly aerated and a thick covering of a floating plant such as myriophyllum should be added. The brood fish must have been separated for at least 30 days and well conditioned on live food before adding them to this

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tank. If they don't begin spawning within a 24 hour period, they should be separated for a few days and then introduced all over again. If they spawn they will lay their eggs in the plant materials. As they are a large fish, they produce large numbers of eggs. Approximately three days after spawning the eggs hatch and two days later they start swimming. Since they are rather small, infusoria should be fed first, then newly hatched brine shrimp and small dry foods. Since there will be so many youngsters progressively larger rearing tanks should be employed so as to give the babies plenty of room to grow.

During the last year I have seen more *Moenkhausia oligolepis* around than I have seen in the last five or more years. This attests to their rebirth of popularity. When I visited Hong Kong last year, I was amazed at the number of *oligolepis* in the shops and they are much more plentiful in local stores in my area

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than they ever were before. In the stores they are the "cute" size, about one inch and at that size they have their colors intensified and make most attractive additions to a community tank. But never lose sight of the fact that even when you buy one, it is going to grow. ◀

Masters

(Continued from Page 121)

optimum rate. A relatively few species of fresh water fishes exist northward above the Arctic Circle. Obviously these are mostly confined to the main arctic river systems. In general however, the species are few but their numbers are great. Usually they are very well adapted to withstand the cold. However, stories that the Alaska blackfish can be kept frozen and then thawed, alive have been proved false.

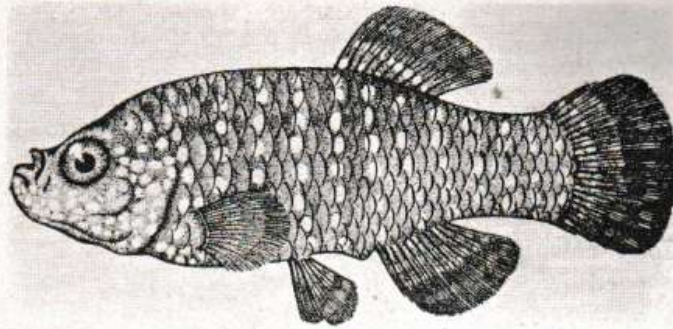
It is rather interesting to observe certain species of fish moving toward areas of greater warmth with the coming of spring and in the summertime the surface waters are sometimes crowded with the heat-seeking species. As the waters cool off certain species of fish live only by carrying on a very reduced metabolic rate which frequently amounts to a state of hibernation.

In the warmer waters, fishes have a greater daily food requirement and conversely have a smaller daily requirement in colder waters. *In the tropics*, vital activities in general which include growth of the fish are only possible within a certain range of relatively high

(Continued on Page 136)

Advanced Aquarists Note —

Braz Walker, an advanced aquarist of 315 Crescent Road, Waco, Texas, would like to correspond by tape with other advanced aquarists. Contact Braz at the above address.



Albert J. Klee
looks

• Under the Cover Glass

FOR OVER half a century, aquarists have kept and bred at irregular intervals a star-spangled beauty that has been masqueraded under the *nom de guerre* of "*Aphanis sophiae*." This fish, the male of which at breeding time is deep black with shining silvery spots, needs no introduction for not only have a number of articles about it appeared in the American aquarium literature, but the fish itself is well-distributed among killifish fanciers throughout this country. The only problem is, the name is quite wrong!

Aphanis sophiae was described in 1846 by the German ichthyologist Heckel but right from the start, a bit of confusion surrounded its name for at the same time, Heckel also described "*Lebias punctatus*" and "*Lebias crystalloodon*" ("*Lebias*" was the term used at that time for *Aphanis*), both of which later turned out to be merely synonyms of *sophiae*. Furthermore, three more synonyms were added by Jenkins in 1910, viz., "*Cyprinodon persicus*," "*Cyprinodon blanfordii*" and "*Cyprinodon pluristriatus*" ("*Cyprinodon*" replacing "*Le-*

bias" for a short while). Again, all were synonyms of *Aphanis sophiae*, being mostly nothing more than variations upon condition, age, sex, size, etc. The type locality for *Aphanis sophiae* was Shiraz in Iran (then Persia) but its distribution does extend into eastern Iraq (see figure 1).

The true *sophiae* was imported in 1910 but soon afterward disappeared from the aquarium scene to be imported again only in 1958. However, these later specimens have not been widely distributed among aquarists. A description of this fish (see figure 2) is as follows:

Male — Olive dorsally, bronze-colored ventrally; from 8 to 19 bluish-silver vertical bands on body; ventral fins pale blue; a number of light and dark spots on bases of fins; dorsal, anal and caudal with 1 mm wide porcelain-white border; paired fins transparent to yellow-brown.

Female — Base color bright, olive-brown; irregular (in number and in alignment) vertical bands, this pat-

Figure 3. *Aphanis mento* (after Aksiray).

tern being similar to ancient runic characters; in the typical case, a sharply delineated spot is present on the tail root; fins colorless except spotted on bases in old specimens.

This description of a strongly-barred fish then, makes it clear that the fish aquirists have been calling "*Aphanius sophiae*," is not that fish at all.

The average length of *Aphanius sophiae* is about 1½ inches (total length), although some specimens do reach 2½ inches. It does well in hard water of pH 7:5 at a temperature of from 73° to 75° F. When newly imported they can be acclimated in 2% marine water to which 1 tablespoon of MgSO₄ (Magnesium sulfate or epsom salts) per 6 gallons of water have been added. Then, over a period of time, the fish can be transferred to weaker brackish water and finally, to pure freshwater (but hard). Even in the last solution, however, an addition of 1 teaspoonful of sea salt per 6 gallons (this contains MgSO₄) is beneficial.

Aphanius sophiae lays yellowish to clear eggs of 1½ mm diameter in mops or on algae. These hatch in from 12 to 16 days, the fry taking brine shrimp nauplii from the start (the fry are easy to raise). The fish may be kept in a community aquarium but not one contain-

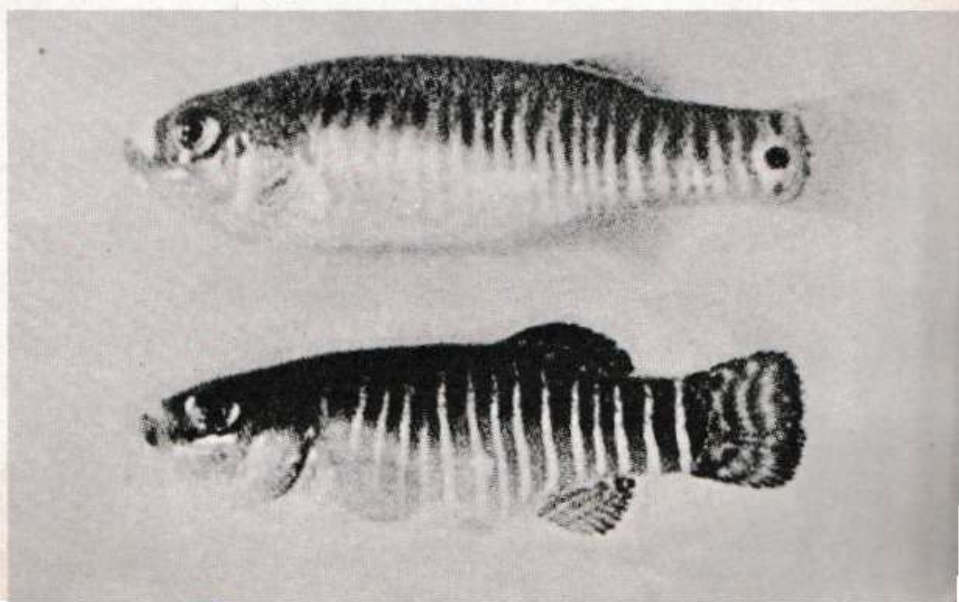


Figure 1. Approximate distribution of two species of *Aphanius*. Key: Dotted area—*Aphanius mento*. Diagonal area—*Aphanius sophiae*.

ing "skittish" or nervous fishes (such as angels), for *sophiae* is always on the move.

This brings us to our last point, viz., "What should we call the fish currently masquerading under false colors?" The answer is, *Aphanius mento* (see figure 3). This fish was described by Heckel in 1843. Unfortunately, a specimen of opposite sex was described by Heckel in the same paper as "*Aphanius cypris*," but *mento* has page priority and thus, is the correct name to use. Note that *Aphanius mento* is not an Iranian fish but rather is distributed throughout parts of Turkey, Syria and Palestine (see figure 1). The specimens now in the hands of aquarists came from Turkey. *Aphanius mento* has been kept by aquarists for many years now and is the fish currently in the hands of American

Figure 2. *Aphanius sophiae*, male below, female above. (After Villwock).



aquarists. Part of the confusion between the two species arose when the British ichthyologist, Guenther, in 1864, mislabeled some specimens of *mento* from Palestine as "*sophiae*." *Aphanius sophiae*, however, is not found in that country.

In summary, then, two points have been made:

1. *The correct name of the fish now in the hands of American aquarists is Aphanius mento.*
2. *The true Aphanius sophiae is a strongly-banded fish whose natural distribution is much to the east of that of mento.*

Finally, I would like to thank Dr. Theवास of the British Museum, Prof. Steinitz of the Hebrew University (Jerusalem) and Dr. Villwock of the Zoologische Museum (Hamburg), for their kind assistance in properly identifying *Aphanius mento*. I am especially indebted to Dr. Villwock for allowing me to reproduce his original color photograph of the true *Aphanius sophiae*. Dr. Villwock, incidentally, is currently considered the leading authority on the classification of *Aphanius* and related fishes.

Not infrequently, when fellow aquarists are cozily arrayed about an open fire and the "fish talk" seems to have halted momentarily, someone asks, "Who are the greatest living aquarists today?" Trust that one to start a lively discussion! Since the pages of the *Journal* have never been dull, I will venture herewith to propose three names each of which in my opinion, fulfil standards of excellence in at least four specific areas, viz., ability to breed difficult fishes, ability to innovate in the hobby, ability to photograph fishes and ability to write about them. The first two determine the level of the aquarist's skill, the last two determine how well the fruits of such talent are passed on to others. Although it is true that there are hundreds of aquarists who set standards of excellence

in any one of these fields, I can nominate from my study of the hobby in all parts of the world, only three who score highly in all four areas.

First and foremost is Col. Joergen J. Scheel of Virum, Denmark, a distinguished Danish Count and military officer. Col. Scheel is one of those real rarities, i.e., an aquarist's aquarist, whose opinions are sought after and respected by the leading hobbyists of the world. Readers of the *Journal* are to a degree familiar with his carefully researched articles and excellent photographic work (including a cover for the *Journal*). Most aquarists, however, think of Col. Scheel primarily as a killifish fancier but this is only because he is currently doing serious, scientific work in that field (actually, Col. Scheel is an accomplished amateur zoologist). Few Americans, however, know that for years Col. Scheel single-handedly wrote a monthly aquarium magazine (*Dansk Akvarie Blad*)!

ERRATUM

In the January issue of the *Journal*, the swordtail characin (*Corynopoma rissael*) was described as first being bred by aquarists in 1942 ("A thirty-one-year-old mystery solved," pp. 36). This was a typographical error and should have been reported as 1932.

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"There are other ways to top up an aquarium, Digby!"

This work was (and still is) published in loose-leaf form so that the subscriber actually receives portions of a vastly comprehensive work on aquarium fishes, plants and related topics. The detail in this work surpasses even the best that we commonly expect from German aquarists. In the field of innovation, Col. Scheel experimented with putting CO₂ into the aquarium when aquarists with a more shallow grasp of aquarium equilibria were warning about keeping it out. He introduced the concept of conductivity to aquarists and started his now famous egg membrane studies in fishes. For a number of years, Col. Scheel wrote his "Killie Letters" in which he pioneered many new concepts, and copies of which are now collector's items.

The second on my list is Arend van den Nieuwenhuizen of Heemstede, The Netherlands, a Dutch aquarist of phenomenal ability. Arend is one of the top three aquarists in the world in writing volume but this should not be misconstrued to suggest that the quality is not also high. On the contrary, that he is able to turn out such consistently high

quality, detailed material (it has been said of Arend that if one of his fish moves but 1/64 of an inch, he will log it in his data book!) is truly amazing. Furthermore, he is a renowned breeder of aquarium fishes and in areas not considered to be easy, either. For example, he is one of the few aquarists in the world with a "magic touch" in breeding difficult bubblenest builders (e.f., *Ctenopoma*) but he spawns fishes such as spiny eels with similar success. However, it is in the field of aquarium photography that Arend van den Nieuwenhuizen has no peer. In both black and white and color photography, there is no aquarist alive that even comes close to his superb work, be he in this country or abroad. Actually, American aquarists have really seen little of Arend's work, especially his marine fish photography. His genius as a fish photographer is such that not only is *Het Aquarium*, the Dutch aquarium magazine, almost completely illustrated by him, but so now also is the famous German aquarium magazine, *DATZ*. He is an innovator

(Continued on Page 143)

LABEOS ARE seen more and more in community tanks, which is not surprising. This in spite of their rather frightening, popular tag of "sharks." This is a bad misnomer: not only are these fishes not related to the sharks, but they are harm-

Robert J. Wyndham

Upland, California

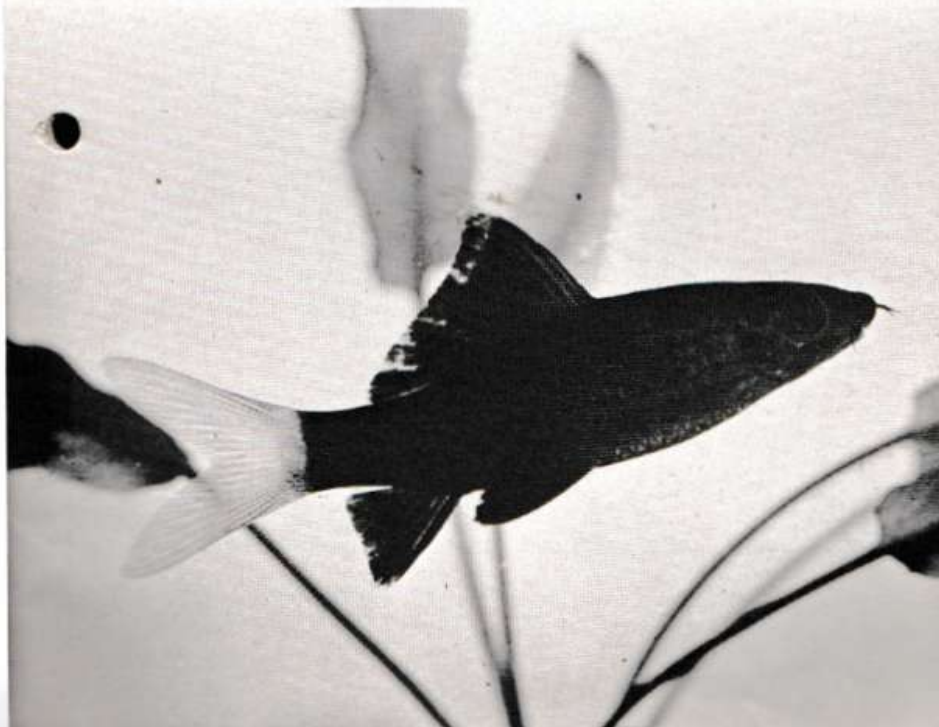
Not many teeth to speak of, but *Labeo bicolor* can still be a very onery critter!

Red-tailed "Shark"

less and peaceful. [Editor's note: *Certainly these fishes are no relation of sharks but their reputation in my experience is not spotless. Although they have no teeth in their jaws I have seen them tear smaller minnows and characins apart. This may not be the case for all specimens or species but the reader should be warned that at least the red tailed labeo can be vicious.*] They belong to the carp family (Cyprinidae) and are relatives of the barbs and other minnows. They earn their keep by cleaning up their tank and eating algae. Labeos never

seem to get tired of grazing algae off plants, rocks and glass. Then they are active bottom feeders, but don't stir up bottom dirt. While foraging on the bottom, they may dispute each other morsels of food and a lively chase now and then results. However, when kept in a large, well-planted tank, this aggressiveness gradually disappears. Then they make threatening moves only, when territorial rivalries develop. To make them feel at home, it is advisable to offer them hiding

Photo: *Labeo bicolor*, the so-called red-tailed "shark," as photographed by Gene Wolfsheimer, F.R.I.



places in rock formations. They won't bother other fishes.

In spite of their usefulness as scavengers, most aquarists probably buy labeos for the same reason as this writer did: these fishes have a mysterious attraction, that eludes description. This may explain the fantastic prices that were paid for them when first imported in our country in 1945. Perhaps it is the rich velvety black body and the contrasting red or golden yellow of their tailfin. Or the large size of their fins, especially their always majestically spread dorsal and their off-white lips. Or the way they swim or the four barbels planted around their suckerlike mouth. But more likely you have or will find your own reasons for being fascinated by these fishes. Sure is that few fishes have better credentials for the community tank. Besides the good points already mentioned, they are very hardy, they don't damage plants and eat practically anything fit for a fish. They show a hearty appetite when offered any

type of live food and they like some boiled spinach for a change. It is fun to watch their "acrobatics," when they try to grab daphnia or mosquito larvae. Though lively swimmers by nature, newly acquired labeos, usually measuring about three inches, may be shy and hide the first few days. It is necessary to keep the tank covered, for they are champion jumpers.

Labeos tolerate a temperature range from 72° to 85°, but they don't look their best at temperatures under 77°. When temperatures are too low to their liking, the bright red of their tailfin fades to a yellowish orange. Besides, the coloration of these fishes varies much from one individual to another, with age, condition, surroundings and mood. A dark tank bottom and subdued light seem to bring out the red coloring. Their home is in Thailand and Indonesia, where they are abundant and grow to an impressive size. While most other black fishes are freaks, in labeos the beautiful velvety black is normal. Their coloration is solid black when young. When they are about three inches long, the tailfin changes to yellowish gold. As the fish matures, the coloration of the tailfin intensifies to a bright red with a sharp dividing line at the caudal base. Hence the name *Labeo bicolor*. This inspired the Germans to call them firetail ("Feuerschwanz"). The Siamese natives call them full dress fish ("Pla song kruang"). The pectorals often show a red glow on a black background. But as the fish grows older, this red glow disappears. The posterior part of the dorsal and the anal are often adorned by a very thin white seam.

Except when the female is heavy with eggs, sex differences are visible to other labeos only and, as far as this writer knows, they have not been bred in captivity. Being imports, it is a sensible precaution to keep them quarantined in a well-planted tank by themselves the first four or five weeks. As is usually the case

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with imports, their resistance to disease is low upon arrival. Their skin may have suffered some damage, even if not visible. Then they are more susceptible to disease and skin parasites. In a tank by themselves, it is easier to observe them and if anything goes wrong, to take the necessary measures. ◀

Masters

(Continued from Page 126)

temperatures. Temperature rises from the normal accelerates the growth if other conditions are favorable. High temperatures prevailing in tropical regions of course combined with other generally favorable conditions results in very rapid fish growth. Or to express it in another way, living organisms in general grow more slowly at low temperatures and irrespective of what their food supply may be within certain limits, fishes grow more slowly in cold water than in warm waters.



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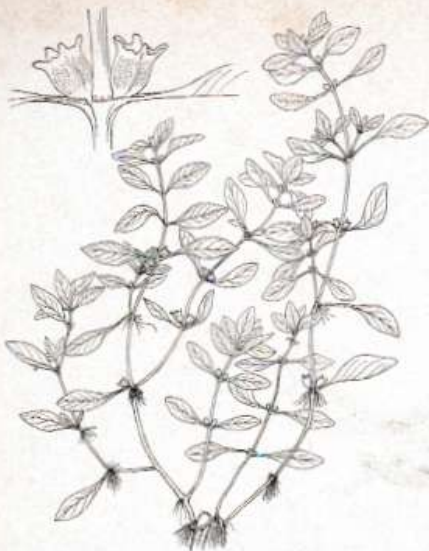
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TROPICAL FISH
BREEDERS**

Certain tropical plants thrive and fruit at temperatures of 100 degrees or slightly more but are injured or even killed if the temperature drops much below 60 degrees. As all aquarists know, there is definitely a correlation between the temperature of the water and the abilities of tropical fish to reproduce in practically all species. Reproduction completely ceases if the water is unnaturally cold or too hot. Diseases of fishes are also related to the temperatures of the water. At 75 degrees many of the common diseases seldom appear but as the temperature is lowered more and more diseases become apparent. Biologists do not know precisely what physiological effects temperature variations have on fishes but they do know that they are damaging and not always immediately apparent. A good rule to follow then is the one that was stated at the very beginning. Try to keep the water temperatures at about the same as the fish were used to back in their home lands and, by all means, avoid all sudden changes in temperature either up or down. ▶

★ IDEAS ★

How to Serve Fresh Tubifex

Often when we buy tubifex it looks somewhat stale, its color not red and sometimes it is smelly. During transport and while kept in the pet shop it has lost its freshness. You can nurse it back to its prime by placing it on a soup plate or shallow dish and cover it with water. Then add half a dozen small dice cut from a raw potato. The tubifex will eat from the potato dice. If you change the water daily and keep them cool, you will find that the tubifex soon will turn a deep red color and show by their liveliness that they have regained their freshness.—Robert J. Wyndham, Upland, California



Ludwigia

SUCH IT IS IN LIFE that when you are activated by the desire to do a thing perfectly you do it wrong because you overdo it! For example, while reading one of the back issues of the *Journal*, I hit upon a letter of Mr. Royal N. Schweiger, Stoneham, Mass., (*Journal*, issue for August 1960). In this letter Mr. Schweiger asked for advice about why his Amazon sword plants were growing flat along the bottom of his 29 gallon tank, instead of growing upright. His plants had a height of 15-18 inches when purchased. One of his melon sword plants even grew outward like a pancake.

Mr. Schweiger further stated that his tank was lighted by two warm white fluorescent lamps for 8-10 hours daily. His tank was situated on an east wall about 3 feet from alongside a large window. The water in the tank was all right, pH 7 and DH about 6.0. He changed 10% of the water every month, the gravel was poor in lime, the tank not overcrowded, the fish were doing excellently.

This is a typical case of too much light. As Mr. Schweiger's tank is situated

How much light is
required for good
healthy plant growth?

Light for Aquatic Plants

Walter Bertholdt

Flensburg-Murwik
West Germany

on an east wall very near a large window, the tank got plenty of daylight, which means that during the spring and summer months the plants did not require any artificial light, especially since sword plants thrive best when they get medium bright light only. Mr. Schweiger would have obtained an excellent result if he had not switched on at all the fluorescent lamps during the spring and summer months.

A typical sign of too bright lighting is when the plants that usually grow high, suddenly begin to show a stunted growth, with leaves of a pale and yellow-green color, instead of showing a luxuriant and sappy green shade.

Now some examples of how much light some of our aquatics need. I have been doing some interesting experiments with my 90 gallon show tank. Water fluctuating between 518 DH and 6.2-6.7 pH, a mixture of tap and rain water, no addition of peat water, which means that the water was of the "white" type,



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allowing a maximum penetration of the light waves, in contrast to peat water of brown color which absorbs a high percentage of the light.

I was lighting my tank during the first months with two fluorescent lamps of the "warm tone deluxe type," Osram or Philips, type No. 32. I am not sure if you have these exact types of lamps in the United States, but I think you call them the warm white types, viz. lamps with a high percentage of the red waves. The dimensions of my tank: 120 x 50 x 55 centimeters high. Length of the lamps 100 centimeters. As already stated two lamps were used, one of 40 and one of 25 watts. Planting of the tank: sword plants, Siamese temple plants (giant hygrophila or *Nomaphila stricta*), dwarf nuphar, bacopa, *Aponogeton cris-*

pus and *Ambulia*. The lamps were switched on for 12-14 hours daily. The tank is installed along the backside wall of a north room, which means that it is getting only very poor daylight.

The plant growth under these conditions was unsatisfactory. The gravel without any addition of loam but with an addition of some powdered fertilizer tablets in the lower layer for giving the plants a good start for growing, was the same as in my other tanks which had an excellent plant growth, normal fish and snail population and good saturation of the medium coarse gravel (2-6 millimeters graining) with droppings.

The plants displayed the typical yellow-green coloration, poor growth and no length growth. It was evident, the lighting had to be reduced. I have

Photo: Water sprite,
Ceratopteris thalictroides
as photographed by
Cas Van Os.



MARCH 1964

forgotten to mention that no surface plants were in the tank, which means that the light was reaching to a maximum extent the lower layers of the tank. Now I began switching out the 25 watt lamp, lighting only with the 40 watt one. After one week only the success was evident. The pale green of the plants began to disappear, the color of the aquatics turned more and more sappy green. Length growth developed splendidly and after six weeks I had to clip the first *Ambulia* which had grown too long. Everything was excellent now, crystal clear water, a luxuriant growth of the plants, and a perfect biological equilibrium in the vessel.

One year later I introduced into this tank fishes of the "black water" type, viz. neons, rasboras, *Nannostomus marginatus* and various species of *Aphyosemion*. Little by little I added peat water in order to accustom the plants to the very soft and acid water. Finally the tank was filled with "pure" peat water, of 3-4 DH and 6.2 pH. A rich surface layer of a *Myriophyllum* with a red stalk from Brazil filtered the light. Many dark colored rocks and decorations of brown wood dug out from a moorland pond, overgrown little by little with Java moss, gave the tank a typical black water jungle scenery. The color of the fishes reached a peak of brilliancy and beauty.

But now one 40 watt lamp was insufficient. With the exception of the surface strands of the *Myriophyllum* the other aquatics showed a definite reduction of growth. Now I switched on the second lamp, which means that the tank was lighted by one 40 and one 25 watt tube, burning from 12-14 hours daily. And this was just the right quantity of light. All the plants began to grow as before.

These examples indicate that every aquarist has to do his own experimental work. The conditions in each case are different, viz., type of water, situation of the room, sunshine, no sunshine,

much daylight or no daylight at all, height of the tank, width of the vessel, number of plants and many other factors. It is evident that the more plants are growing in a tank, the more light is needed, especially if many surface plants are used.

We aquarists here in Germany like those in Holland prefer densely planted tanks which are not overcrowded by fish, for example 1 neon to 4-5 liters of water. The best light effect is obtained with the "warm tone de luxe types" of lamps, which made the plants grow best in addition. With this type of tube the colors of the fish show off much more brilliantly than with the cold white types of lamps. The "warm tone de luxe" types of lamps stimulate plant growth due to their high percentage of red light waves, just as the normal incandescent lamps.

And another tip: *Abstain from fine white sand*. Use instead dark brown medium coarse gravel, which makes the colors of your fish look much more brilliant and the green of your aquatics more sappy green.

The duration of the lighting should not exceed 12-14 hours. Both the fish and the plants need a rest. In the tropics a day lasts 12 hours and this is the best rhythm for our pets and plants, at least the most natural one.

When you have obtained maximum results with one type of lamp do not change to another one, for example I do not recommend to exchange the "warm tone de luxe," to the cold white type. Your aquatics would probably stop growing.

I have given here only some hints to the subject "light." As pointed out before, every aquarist has to do his own experimentation work because the conditions vary too much in each individual case. ◀

Join the S.F.A.S.

Klee

(Continued from Page 132)

and master of action fish photography (incidentally, he is also one of the finest photographers of aquarium plants, amphibians and reptiles alive today) and he has preserved for posterity, his wonderful pictures in the many books he has written. His major book ("Exotische Vissen"), originally written in Dutch, was translated into German and now finally will shortly be available in English. When this happens, his fame as a breeder and a photographer of fishes will go unchallenged throughout the world.

My last nominee is Rosario LaCorte of Elizabeth, New Jersey. "Zar's" work as a photographer (he too, has had a *Journal* cover!), a writer and a lecturer are well-known to American aquarists but not too many are completely aware of his great ability in breeding the truly difficult fishes. Europeans are amazed at the list of "impossible" fishes he has spawned and raised. His special forte is characins, an extremely tricky field at best. His latest triumph is in spawning *Alestopetersius* but almost any aquarist envies his success with black phantom tetras, emperor tetras and a host of other balky products of nature's aquatic list. Even here, Zar doesn't just breed the difficult one, he develops them further into recognizable strains. Furthermore, he is to be considered one of the pioneer aquarists in the world in developing new techniques in breeding annual killifishes at a time when virtually nothing was known about them. Truly, visitors to the New York-New Jersey area have seen nothing until they have visited his fish house. In my opinion, as a breeder of rare and difficult fishes, he has no equal in this country, and could give the best of foreign aquarists more than a run for their money.

The above are, then, my nominees

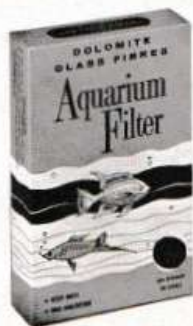
for the title of "greatest living aquarist." Each excels in the four fields mentioned but even more significant is the fact that they all excel in certain human qualities all too rare nowadays, including humility, an inner warmth and a desire to share life's limited resources with their fellow man. ◀

IDEAS

Old Tubing

When plastic tubing becomes hard and stiff and will not fit back on the stem of the filter just put the tubing in a jar of hot water, to soften it and put it on the stem while still hot. This works on some types of tubing and will allow you to use it for a longer time. — Ann Nichols, San Leandro, Calif.

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AQUARAMA

By James A. Mason

Bottom Filters

A BOTTOM FILTER is not just a simple device used to separate foreign materials from water. Its function is much more complicated, and therefore very interesting to the aquarist.

In removing foreign material from the water the action of the filter works in much the same way as your cities vast disposal plant. It collects, traps, and concentrates solid material. This is why it is very important to use the recommended medium grade aquarium gravel. When the solid materials are concentrated the action of bacteria will be most effective. The action of bacteria breaking down solid material trapped in the sand is probably the most important sequence in the function of a bottom filter. In order for aerobic bacteria (the type which use oxygen and give off carbon dioxide as waste) to do their job properly there must be good circulation of water through the sand. The circulating water brings the needed oxygen to the bacteria. If circulation of water is slowed down too much or stopped, aerobic bacteria will not thrive and anaerobic bacteria will take over. Anaerobic bacteria are very bad for your aquarium because their waste material is ammonia and other products which will foul the water.

Loosening the sand by hand periodically or maintaining fish or other animals which will keep the sand from becoming clogged is very important to the proper function of a bottom filter. The aeration and circulation of water which the operation of a bottom filter provides allows for the necessary transfer of carbon dioxide and other gases to the surrounding air environment.

Give your bottom filter the respect and attention required and you are sure to have a beautifully clear aquarium.

Bottom filters are now being used more often for outdoor fish ponds. They are proving successful provided they are large enough for the particular pond. They are a tremendous help in removing algae from the water. Pond filters are normally operated by a water pump and not by air as is the case with most aquarium filters. ◀



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Photo: *Micropanchax normanni*, male from Northern Nigeria, Tchad drainage. All photos by author.

M. normanni, a most interesting fish from Africa, discussed by author Scheel

Nigerian Lampeye

PART I

DURING the past several years, I have written a few articles about Nigerian lampeyes (subfamily Procatopodinae) for the *Aquarium Journal*. For a number of reasons, I have not been prepared to write about members of the genus *Micropanchax* and in particular, not about the well-known species, *M. macrophthalmus*. At present, however, I feel qualified to discuss another member of this interesting genus, viz., *Micropanchax normanni*, a species described by Dr. Ahl in 1928.

During his expedition to Nigeria in 1961, Ulf Hannerz of Sweden caught a few specimens of a lampeye unknown to him, near the banks of a large river which crossed the road between Kano and Malduguri in the northern part of northern Nigeria. Ulf wrote me that this species seemed to be rather rare in this river as he had difficulty in obtaining even a few specimens. After his arrival home in Stockholm, he kindly sent me all of his material for additional study.

Col. Joergen Scheel, F.A.I.

Copenhagen, Denmark

Ulf's collection contained only four live specimens. Two specimens formed a pair of a species unknown to me at that time. The other two specimens differed somewhat from the other pair and was not identified. I prepared photos of the pair and sent them to the amateur zoologist Lambert of Belgium and to the British Museum's authority on African freshwater fishes, Dr. Trewavas, for identification. Lambert identified the fish as Svensson's *Micropanchax gambiensis* of 1934 but Dr. Trewavas pointed out that Svensson's *M. gambiensis* probably was identical with Ahl's *M. normanni* of 1928. The study of the original descriptions of these two forms leaves no doubt that *gambiensis* is a synonym of *normanni*, and that Ulf's lampeye were true *normanni* specimens.

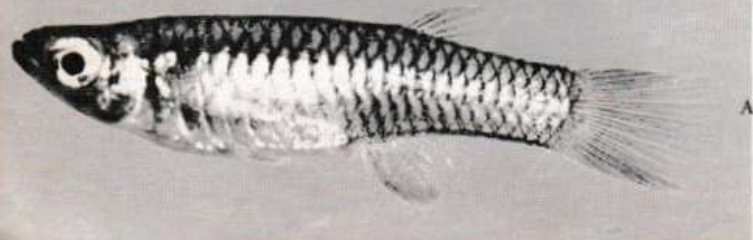


Photo: *Micropanchax normanni*, female from Northern Nigeria, Tchad drainage.

AQUARIUM JOURNAL

Photo: *Micropanchax normanni*, a fry just hatched.

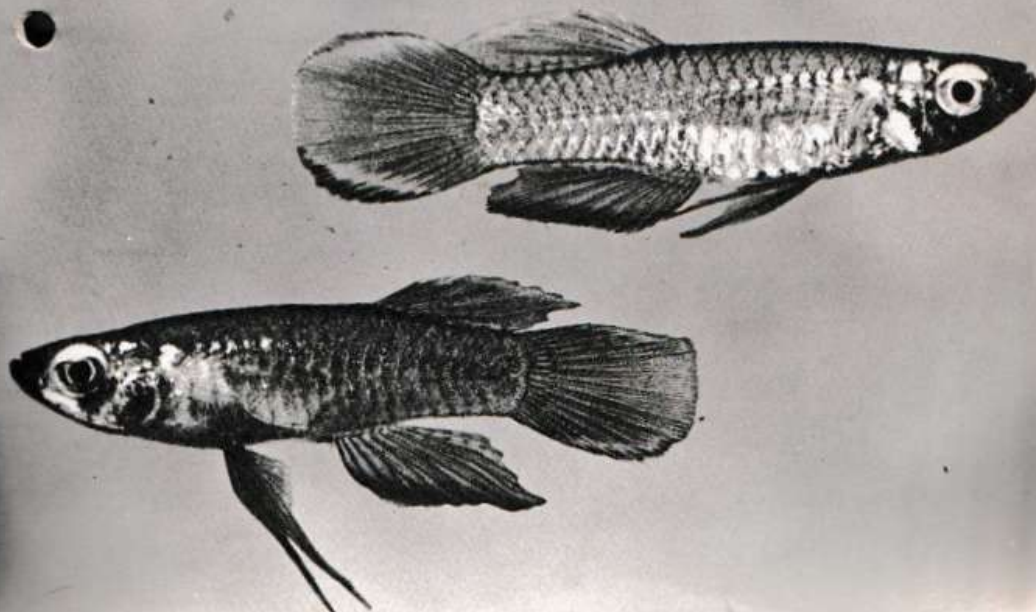


Micropanchax normanni is known only from Ahl's two type specimens from the Kiyawa River, near Katagum in northern Nigeria. I have not been able to find this locality on any Nigerian map and as the name "Katagum" is used in this district for a large Tchadian river, and also for a city within the Benue Basin (i.e., the Niger River Basin), I am not presently able to state whether *normanni* belong to the fauna of Tchad or of the Niger. However, aquarist Nitch of Berlin (who apparently was a close friend of Dr. Ahl), in an article on lam-eyes in "Wochenschrift," wrote that *normanni* lives in the Kadunda River (which empties into the Niger River and which is not very far from the Katagum River). If Mitch's information is correct, then Ulf's discovery is the first of *normanni* inside the Tchad system. Lam-

bert, however, also collected freshwater fishes inside the Tchad Basin in 1961 and wrote me that he found many *gambiensis* in that area.

Micropanchax gambiensis is known first from Svennson's numerous specimens from McCarthy Island in the Gambia River, about 100 miles from the river's mouth. Later, Daget reported this form from many localities within the Upper Niger basin and also from the Senegal River and Upper Volta River basins. In 1962, Stenholt Clausen brought home alive many specimens from the Lower Volta River system, near Accra, of Ghana. In late 1962, E. Roloff collected a few specimens from the boundary between the Sierra Leone rainforest and savanna. His color photos,

Photo: *Micropanchax normanni*, two males, from Nun-gwa, near Accra, Ghana



WANT ADS - \$2

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

★ ★ ★

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100% dehydrated worms—for aquarium fishes. 12 grams, \$1.75, 8 grams, \$1.20, 4 grams, 65c, postpaid. Coarse, medium or fine. Lake Sawyer Worm Gardens, Route 1, Box 979-A, Kent, Washington.

Rare, new "Panama Crypt"—*Spathiphyllum kochii*. Beautiful centerpiece for 10 or 15-gallon aquariums. 75c each. Send for price list. Michael Springer, 1735 76th Court, Elmwood Park, Ill.

Fancy virgin female guppies—one year old. B & D Tropicals, 467 South 41st Street, Springfield, Oregon 97427.

Albino veiltail guppies—cream bodies, red fins with aqua highlights. Young breeders. C. Basil Jordan, Moore, Texas 78057.

Far East Tropical Fish—Write for price list today for the high quality fish with the most reasonable price: Larsens Aquarium, Prakanong P.O., Box 125, Bangkok, Thailand.

Fancy Veiltail Guppies—Five strains usually available. Wholesale and retail. Write for details. Thedens, 3714 Urbandale, Des Moines, Iowa 50310.

Live cultures—Dwarf white worms, \$1.50. Microworms, \$1.25, including instructions. Airmail 50c additional. Add sales tax where applicable. Blue Lagoon Aquarium, 1644 Irving St., San Francisco 22.

Salt Water Fish—coral, sea horses; not cheap, but fish are all healthy and disease free! Coral Reef Exhibits, P.O. Box 59-2214, Miami (AMF BR.), Florida.

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

WANTED

Reliable source for extraordinary tank-raised blue discus and black angels. Harold Beck, 2400 McCue, No. 52, Houston, Texas 77027.

Wanted: Angelfish—sexed pairs of all colors; also refrigerator liners. Send prices and information to R. Jones, 3634 Greenland Ave., N.W., Roanoke, Virginia 24012.

sent to me for identification, clearly showed the identical species which Ulf caught within the Thad basin, and those caught by Clausen within the Volta basin.

It is evident that *normanni* is a common form in the northern savannas of western Africa. This species has not been reported so far from the rainforest areas of this part of Africa, and it seems as if it does not extend into the neighboring Congo, Cameroun-Gabon and Nile fauna regions, at least not unchanged. This is surprising as the two savanna *Epiplatys* (i.e., *bifasciatus* and *senegalensis*) from the same savanna area do extend their range into the Nile, as well as into the Congo region. This "unchanged" *bifasciatus*, however, is not found within the Congo savannas but there is little doubt that *Epiplatys chevalleri* represents *bifasciatus* within these savannas.

Within the Gambia, Senegal, Volta and Niger river basin, *normanni* is often found together with Daget's *Nicropanchax pfaffi* of 1957. This latter lampeye differs from *normanni* in having shorter ventrals in the male and with the dorsal fin placed much farther backwards on the back. Inside the Tchad basin, where *pfaffi* apparently does not occur, *nor-*

Book News

Straughan Marine Book

There is still a limited number of the original printing of the salt water aquarium book *The Salt Water Aquarium in the Home* by Robert P. L. Straughan, available at the present time for those who wish to add the book to their library. A new edition will be out shortly at a slightly higher price, but copies of the first edition are still available at \$7.50 from: Coral Reef Exhibits, P.O. Box 59-2214, Miami 59 (AMF Br.), Florida. ◀

manni is accompanied by the *pfaffi*-like, *Micropanchax longicauda*.

Micropanchax normanni is a small lampeye reaching a length of 1½ inches in nature and probably less in aquaria since the fry are rather difficult to raise to adult size. As the photos show, this species is rather deep-bodied and robust. There is a considerable difference in the development of the fins of the two sexes. The male's dorsal, anal and in particular, ventral fins have more or less, pronounced rays. The long streamers from the ventrals may even reach behind the root of the anal fin when the latter is not in its raised position. Also, in coloration there are considerable differences between the sexes. The sides of the males are covered with a rather uniform, silky-bluish hue; the vertical fins are yellow to orange, near the free edges in particular. Here, the handsome orange color may develop into quite a saturated orange. During fighting and spawning, the ventral fins of the male become nearly black and this color is also seen on the hindmost edge of the caudal fin in some. The upper part of the eye normally reflects the light, resulting in a golden brilliance.

Recently, some zoologists (Lambert, et al) have expressed the opinion that *gambiensis* and *macrophthalmus* may be identical or else subspecies. Having had both forms together in my tanks for very many months (two different stocks of *normanni* from the Volta and the Tchad, plus six different stocks of *macrophthalmus* from Dahomey, southwest

CLUB NEWS

South Hills Aquarium Society

This Pittsburgh, Pennsylvania group meets on the third Friday of each month at the Dormont Recreation Center, Banksville Road, Pittsburgh, at 8:00 p.m. Mailing address of the S.H.A.S. is 1660 Beryl Drive, Pittsburgh, Pennsylvania.

MARCH 1964

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Nigeria and southeast Nigeria), I am convinced that these two forms are distinct, valid species. The *macrophthalmus* species is a typical rainforest form, distributed at least over the whole Dahomey-Nigeria rainforest. Aquarists can easily tell these two forms apart as *normanni* has long ventrals in the male and an evenly-distributed bluish hue, whereas *macrophthalmus* has short ventrals and the metallic brilliance is greater and concentrated in two longitudinal bands along the sides of the body. Stenholt Clausen, however, found a third species in the Ghana rainforest, closely related to these two. This species falls inbetween *normanni* and *macrophthalmus* in general appearance. It has very long ventrals in the male, and the blue hue is not so clearly concentrated in bands as in *macrophthalmus*. Hybrids with southwest Nigerian *macrophthalmus* resulted in "malish" hybrids only, having very long ventrals. The relationship of these three forms is not yet clear. In this connection, I may mention that Fowler described another lamprey in 1942, from Harbel in Liberia, under the name *Micropanchax macrurus manni*. This form is, without much doubt, not a close relative of Boulenger's *macrurus* from Angola but more probably a member of the group under

discussion. It could be a variety of *normanni* as the only difference is found in the number of scales along the sides of the body. If found inside the rainforest, *manni* may be a close relative of Clausen's form from the Ghana rainforest.

(To Be Continued)

★ IDEAS ★

BY HOBBYISTS

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

The Old Toothbrush

Many people have admired my plastic planted aquaria and wondered how I keep the plants so clean. Some of the most beautiful of plastic plants are coarse and algae is difficult to remove from the crevices. After trying sponges, potato brushes, finger and sun methods, I finally found that a soft nylon tooth brush was the answer for fast, complete cleaning. Remember — it is important not to let algae dry on plastic plants, as this makes removal very difficult. — Martin South, Long Beach 15, Calif. ◀

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FINNY FOLKS

By Diane Schofield

RECENTLY I was delighted to have dinner with three men. But when you consider that these three men all fit nicely into the top of the category labeled "VIPs in the Tropical Fish Hobby," it makes it even nicer. These three men were Albert Greenberg, of the Everglades Aquatic Nurseries, Gene Wolfsheimer and Carlos Boner. Mr. Greenberg is, of course, one of the most knowledgeable men on aquarium plants, and Gene Wolfsheimer is known to us as "Mr. Aquarist" himself. Carlos Boner is perhaps the only one on whom a word of explanation might be in order. He is the man who introduced the four-eyed *Anableps* into this country. I have never met a man who has a kinder or a gentler approach to aquatic life than he does and down deep in his heart he feels that perhaps this was no kindness to the poor 4-eyed ones. He told me that he once saw some *Anableps* kept in a dealer's shop under less than optimum conditions and he said, "You know they looked at me as if to say, 'Why did you do this to us?'" You can tell without a shadow of a doubt that *Anableps* is his fish. Through kindness he has even taught them simple tricks and has discovered albino specimens.

As the evening progressed I wished mightily that I had brought my little tape recorder because the information sent back and forth around the table and later, was much better than a lot of books that I have read.

Carlos Boner has accompanied Albert Greenberg on several of his collecting expeditions and both mentioned seeing fish come up and nibble on the soap that the natives use to wash their clothes
(Continued on Page 154)

MARCH 1964

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Grand Opening of Dellbrook Tropicals

The Grand Opening of Dellbrook Tropicals, 401-A Judah St. near 9th Avenue on Saturday, January 18, carried over through all day Sunday to accommodate the crowds wanting to see the new aquarium store.

Among the ribbon-cutters was the President of the S.F.A.S. and Assistant



Left to right: City Supervisor George Moscone, Mrs. Robert O'Connor, Mr. O'Connor and Robert Dempster at ribbon-cutting ceremony.

Superintendent of Steinhart Aquarium, Robert Dempster.

"Dellbrook Tropicals is not new to San Francisco, having been formerly located on Lawton St. near 26th Avenue," said Robert O'Conner, owner of the store. Dellbrook features 128 display tanks, including a 300-gallon saltwater tank.

★ IDEAS ★ BY HOBBYISTS

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

New Filter Material

Fiberglass in many forms has been recommended for use as a filtering medium with inside and outside filters. Anyone who has used this material may have encountered one of the following problems. Irritation to the skin after handling, difficulty in separating the desired amount from the rest of the cloth and the possibility of tiny particles of the fiberglass being carried into the aquarium. A year ago I found a more desirable filtering material which is readily available at most larger stores. I am speaking of the Dacron filter sold for use as pillow stuffing. This polyester fiber is snowy white, economical to use, and comes packaged in a plastic bag which makes a very handy dispenser. The amount desired for the filter is easily torn from the bulk and no irritation to the skin has ever been noticed in handling this material. The dirty material can be easily cleaned and reused, however I feel it is more practical and preferable to use fresh material every time I clean my filters.—Donald A. Lund, Lawndale, California

Salt Water Fishes

By Robert P. L. Straughan

Q.—What is the bane of the marine hobby?

A.—Cheap prices! When fish are sold at a cheap price, their quality drops as it is not possible to handle large numbers at little profit and still give the fish delicate handling. This is also true of the freshwater hobby.



Use a plumber's auger for removing
algae from your outdoor fish pond

Outdoor Pool Auger

ONE OF THE PROBLEMS with outdoor water-lily pools and one which is quite well known to aquarists, is the controlling of the growth of algae. In spite of the fact that every attempt is usually made to keep the hair-like growth out of the water, it is extremely difficult, especially when lilies and other plants are being added and sooner or later somehow a few of the tiny strands are introduced and rapid growth immediately follows.

The pool with its abundant supply of fertilizer serves as an ideal habitat for the very prolific growth of the algal masses which soon become almost impossible to eliminate. Chemicals such as sodium arsenite, copper sulfate, and the various commercial algacides are sometimes difficult to obtain and offer certain hazards to the animal population in and about the water.

For these reasons pool owners find it more convenient and satisfactory (to a certain extent) to use an ordinary garden rake to remove the blankets of algae. However, the author has found that a much more satisfactory job can be done with a plumber's closet auger such as

Charles O. Masters

Walhonding, Ohio

the type manufactured by the General Wire Spring Company of Pittsburgh and available from local hardware dealers.

By dropping the spring and wire-rope extension directly over the mass of algae and turning the handle, it causes the algae to wrap itself around the wire and continue to do so pulling the algae from all directions of the pond until several inches of solid algae are built up. Then by slowly pulling the long "rope" of algae from the water and repeating the process two or three times one can completely clear an ordinary-sized pool.

In spite of the fact that the clean-up is only temporary, the improvement to the pool is rapid and can be done with little damage to the lilies or causing much of a turmoil. ◀

Join the S.F.A.S.

Schofield

(Continued from Page 151)

in the river! I have seen this particular soap and one isn't likely to confuse it readily with a box of Tide or Duz. The natives make it and it looks like nothing more than a small black baseball.

In future months when Carlos Boner returns once again from Mexico, I hope to bring a bit more information about him. Not only is his aquatic background remarkable but as he is half Mexican and half German, he is tri-lingual. He spent some time during the war years in a Nazi concentration camp.

Mr. Boner also has a delightful sense of humor in spite of some of the rather untoward events that happened to him in the past. This is one of the things that seem to make a respectable human being — frankly, I'm a little afraid of some of these people who say disapprovingly in effect, "How dare you write so

lightly about fish!" These are the people who haven't yet learned that life is entirely too solemn to even be taken seriously.

And speaking of a sense of humor, there is a lass who popped into the aquarium scene as editor of "The Wet Pet Gazette," the bulletin of the Norwalk Aquarium Society. Now, you know right at the onset that a publication with a name like this can't be all bad!

Ginny is a veritable whirlwind of versatility. She draws cartoons for her "Wet Pet Gazette." She writes excellent and seriously thought out articles and she tosses off poems with abandon, like her recent feature, "A Loose Mother Goose for Aquarists' Use." Some gems from this collection read —:

*"Mistress Mary, quite contrary,
How do your guppies grow?
By two — and ten —
By hundreds then
Those females must never say 'No.'"*

*"Mary had a little tank
One day it sprang a leak;
The words that Mary spoke were not
Translated from the Greek."*

*"Jack be nimble
Jack be quick,
Your best show stock
Has thriving ick."*

*"Little Miss Muffet sat on a tuffet
Eating her curds and whey,
Along came a fly
She grabbed it — that's why
Her fish had some live food that day."*

There're many more, but you'll simply have to hunt up one of the back issues of "The Wet Pet Gazette" to get them all.

Ginny is married to a school teacher and has four little girls all under ten, so it's certainly nice that she has a hobby to keep her busy. ◀

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★ IDEAS ★

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New Peat Moss

For those killie fanciers that have difficulty in finding a peat moss that is suitable for spawning the bottom-spawners, try using ground sphagnum moss. This is available at most nursery supply houses. Wash it thoroughly and put it through a coarse food grinder. Boil for approximately 15 minutes and rinse well under running water to remove excess acidity. After the fish have been spawning in this medium for a length of time, I place it in a square container. Water is added and the mixture swirled for a few seconds. Then it is slowly poured off from one of the corners, until most of the water is removed. More water is added and the process repeated several times. Since the sphagnum is extremely light, most of this will be washed out. You will find yourself with a small amount of moss which contains many eggs. It's just like panning for gold. — *Fraser G. Tulk, Brooklyn, N.Y.*

CLUB NEWS

Aquarium Society of Eastern Connecticut, Inc.

The A.S.E.C. will hold their 13th Annual Exhibit with the Lions' Club Flower Show April 11 and 12, 1964, at Ocean Beach Park, New London, Conn. The show is viewed by more than 10,000 persons, and competition is open to any member of the Society. Deadline for entries is March 20, 1964, according to Mrs. Martin Waldron, Corresponding Secretary.

MARCH 1964

PROGRAMS

Readers and societies are invited to submit ideas to The Journal for Aquarium Society meeting programs, including lectures, slides, films, demonstrations, etc. There is no charge for these listings.

"Saltwater Aquarium in the Home," a new 16mm film in color. Running time, 25 min. Rental: \$15. For information: Coral Reef Exhibits, P.O. Box 59-2214 Miami 59, Florida.

"Story of the Brine Shrimp," a 30-min. color and sound 16 mm film that also covers the tropical fish hobby. Rental: \$10. For information: San Francisco Aquarium Society, California Academy of Sciences, San Francisco 18, Calif.

"Fascinating Marinelife of the Pacific Northwest," a visit to the Seattle Marine Aquarium. 30 color slides 35 mm. Rental: \$5.00 plus postage. For information: Eric Friese, 105 NW 49th Street, Seattle, Washington 98107.

"Diane Schofield's Color Slides," a selection of different programs of color slides complete with commentary by Miss Schofield. Each program rents for \$5.00. Sample programs: "Familiar and Strange Fishy Little Faces," "Fish of India," "Fish of Hawaii," "Marineland of the Pacific," "Seeing the Seaquarium," etc. For more titles and information, write Diane Schofield, 739 E. Valencia St., Burbank, Calif.

"Killifishes," a slide-tape program created by veteran aquarist George Maier of Chicago. In the West, contact Alan C. Marks, 2607 Bryant St., Palo Alto, Calif. regarding particulars.

"Aquarist Adventures in Southern California," an educational tour of aquatic topics. Local fishes, field trips, fish shows, shops, hatcheries and Marineland with society programming in mind. 50 color slides 35mm. incl. 50 narrative "read cards." Directions. Rental: \$15.00 ppd. one way. For information: Gene Wolfsheimer, 4549 Tobias Ave., Sherman Oaks, Calif.

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Letters to The Journal

From: Mrs. J. Gratzinger,
New York, N.Y.

I am wondering if you could give me information on albino swordtails. In August this year I purchased 5 pairs of albino swords. They are of good size (fully grown) and of beautiful color. I have them in a 15 gallon tank - well planted - (bottom plants, and floating hornwort, etc. on top). I have adequate filter and aerator - aqua master supreme pump - outside filter. I feed well frozen brine shrimp, earthworms, daphnia, tetra min dry food and frozen blood worms. All seems well - except the females have failed to produce any young. I have isolated a couple that looked like they might be close to time of bearing young - but nothing happened and their appearance did not change. So I know they did not have any and ate them. It

might be possible - some might be sterile, but out of 5 pairs it would seem that some young should be produced. Could you offer any suggestions, or tell me where I could get information on raising these fishes? Any help would be greatly appreciated.

REPLY: About 1941 to 1942 I had a strain of steel-blue albino swordtails in which the females reached a length of 4 to 5 inches and gave birth to 60 to 75 young. These were hardy albino swords and very beautiful. I kept them in 40 gallon concrete aquaria. However, even these hardy albinos produced a large number of apparently sterile females, and I strictly selected for females that produced well. I lost this strain during World War II and none that I have seen since seem to me to match them. It may well be that all your females are sterile and you may have to try to buy more. When you buy albino swords, be sure to buy only females with developing embryos. This is the only way to be sure you are getting a fertile female. Often you can see the eyes of the young inside the females. When you see this you know your females are fertile.

• • •

From: R. Ponce De Leon,
Farmingdale, L.I., New York

I write to you with the hope that in your experience in the field of aquarium

CLUB NEWS

Northeast Council of Aquarium
Societies, Inc.

The next regular meeting of the N.E.C.A.S. will be held Sunday March 8, 1964 at Cotillion Hall, 51 Broadway, Taunton, Mass. Program will start at 2 p.m., with a buffet supper at 5 p.m.

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equipment you will have used a particular filter and aerator device. Several weeks ago I received an undergravel filter that was made in France, and which has proven very satisfactory. Its name is "The Invisible French Filter." I have had no luck locating one through hobby shops or aquarium supply dealers. I am enclosing a descriptive brochure which is packed with the filter. I would appreciate any light you might be able to shed on this subject. I would like the name of a distributor or the manufacturer of this filter. Your assistance and cooperation in this matter will be greatly appreciated.

REPLY: "The Invisible French Filter Aerator" has been available in the United States for several years. It is available from M. A. Vansteenkiste, 149-54 14th Place, South Ozone Park, 20, Long Island, New York.

From: Jonathan Salka,
Brooklyn 29, New York

I have a 10 gallon aquarium in which I was able to breed live-bearers. I am now interested in the breeding of egg-layers. I would like to know how to breed "Pencil Fish" (*Nannostomus marginatus*) and how to determine the male from the female.

★ IDEAS ★ BY HOBBYISTS

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Salt Against Algae

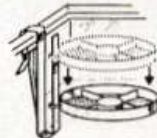
I have been using plastic plants for a long time and have been able to find out a way to clean off the algae that gets on them. The best way is to soak them in a strong salt solution for a couple of hours. This way is a lot easier than trying to scrape it off. — Steve Ferree, Pomona, Calif.

MARCH 1964

REPLY: The males and females of this fine little fish are much alike in color and size. Usually the reds are brighter in the males and the black more intense. Also the females are a little fatter around the middle. This fish is a soft water fish, requiring a temperature of 72 to 76 degrees F., a pH of 6.0 to 7.5, very soft water about 20 ppm total hardness, and dense thickets of plants in which to spawn. Sunlight or bright lights should be kept away from their eggs. Feed the adults heavily on newly hatched brine shrimp at least twice a day. If you do this regularly and have a tank very densely planted with both floating and submerged plants, 2 or 3 pairs should produce 5 to 10 young per day in a 10 gallon tank. I just take the young out when they reach about a third of an inch in length and raise them in another, less densely planted tank with the same kind of water. Aeration is not desirable in the breeding tank and use only slow aeration in the



New molded, unbreakable plastic feeder ring rides up and down with the water level. Food can't flow over or be left high and dry. **29c**



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rearing tank. Change about 1/3 of the water in the breeding tank about every 2 weeks, replacing the old water with freshly aged water of the soft, mildly acid type. Watch for tiny young when you remove the old water.

From: Martin Southof
Long Beach 15, California

Lately I have been plagued with a form of slug (?) or worm (?)—I am not sure which. They seem to multiply very fast and I believe they kill tubifex worms. I have been blessed with the good fortune of being able to go to a stream nearby and collect tubifex worms by the pounds plus daphnia, etc. and it seems that I am introducing these things into the tanks at feeding time. They hide during the day, but at night they come out and cover the glass sides of the tank. Under the lense, they look like my drawing (as close as I am able to draw them). A1 and A2 are the same thing. A seems to have 2 eyes and stretches its head forward, pulling the rest of the body after it. B seems to be a segmented worm, and at each joint a hair, or leg protrudes outward. This thing looks different in cell structure and does not excrete anything. The largest of these things, when they stretch out, reach almost 1/4 inches. The fish simply will not touch them. What in the world are they? Are they harmful?

REPLY: Your drawings and notes indicate that A1 and A2 is the same kind

of flatworm of the free living type (Turbellaria). There are many families and genera of these and we would not try to guess to which yours belong. They are photonegative and only come out at night to feed, staying under rocks and in gravel in the day. Apparently few fishes find them worth eating, even when found in the day. They are scavengers, feeding on uneaten fish food, dead snails or dead fishes. They are commonly called planaria by aquarists and many kinds do belong to the family Planariidae. Your B is probably the larva of a midge, a kind of small fly, family Tendipedidae. They are harmless and often form excellent food for fishes. However, some larvae of the around 3,000 or more species apparently are not relished by fishes. I have had a similar experience as yours. They are harmless to you or your fishes. In time you may find small white or gray flies around your aquarium. These will be the adults.

CLUB NEWS

National Orange Show

Tropical fish groups, hobbyists, breeders and dealers throughout Southern California are invited to participate in the annual aquarium display and competition to be held with the National Orange Show in San Bernardino March 12 to 22, according to Jim Harris, publicity chairman.

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