

TROPICAL FISH

HOBBYIST

APRIL, 1964

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TROPICAL FISH HOBBYIST



Keeping Sea Horses, by Robert P. L. Straughan. 75c from your dealer or direct from TFH.

Robert P. L. Straughan is a well-known authority not only on the keeping of marine aquarium specimens of all kinds but also on their collection. As a collector of marine fishes, he spends a great deal of time each day on the bottom of the sea around Florida and knows not only what occurs there, but how the fishes and other marine creatures can be adapted to a life in the aquarium, how they may best be fed, and all the other things that a marine aquarist would need to know about them.

In **KEEPING SEA HORSES** Mr. Straughan tells us about Sea Horses' living habits, their highly unusual method of reproduction, the care and feeding of both adult and young specimens, and just about everything else that anyone who would be interested in keeping them would need to know, all told in simple, understandable language. This attractive booklet is profusely illustrated with many photographs and contains a great deal more information than anyone would expect for the small price of 75 cents.

Beginning marine enthusiasts will derive special benefit from the section of the booklet which lists and describes appropriate tankmates for Sea Horses.

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COVER

Gas Knobs, for a number of years a big favorite of viewers of television's *The Andy Griffith Show*, is shown pouring into one of the tanks he maintains as a hobbyist. In the upcoming *Western Sea*, feature *The Incredible Mr. Limpet*, chances for the movie and of its possible effects on the hobby are discussed in this issue.

EXOTIC TROPICAL FISHES

SUPPLEMENTS

Pages 33 and 34, 39 and 40. These pages are prepared for easy removal and purchase to fit into the seasonal Edition of EXOTIC TROPICAL FISHES.

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EDITORIALLY . . .

How safe is your aquarium? I mean safe not only for the fish population swimming in it, but also for a child or pet coming in contact with it. Do you have a reflector which can easily be pushed into the water and give a painful, perhaps even fatal, shock to a child who touches it? Is the insulation cracked and worn close to your pump motor, practically screaming to be replaced? Are there any dangling wires which could provide an irresistible temptation to a cat who wants merely to play but winds up pulling things down with catastrophic (no pun intended!) results? Go to your hardware store and get a roll of electrician's tape to get you started, and then give your equipment a good going over. Fasten all loose wires, and put all things that could cause injury out of the way. Put away pumps where children can't put their inquisitive fingers into moving parts. Reflectors bear frequent inspection as well. It's amazing how quickly the water will attack wires and sockets. Replace worn, cracked wires and rusty sockets, and while you're at it look at your switches too. Tighten all loose connections; if it is possible to wrap a layer of tape over the bare spots where metal is exposed, by all means do so. Make sure that your wall outlets are not overloaded. All this is not a lot of silliness; it's plain horse sense! Your tanks will be safer when you're finished, and the whole set-up will look better!

William Vorderwinkler

Tropical Fish Hobbyist

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FILTER FISH: The Vitelline yellowish rising slowly in the water, poses as its full height as if to look for prey. Then, as though avoiding an imagined danger, retreats a hair of bubbles and carries forward to the bottom of the aquarium.

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Neolebias trilineatus (previously known as *Nannaethiops trilineatus*). Photographed alive by Dr. Herbert R. Axelrod.

New African Characins

BY DR. HERBERT R. AXELROD

Two of Belgium's most famous ichthyologists, Max Poll and Jean-Pierre Gosse, both of whom spent many years in the Belgian Congo, teamed up to publish a very interesting article concerning the names of the fishes in the genera *Nannaethiops* and *Neolebias*. Their article appeared in the *Annales du Musée Royal de l'Afrique centrale*, published in Tervuren, Belgium (Série zoologique #116, 1963). This article freely uses the information and photos contained in this interesting study, with the kind permission of the authors.

The names of fishes of the genera *Nannaethiops* and *Neolebias* have always been very badly confused. When I collected some unidentifiable species in Africa a few years back, I went to London to compare my specimens with those kept in the British Museum. Thanks to the kind help of Dr. Ethelwyn Trewavas, I discovered that even the type specimens kept in the British

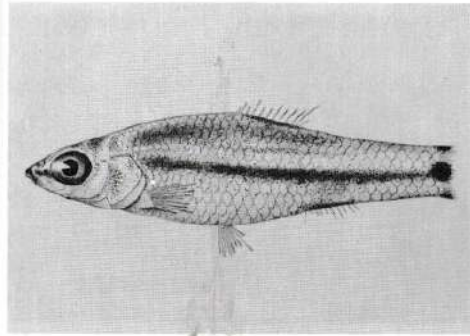
Museum were mixed since the co-types were a different species from the original types! So poorly were the generic characteristics of these two genera described that Steindachner placed *Neolebias unifasciatus*, the type species of *Neolebias*, in the family Cyprinodontidae! He never discovered the closeness of this species with *Nannaethiops untaeniatus* which was described by Günther 23 years earlier.

Based upon their examination of the types of almost all the species from both genera, Poll and Gosse came to the following conclusions: **The only difference between the two genera is the lateral line, complete in *Nannaethiops* and reduced to a few anterior scales in *Neolebias***; neither the teeth, the presence or absence of an adipose fin, nor the scales on the base of the caudal can be used as generic characteristics.

Geographical distribution of *Nannaethiops* and *Neolebias* in Africa. From Poll and Gosse.



6



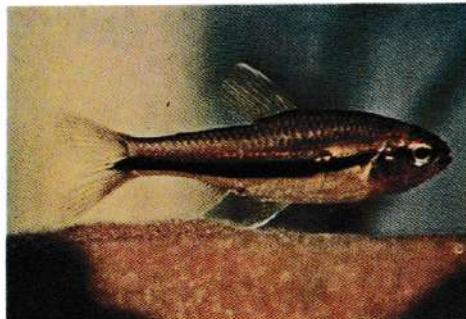
Neolebias unifasciatus STDR., from Poll and Gosse.

Therefore, there is only one valid species in the genus *Nannaethiops*, namely, *Nannaethiops untaeniatus* which Günther described in 1871, ranging from Nigeria to the lower Congo, in the streams and rivers along the Atlantic coast. All other "*Nannaethiops*" must be placed into the genus *Neolebias*, and they are listed below:

- Neolebias unifasciatus* Steindachner, 1894
- Neolebias trilineatus* Boulenger, 1899
- Neolebias ansorgei* Boulenger, 1912
- Neolebias spilotaenia* Boulenger, 1912
- **Nannaethiops tritaeniatus* Boulenger, 1913
- **Nannaethiops angustolinea* Nichols, 1923
- **Neolebias landgrafi* Ahl, 1928
- Nannaethiops geisleri* Hoedeman, 1956
- Neolebias trewavasae* Poll & Gosse, 1963
- Neolebias philippe* Poll & Gosse, 1963
- Neolebias axelrodi* Poll & Gosse, 1963

*These three species are not valid and must be considered to be synonyms, as follows: *Nannaethiops tritaeniatus* = *Neolebias trilineatus*, *Nannaethiops angustolinea* = *Neolebias unifasciatus*, and *Neolebias landgrafi* = *Neolebias ansorgei*. Though it was not possible for Poll and Gosse to examine the types of *Nannaethiops geisleri*, this species seems to be very similar to *Neolebias ansorgei*.

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Neolebias axelrodi. Photo by Dr. Herbert R. Axelrod.

THREE NEW SPECIES OF NEOLEBIAS

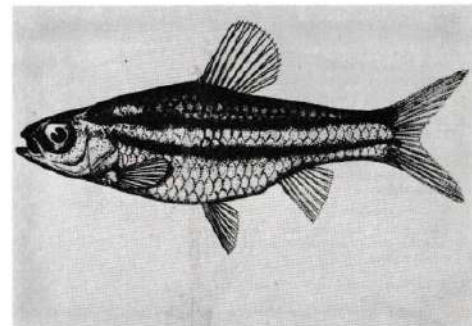
Poll and Gosse described three new species of *Neolebias* in their article. I am reproducing the essential material here because it has never appeared in English before.

NEOLEBIAS TREWAVASAE was named for Dr. E. Trewavas from the British Museum, who is one of the most universally loved ichthyologists of our time. She has always given freely of her time to help scientists from all over the world, including the author. According to Poll and Gosse this species was well known in the aquarium world and in museum collections, but under the names *Nannaethiops untaeniatus* and *Neolebias unifasciatus*. As a matter of fact, Boulenger in his famous book FRESHWATER FISHES OF AFRICA figured this fish as *Neolebias unifasciatus*!

NEOLEBIAS PHILIPPEI, named for a Mr. M. R. Philippe, is a restricted species which has only been found, thus far, in the Tshuapa River near Boende, Congo. It is the only species in this genus with two black lateral stripes.

NEOLEBIAS AXELRODI was known even before its description in the Poll and Gosse paper (see TFH, April, 1958), when my Swedish boy-genius Ulf Hannerz dropped a bag of them back into the fast-running ditch in which we found them. It was also this fish which made me known to Dr. Gosse when we met in the Brazilian jungle town of Manaus, thus initiating our friendship with Dr. Gosse and King Leopold III.

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Neolebias philippe POLL & GOSSE, from Poll and Gosse.

Neolebias ansorgei BLGR. Photo by G. J. M. Timmerman.



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KEY TO THE SPECIES OF THE GENUS NEOLEBIAS

1. 30-36 scales in longitudinal series.
More than 40 scales in longitudinal series. 2
N. SPILOTAENIA Bigr.
Mayumbe.
2. 16 scales round caudal peduncle.
12 scales round caudal peduncle. 3
5
3. More than 5 maxillary teeth, black lateral streak ending with a black vertical spot at base of caudal fin.

Less than 5 maxillary teeth, eventually a rounded spot at the posterior end of the black lateral streak. 4
N. ANSORGEI Bigr.
Portuguese Congo, Mayumbe.
4. Black lateral streak not interrupted at the caudal peduncle.
Maxillary not reaching anterior border of eye.
Black streak on the central part of the caudal peduncle, ending with a spot at base of caudal fin. Interorbital width 2.8-3.6 in length of head.

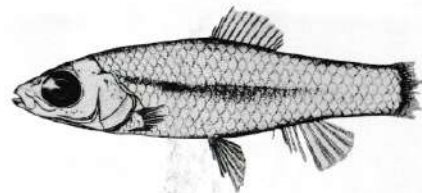
Maxillary reaching anterior third of eye.
Black lateral streak on the inferior part of caudal peduncle. No blackish spot at the origin of caudal fin. Interorbital width 2.5-2.9 in length of head.

Black lateral streak interrupted at the middle of the caudal peduncle. Maxillary not reaching anterior border of eye. Interorbital width 5.1 in length of head.

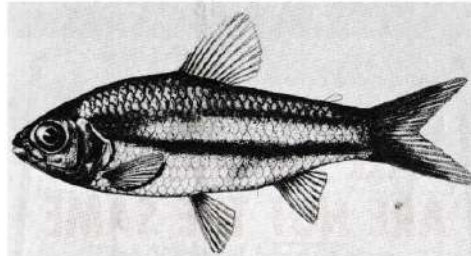
N. UNIFASCIATUS Sodr.
Portuguese Guinea, Liberia, Gold Coast, Nigeria, Chad, Cameroon, Gaboon.
5. 2 black lateral streaks, dorsal originating in advance of ventrals. Caudal peduncle at least 1.5 times longer than deep.

3 black lateral streaks, origin of dorsal above origin of ventrals. Caudal peduncle 1-1.2 times longer than deep.

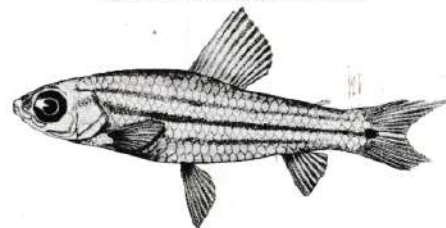
N. TREWAVASAE Poll & Gosse
Cameroon, Gaboon, Mayumbe, Congo, Nil.
- N. AXELRODTI* Poll & Gosse
South Nigeria.
- N. PHILIPPEI* Poll & Gosse
Central Congo.
- N. TRILINATUS* Bigr.
Congo.



Neolebias axelrodti POLL & GOSSE, from Poll and Gosse.



Neolebias trewavasae POLL & GOSSE, from Poll and Gosse.



Neolebias trilinatus BLGR., from Poll and Gosse.



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A quintet of sedate young *Hyphessobrycon scholzei* on review. Photo by Dr. Herbert R. Axelrod. (This color photograph is available in the new TFF postcard series.)

The Black-Lined Tetra

BY JACK HERMS

The Black-Lined Tetra's distinctive appearance and hardiness, plus its active habits, entitle it to more recognition than it has been getting for some time past. Furthermore, the fact that it breeds quite freely, flourishes at 72°-75°, eats anything palatable to a fish, and does not exceed two and a half inches in length makes it ideally suited to the beginner.

Its one minor drawback, which might reasonably inspire distrust, is its reputation for being something of a fin-nipper. But this failing need hardly raise any qualms in the mind of the aquarist who, forewarned, is thoughtful enough to exclude thread-finned or lethargic fishes from its company.

The species goes by the technical name of *Hyphessobrycon scholzei*, which name was given to it in 1936—the year it was first collected from the lower reaches of the Amazon around Para—by the late Dr. Ernst Ahl, a German ichthyologist. Yet for quite a while after that event many aquarists errone-

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only believed it to be an African species and referred to it as *Aletia nigrans*, a pseudo-scientific appellation which is said to have been dreamed-up by some imaginative dealer.

Looking at the fish, it is easy to understand how it came by its popular name. A black stripe, edged above and, less conspicuously, below by a thin ribbon of pale gold, extends from just behind the gill-covers to the caudal base, where it expands into a striking diamond-shaped marking. Further, as extra adornment, shimmering patches of light reflect off the scales. The back is olive, toning down to silvery white on the belly. The pectoral fins are colorless, but the other fins have a hint or more of red in them, narrowly margined with black or white.

Both sexes are garbed alike, but in mature specimens the male can usually be distinguished from the female by his slimmer form. Still another method of telling the sexes apart is to scoop up a number of the fish in a close-meshed net and then, with a quick twist of the wrist, invert the net. Because the males and not the females have tiny hooks in the anal fin the chances are they will stay quiescent, or wriggling, on the fabric.

The tank for spawning *H. scholzei* should measure at least 20 inches long to allow the male ample chasing space. Two more essential requirements are clear matured water giving a neutral to mildly acid pH reaction (the sort of water the fish should have to live in anyway), and lots of bushy-foliaged plants massed at one or both ends to cradle the adhesive eggs.

When the plants are being washed and bunched together, keep a sharp lookout for snails, the bane of the fish-breeder. The stimulating excitative value of several days' separation of the sexes, combined with a slow rise in the temperature to 80° F. and an abundance of live food, cannot be over-stressed.

As soon as the female shows plump sides (the buildup of ova within her body often results in a darkening of the skin around her anal region) and the male demonstrates his fitness to breed by his increased luster and liveliness of manner, it is time to bring them together. If male and female are reunited last thing at night (take care they are not subjected to any change in the temperature or marked difference in the quality of the water) it is usual for them to spawn on the following morning or afternoon.

The mating act is nothing more elaborate than a series of brief chases into and out of the greenery. There, during momentary body quiverings and pressings, the female sheds her eggs. The male drives are particularly vigorous, and after spawning is over the female is, to say the least, in a sorry state.

But her bruised sides and torn fins will not deter either her or her spent spouse from gobbling every egg within reach. Thus the sensible thing to do is to remove the fish to another aquarium without delay.

So much then for the conventional way of breeding *H. scholzei*. But there is another method, far too rarely practiced by the ordinary hobbyist, called community spawning. This entails placing two or three conditioned males with, say, four or five spawn-ripe females. Chasing follows almost as a matter of course. The advantages of this method will be readily appreciated. Firstly, there is less damage done to the females because the males' attentions are divided. Secondly, one can be sure of an abundance of eggs.

The eggs hatch out in about two days; for another two days or so the fry hang tail-down from the plants and the sides of the aquarium. During this time they depend on the nourishment stored in their yolk sac. But as soon as this has been absorbed, the fry assume the normal horizontal position and strike out in all directions in search of food. In the main they hover and dart in the middle and lower levels of the water.

To achieve the best results, the babies should be given infusoria for the next week or two. Care should be taken to see that they get enough of it to keep their little bellies bulging. In this connection it is better to use a drip-feeder than to introduce quantities of infusoria all at once. After the fry have put on a little growth, their diet should consist of larger things such as powdered dried food, brine shrimps, and Grindal worms.



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The following firms have great interest in improving the tropical fish industry. Most of them have contributed much time and effort to improve quality and service. In addition, those listed below have contributed to a special fund which will be used to benefit the entire industry.

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We seldom hear about this one.



Male in foreground with his fins clamped, while the female lays eggs.

The Purple-Striped Gudgeon

BY DIETER FACH
Photos by the Author

The Purple-striped Gudgeon, *Mogurnda mogurnda mogurnda*, reaches in its native home in the coastal waters and rivers of New Guinea and central, eastern, and northern Australia, a size of between 6½ and 8 inches, big enough to scare off most prospective purchasers. But it is a peaceful fish, at least if kept with fishes too large to be swallowed, and it is interesting. It is hardy, being not too particular about water composition, and it needs no special water temperature; 74° suits it fine, with occasional declines to 64° presenting no problem. It accepts almost all dried, frozen, and live foods.

The basic color of the fish is a dirty yellow. The upturned mouth is very large and armed with pointed teeth. The eyes have a golden iris. Pupils are black, gleaming violet or light blue depending on the angle from which the

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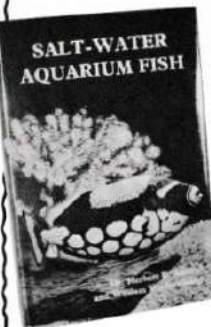
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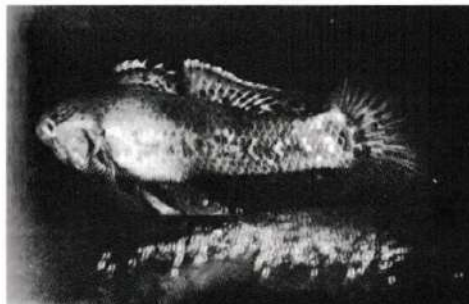
Dr. Axelrod took four years to write this book with the assistance of Mr. Vorderwinkler. He journeyed 135,000 miles from Pakistan to Hawaii to Australia to the Fiji and Hawaiian Islands, through Japan and Ceylon, Singapore and Hong Kong, as well as Europe, the West Indies and South America, not to mention Africa and the Mediterranean, to collect and photograph fishes which have never appeared on a printed page before!

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Female laying eggs.

light hits them. On the gill-plates there is a spot which is large and bluish-green in color. A brown patch covers the base of the pectoral fin, which is otherwise as colorless as the ventrals. The entire back has a dark olive-green color.

The lateral line is straight and runs from the gills to the caudal base, forming a row of dots which are alternately sky-blue and brown, ending in a brown spot at the tail. In the first third of the caudal fin this spot melts into many little spots of the same color. The dorsal is separated and dotted with light blue and brown besides being edged with the same color, and the last three anal rays are also light blue; otherwise it is colorless.

Continued on Page 62

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Earthworms The Easy Way

BY CAROL HONNOLD

Many instructions one reads with reference to conditioning fish advise the use of, among other things, chopped earthworms. Have you ever chopped a slimy, squirming earthworm? If you are the least bit squeamish, don't do it!

My first attempts at this process utilized a four-inch-square chopping block made of one-half inch plywood, with a single-edge razor blade for the chopping process. Chopping enough worms to feed all the fish I have proved to be about as progressive as dipping water out of a bathtub with a teaspoon! Then I tried putting a dozen or so of them in plastic bags, straightening them and then freezing them before I chopped them. Evidently the worms took a dim view of this process, for they would come out frozen all right—and wound tightly into a large ball. This was no easier than chopping the squirming live ones. I kept thinking to myself, "There must be an easier way!"

A fact which many do not realize, and one which I learned the hard way, is that there are earthworms and earthworms. DO NOT feed those that come from barnyards and have more or less grown up in the wastes of such an area. In the first place, fish do not like them, and in the second place they contain a toxic substance that will kill any fish unfortunate enough to eat one of these worms.

After several years of messing around with earthworms, during which time I almost decided that my fish were just going to have to do without this delicacy, I hit upon a real idea to eliminate all this fuss and bother. The idea came one day when I looked into a can of fishing worms that had been standing for several days and found several tiny ones at the top. I fed them to my fish, and they went wild over them!

It's important to use the right kind of worms. Ordinary garden worms or night crawlers won't do, because they die easily in captivity. What you want as a starting culture is about 50 or 100 Hybrid Red Worms, which are available from worm ranches, bait and tackle stores, and even some surplus stores. These worms are better adapted to cultivation than their larger, wild-type relatives, especially as they take heat better, although even these domesticated worms should not be kept too warm.

For breeding and raising the worms, I like a large flowerpot. Fill it with a good sandy loam, but DO NOT add fertilizer or peat moss, for then the worms will scatter throughout the pot and be difficult to gather. Then the worms into the flowerpot and sprinkle Pablum or a similar baby cereal liberally over the top. The soil should be quite moist, but not muddy. Place an inverted saucer over the top and set the culture aside for three weeks, checking periodically to see that it is moist and that there is plenty of food. Ordinary room temperature is fine. If you are the impatient type, you may



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check at the end of two weeks, and you will find a few small worms near the surface. At the end of three weeks, the top will be literally teeming with a squirming mass of $\frac{1}{4}$ - $\frac{1}{2}$ " very pale pink worms about as thick as white worms. You should have enough live food for as many fish as you happen to have, and the beauty of all this is that the worms reproduce so rapidly there seems to be no end to your supply. They come out of the soil clean, so it isn't necessary to wash them unless you just want to.

If you find you have an over-supply of larger worms, put 'em in a coffee can with some soil and go fishing! Or give a fellow hobbyist enough to start his own culture.

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Mr. Limpet and nautical friend check one of the tanks whose inhabitants have led Mr. Limpet to his "theory of reverse evolution." Photo courtesy Warner Bros.

The Incredible Mr. Limpet . . . A Preview

BY NEAL PRONER

In the next few weeks aquarium hobbyists will have an opportunity to see a new movie, *The Incredible Mr. Limpet*. Based on a novel by Theodore Pratt, *The Incredible Mr. Limpet* tells the story of how a Brooklyn bookkeeper, a tropical fish hobbyist and a firm believer in what is termed the "theory of reverse evolution," turns himself into a fish and thereby becomes the nemesis of enemy submarines lurking in Atlantic coastal waters during World War II. Co-operating with the Navy, Mr. Limpet uses his unique abilities in his country's service and emerges a great national hero.

The film, produced by Warner Bros., hitches the wonderful comic talents of Don Knotts, as Mr. Limpet, to a story combining

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elements of Walter Mitty-ish humor, old *Submarine* comic book adventure, and Horatio Alger success stories, all backed up by clever animation and the sure-to-please music of Academy Award winners Sammy Fain and Harold Adamson. Good fun for the whole family, this picture is bound to succeed as a moneymaker and as an artistic vehicle for a virtuoso performance by Don Knotts, perhaps the most talented representative of sad sack humor since Charlie Chaplin.

The film is scheduled to premiere in 5,000 theaters throughout the country in late March and is being played up by the National Association of the Pet Industry (NAPI) as a tremendous boost for the hobby. It has been made the focal point of a promotion called NATIONAL TROPICAL FISH WEEK (March 30 through April 7), by which interest in the movie on the part of specialized groups such as tropical fish hobbyists, skin divers, fishermen, and submarine buffs will be used to hypo sales, retail and wholesale, in these hobbies. This is all legitimate promotional tie-in, and we hope that *The Incredible Mr. Limpet* and its related promotions pay off handsomely. The movie is sure to be popular with the public in general and tropical fish keepers in particular, and it deserves support on the general principle of being about 100 minutes of solid entertainment.

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But we fail to see how, without the help of aquarium hobbyists themselves, it can achieve its NAPI-stated aim of bringing "... at least a million newcomers into the hobby." As a promotion for tropicals the picture has serious faults. First of all, Mr. Limpet, although not necessarily being made a type specimen of all tropical fish hobbyists, is portrayed as a Milquetoast whose withdrawn preoccupation with fish is less than healthy. The effect of this on moviegoers will serve only to increase in the public mind the image of aquarists as delicate monomaniacs.

We don't need more of this; we get enough from the nighttime television shows that occasionally depict psychotic heavies who have as a hobby ... you guessed it ... tropical fish. If things continue like this the keeping of tropicals will become a stock characterization for assorted bedbug behavior, and the hobby will suffer for it.

Another thing: from the movie stills I've seen, Mr. Limpet, complete with theory of reverse evolution and all, doesn't think enough of his charges to give them good conditions. One tank shows up holding at least eleven large Angels, four fair-size Goldfish, at least five big Gouramis, some *Corydoras* Catfish, a few small Barbs, a big Schwannefeldt Barb, and some other species. Considering that the tank appears to be no larger than about fifteen gallons and that it has neither aeration nor filtration, Mr. Limpet should be careful, in turning himself into a fish, that someone doesn't catch him and crowd him the same way.

There are ways to counteract these defects in what must otherwise be considered an admirable product. Luckily, NAPI has foreseen possible false impressions arising from the film, and the association is working on ways to promote co-operation between exhibitors of the film and fish dealers and aquarium societies. As of now, plans are to have each movie house showing the film run a contest offering prizes for the most attractive aquarium setups. If local aquarium societies get behind this and encourage their members to exhibit, either individually or as a group, a lot of good work will have been done toward dispelling some of the false notions engendered by the film. This is, by the way, a good way for an aquarium society to get new members. The non-hobbyist public will be able to get a truer appreciation of both the hobby itself and the people in it. And who knows? Instead of one million new hobbyists, maybe we'll get ten million.

Societies that want to help boost the hobby, which is one of the primary aims for which many societies are formed, can obtain specific information about theater lobby displays from NAPI. Just write to Mrs. Jay Winter, NAPI, 431 Chauncey St., Brooklyn, N. Y.



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MAIL CALL

If you have an aquarium question and cannot find the answer in any of the standard reference texts, send it to MAIL CALL. Each month this column will publish the most interesting questions received and their answers. Letters containing questions cannot be acknowledged or answered personally. Address all questions to: MAIL CALL, T.F.H. Publications, Inc., 245-247 Cornelius Ave., Jersey City 2, N. J.

Saving livebearer fry.
 Q. I am writing this letter for the benefit of those hobbyists who have trouble saving the babies of livebearers. There is a very simple way of solving this problem. First put your expecting female in a small tank of about 2 1/2 gallons. Then attach an outside filter to the tank without using any glass wool or charcoal. Remove the end of the filter intake and plant heavily around it. When the babies are born they will naturally swim to the plants and then be drawn up the intake. Then remove the female and return the babies to the tank.

of the empty filter. No doubt you wanted to mention this and forgot.
Snails.
 Q. 1. My question is on Mystery Snails: about six months ago I bought a Mystery Snail about the size of a silver dollar. It has three lines around it which look like layers of shell. Is there any way I can find out how old it is?



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Don Deacon, Westfield, N. J.
A good idea, Don, but if you don't do one thing more your babies will be pumped right back to the inside-open mouth of their mother. You have to cover the bottom of the return tube with nylon gauze to prevent the babies from being sucked back out.

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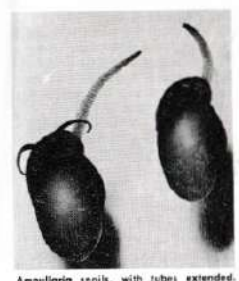
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April, 1954



Ampularia snails, with tubes extended.



Ampularia egg case.

of these, however, and remain males or females throughout their lives. If the eggs produced prove fertile you have a pair.

Kissing Gouramis.
 Q. I would like to know if it is true Kissing Gouramis kiss when they spawn.

Mark Scott, Alameda, Calif.

Julie Jamison, Morgantown, W. Va.

A. 1. A snail is not a tree; a Mystery Snail carries three rings with him throughout his life. I'm afraid there is no way to tell a snail's age by examining its shell. Being a tropical species, the snail grows at about the same rate throughout the year, and for this reason the shell remains about the same the year through.

2. Most snails are hermaphroditic and produce sperm as well as eggs. It is happens that the Mystery Snail is not one



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A. No; the so-called "biting" act is not necessarily part of the spawning procedure. Behaviorists are not agreed as to the real significance of this, but most of them will tell you that it has little if anything to do with affection. If you want my personal opinion, it is merely a sort of game staged mostly by the younger, immature set.

Betta behavior.

Q. I recently bought a Betta about 1 1/2 inches in length. When I got it home it started chasing some Cardinals and Neon Tetras 1/2 inch long. But there were White Clouds in the tank too. Why didn't it chase them?

William McAlpin,
Rosedale, N.Y.

A. Only your Betta could answer this. Probably the bright colors of the Cardinals and Neons made them look good enough to eat. You just can't figure out sometimes what makes a fish do the things he does!

Want a "Pen Pal" in Africa?

Q. Although I have been a reader of your column for some time I have ventured for the first time to write to you with a few queries.

1. What is the best method of preparing infusoria for livebearers and egg-layers?
2. What is the procedure for "line" breeding to obtain fancy strains in fish

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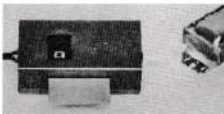
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water varieties such as Guppies, Sword-tails, Angel Fish, or the general procedure for all varieties?

3. I shall be happy to receive and answer letters from hobbyists which may prove to be to our mutual interest and benefit. Will you please ask your readers to write? Hobbyists in this part of the world are, to my knowledge, thirsting for information and literature on the subject and we appeal to the American experts to extend the helping hand to promote the hobby in this country.

Mr. C. P. Meyer,
P.O. Box 510,
Salisbury, So. Rhodesia, Africa.

A. 1. Infusoria is too small for most livebearers; the best small food for them is newly-hatched brine shrimp or finely chopped Tubifex worms. For egg-layer fry the best and easiest way is a system I stumbled on myself years ago: dump the accumulated debris from a couple of dirty filters into a gallon jar, then fill with clean water. When everything settles you will find the water swarming with infusoria which can be fed at once. This can be repeated again and again, but after the first time you have to give them a little time to multiply once more. Infusoria tablets also are very helpful.

2. Live breeding is one step removed from inbreeding. It consists of breeding fish from the same strain which are selected for desirable characteristics but not as closely related as mother to son or

father to daughter. The important thing is to keep on crossing out the undesirable and pick out only the very best progeny as breeders.

3. You will notice that I have given not only your name but your full address. I hope the results will not break your mailman's back.

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Plant-eating Kribensis.

Q. 1. I have a *Pelmatochromis kribensis* about 1 1/2 inches long. At times she attacks my 2 1/2 inch long *Coridoras julii*. Is this characteristic of all Kribensis?

2. She also has a taste for plants such as *Valisneria* and *Cardamine*. Could she be broken of this expensive habit?

3. Is it possible to have too many bacteria from decaying plants taking up oxygen? My 10-gallon tank has only eleven fish averaging between 1/2 and 1 1/2 inches in length. The tank is filtered and aerated and has many plants.

4. A 5-gallon tank is still in the planning stage. Is it true that colored or



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plain manufactured gravel will kill inhabitants of a tank by hardening the water?

5. How many fish between 3 and 4 inches long can be kept in a 10-gallon aquarium that is filtered and aerated?

6. How long should an electric light be kept on in an aquarium?

Tom Kern, St. Louis, Mo.

A. 1. Single fish sometimes get nasty. Get her a mate if you can.

2. Never heard of a Kribensis-eating plants. Perhaps she is not being fed properly. If you cannot get live foods, try giving her frozen beef hearts or frozen brine shrimp. Your last resort, of course, is to put in plastic plants.

3. Yes; decaying plants will feed bacteria, which in turn will multiply and use up more and more oxygen.

4. Natural gravel which has a high limestone content is the main factor in this case.

5. These are big fish for such a small tank. I wouldn't put in any more than a pair.

6. Depends on how strong the light is. Plants should grow well and not too much algae develop.

Water temperature and "ick."

Q. I intend to move a tank several miles from one location to another. The fish will travel comfortably in one of the new plastic foam thermos jugs. The plants will be carried in an insulated freezer bag of the old water. For this purpose I have a collapsible polyethylene 5-gallon bottle. This water naturally will become chilled in transit. Is there any danger in re-introducing the fish to this water after it has been brought back to its proper temperature? Do organisms such as "ick" undergo a physiological change during chilling which better enables them to attack fish and if so, how can the water be sterilized?

Peter Lupat,
Long Island City, N.Y.

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A. No; I don't think it's the water temperature that causes the population explosion but the effect the chill has on the fish. A fish which has been chilled has its natural defenses at a low point, and this gives the "ick" parasite the opportunity to attack the almost defenseless tissues. Just bring your water back to its correct temperature, and if you want to be really sure, let it stand eight hours before putting the fish back in. The "ick" parasite in its free-swimming stage must find a host within this time or it will starve to death.



Pelmatichromis taeniatus.

Pelmatichromis species.
Q. I have just had a spawning of the most beautiful Dwarf Cichlids I have ever seen but I am not sure of their species. I originally purchased the male as a Pelmatichromis taeniatus but I have not been able to find a picture of him in any of the texts I have consulted. The female was also sold to me, after I searched for three months, as a P.

taeniatus although, since her color was much deeper, the dealer thought she came from a different area than others he had seen and he was not sure they would mate. The male is about 1 1/2 inches long, magnificently colored with

black-purple rear third, the middle third brilliantly purple and the forward third golden yellow; the female is a similar yellow overall. The rear of the dorsal fin of the male has a black dot outlined in yellow and the caudal fin 5 or 6 pale yellow dots. Both male and female have a black dot on the lateral line ahead of the gill cover. The female is about 2 1/2 inches long, golden color, pronounced lateral line and with a faint, not often observed bluish tint on the ventral fin. The suggestion has been given to me that this pair may be P. subocellatus. I know only that they are two of the most colorful fresh water tropicals I have ever seen. In trying to maintain this strain would you suggest breeding the brothers and sisters or the parents with the offspring?

Wm. L. Principe,
Los Angeles, Calif.

A. You did not specifically mention an outstanding characteristic; the blotch on the belly. If your female has a green blotch she is P. taeniatus. If this blotch is wanted you have P. kribensis. You mention



Pelmatichromis kribensis

P. subocellatus. The female of this species has a very distinct ocellated spot at the rear end of the dorsal, and the male has a pattern of horizontal stripes in the upper part of the caudal fin, with vertical bars underneath. I hope you have been able to tie down the species with these few hints; I would suggest you keep on breeding the pair you have, as long as you still

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Snails—and more snails.

Q. I have a very important question to ask you and I need an answer fast. I have a 5-gallon tank and several small fish. I am a teenager and all I know is from experience and what I have read. I have never had this problem before, so I am writing to you. Last summer I bought a few fish at a local pet shop. When I got them home I noticed four small brown snails in the bottom of the container. I have never killed an animal, so I simply put them in with my fish. The next time I counted them my snails were six; after that there were nineteen and now there are more snails and eggs than I can count. I don't want to destroy them, but I will if they endanger the lives of my tropicals. They are all very small, but their number worries me. Can you tell me what kind of snails you think I have and how I can get rid of them? Please hurry; there are more and more every day!

Janice Ableman,
Chicago, Ill.

A. Your plight reminds me of the situation in the classic short story "Pigs in Pigs." A railroad station agent got a pair of guinea pigs and wanted to charge the rate for pigs and not household pets because, he argued, "pigs is pigs." The letters kept going back and forth and

maintain the guinea pigs kept multiplying, driving the agent to near distraction. To get back to your snails: they are probably pond snails, and they do no harm beyond chewing holes in your plants and cluttering up your tank with their droppings. You will have to cut them down at least. Get in the habit of crashing the ones you see near the surface.

Fish bacteria causing human disease?

Q. I was wondering about a matter concerning fish sanitation. The question is about the communicable diseases that a human is able to contract from the handling and breeding of tropical fish. I have experienced a hand infection and the doctor identified the cause of the infection as bacteria which develop in fish aquariums. I would be very happy if you answered this letter in your column.

David O'Brien,
Frederickton, N.B., Canada

A. Personally, I don't think that many of the aquatic bacteria which have an adverse effect on fish life would affect humans, or vice versa. Years ago I recall reading about an attendant in the old New York Aquarium who had a skin disorder that cleared up as if by magic after he had immersed his hands in one of the tanks. So the thing could work both ways. To the best of my knowledge, there has been little done or proven along these lines.

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Tail splitting.

Q. I have a problem. I am sixteen and have been raising Guppies for four years. For the last two, my efforts have been concentrated on the Colorama Guppy. I have been rather successful in isolating deep yellow and black in the tails and bodies of my fish, but when the males reach a decent size, the tails split. The pH of the water is about 7.2 or 7.3, the temperature is held at about 77°, and they get a balanced diet of *Tubifex* worms, frozen brine shrimp, *Daphnia* and dry foods, including color foods. There are about 20 adults of about 1-inch body size for males and 1½ to 2 inches for females. At this time they are in a 20-gallon aquarium. The problem is not hereditary because the first several generations were not affected. I can think of no other explanation. Please give my

full address as I would be interested in swapping letters and fish with any other interested hobbyist.

Robert B. Hubbard
32 Schuyler Drive,
Poughkeepsie, N.Y.

A. Tail splitting is a frequent problem for many hobbyists. I am not a biologist or ichthyologist, but I would like to mention a few of the causes of tail splitting: lack of Vitamin D, high pH, too much inbreeding, heredity, lack of calcium and phosphate (causing weakened filaments between rays), and generally poor health due to poor water conditions.

Heavy female.

Q. Although I am relatively new in this fascinating hobby, I enjoy reading "Guppy Corner" very much. It is very

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informative. Here is my problem: I have an exceptionally "heavy" female Guppy in a clean 6-gallon aquarium with ample floating plants and eight to nine hours of light every day. The only trouble is she has yet to spawn although she has been in this condition and environment for over two weeks! Any information and directions will be appreciated.

Jeff Creston,
Rancho Cordova, Calif.

A. I hope that by the time you read this answer the female will have had babies. If not, there are many reasons why such a thing could happen. Some of them are that the female is too fat, or has a disease like dropsy. Food for Guppies is not supposed to contain more than 3% to 4% fat, and as I do not know what you feed I am unable to tell you if this is the case.

Bottomsword Veiltail.

Q. For a long time I have wanted to create a Swordtail Guppy with a veil tail. I found that the biggest problem was to get the female Swordtail Guppy to become pregnant after being exposed to a male Veiltail Guppy. I had hoped for a Veiltail with a bottom sword. At last the fish have spawned and I have a few questions you could help me with.

1. Are albinos born with pink eyes?
2. Eight of these fish are pure white.
3. About when should I sex them?

3. Will they change shape as they mature?

4. I will have to inherit for a long time. Will this hurt the fishes' health?

PHH Carney, Jr.,
Devel Hill, Pa.

A. I have seen fish as you describe for quite some years in different shows on the East Coast, but the extension was always on the top and not on the bottom.

1. All true albinos are born with pink eyes.
2. If I sex fish I do it before the Guppy is 6 weeks old.
3. The fish will change slightly until he is about 6 to 7 months old, then he will show his permanent characteristics.
4. I do not recommend inbreeding for 100 many generations. Personally I do not inbreed at all.

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Salts From The Seven Seas



By Alfred A. Schultz

Q. I have several questions I would appreciate getting answers to.

1. I lost a Moorish Idol due to constipation. He was in a freshly set up tank and ate well for three days. What can be done for this?
2. Are there any Clowns or other common marine tropicals that are poisoned by copper in the tank? I use the prescribed 3 pennies for 20 gallons. I have lost several fish in freshly set up tanks that ate and then after a couple of weeks died, with symptoms of poisoning. There was no apparent disease.
3. What is the purpose of activated carbon in salt water tanks, and how can it be reactivated?

4. How much metal contact can salt water fishes stand? For example, if a ring or other metal object were immersed once in a 20-gallon tank, would that be enough to cause poisoning of all the fish in that tank?

5. Can some tropicals endure more metal in the water than others?

6. How long (in days) is the potassium permanganate solution, used for sterilization of salt water fish, good? It gets cloudy after a day or two. This solution is discussed in the revised edition of the *Salt Water Aquarium Fish* book by Axelrod and Vorderwinkler.

Ed. Blanchard,
St. Petersburg, Fla.

A. 1. The Moorish Idol is a problem fish in any case; they become sick and die very easily and are seldom cured.

2. Too much copper in the water can kill any fish. 3 pennies is OK. Your fish may have been diseased before you bought them.

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3. Same as in fresh water, to free the water of chemicals resulting from animal wastes, it can be partly reactivated by washing thoroughly and drying in an oven at low temperature.

4. Momentary immersion in the tank of a ring would certainly not release enough poison to do any harm.

5. Lethal doses are just about the same for all species.

6. Three days.
Q. My father who would like to start a salt water aquarium has only one problem. He had talked to someone about this and this person said that he would be able to feed them only live food such as brine shrimp. So I would like to ask you if there are any other kinds of food he can feed them. He says that it would be a very difficult thing to provide live shrimp for them every day.

Jim Puff,
Ft. Wayne, Ind.

A. Most marine species will accept frozen brine shrimp as well as the living shrimp. Try feeding them on this every other day and on the off days you can give them beef heart or chopped pieces of raw shrimp. You must be careful not to overfeed; siphon out all uneaten food when the fish have finished.

Q. 1. How many Dwarf Sea Horses can be kept in a 1-gallon filtered tank? One without a filter?

2. Can these Dwarfs be kept safely with very small Puffers? Starfish?

3. Have squids ever been kept successfully in marine aquaria?

James Morton,
Pescagoula, Miss.

A. 1. Four. Two.

2. No. No.

3. Squids require more space than could be provided by a home aquarium.

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Meet the Hobbyist: Reverend Donald Weltmer

BY EDWIN E. ROSENBLUM

Fish were a staple item of diet for the early Christians who dwelled along the margins of the Mediterranean Sea. Fish, fishing, and fishermen were basic to their existence, and the early Christians could closely identify with these subjects. It is not difficult to understand, therefore, their adoption of a simply-drawn picture of a fish as the symbol of Jesus, a symbolism particularly appropriate because the five Greek letters spelling out the word "fish" (IXOVS) were considered an acronym (a word made up of the first letters of other words) of the expression, Jesus Christ, God's Son, Savior.

Consequently, it is not surprising that a clergyman—a student of the Bible and biblical times—should show a high degree of interest in fishes. But with Rev. Donald Weltmer of New Castle, Pa., this interest began in his boyhood days when his entire ichthyological collection consisted of a single Goldfish bowl and its lone inhabitant, a "pop-eyed" Goldfish named "Goldie." Rev. Weltmer developed a great affection for Goldie, who, he thought, rubbed her nose against the side of the bowl just to see her young master. The tragedy of Goldie's sudden demise, when she ended up on the living room rug covered with nap and fuzz, saddened but did not discourage the budding hobbyist.

As time passed, Don Weltmer discovered and became fascinated with the exotic beauty of tropical fish, and soon several tanks graced the Weltmer home.

Today, Rev. Weltmer finds breeding his fishes and maintaining his tanks a sorely needed diversion and relaxation; even just sitting and musing in front of his aquariums where he can absorb the tranquility radiated from his own piscatorial world in miniature, especially after a long and busy Sunday, offers a restful quiet few other hobbies can equal.

Rev. Weltmer approaches his hobby in a scientific manner: he maintains charts of the fishes he has kept and those presently in his keeping, the types of food these fishes are fed, and the kinds of aquatic plants available in his area. He also strongly recommends memorizing and utilizing the fishes' scientific names, for not only does this simplify communication among aquarists, breeders, dealers, scientists, and others, but it also lends an aura of precision and knowledge to the hobby.

Combining his interest in the Scriptures with his interest in fishes, Rev. Weltmer has found that the word "fish" is mentioned 35 times in the Old Testament and 27 times in the New Testament (King James). He has also learned that in Biblical times fish were caught by angling, spearing, and



Rev. Don Weltmer points out some of the fishes in one of his meticulously clean tanks. Photo by Foor's Studios.

netting. Great quantities of fish were transported from the Mediterranean, 30 miles away, and the Sea of Galilee, 70 miles away, to the Fish Gate in Jerusalem where they were sold.

Rev. Weltmer also enjoys photographing his fishes, a skill that he modestly claims has much room for improvement. He has recently become what is known in the stamp hobby as a topical collector by collecting stamps depicting fishes.

His wife, Marie, and their little girl, Lenore, and even their beagle, Abygail, share Rev. Weltmer's regard for tropical fish, but there is some suspicion that Tony, their cat, has more than a hobbyist's interest.

Rev. Weltmer would like to hear from other hobbyists regarding their experiences. His address: R.F.D. # 3, New Castle, Pennsylvania.

The Purple-Striped Gudgeon

Continued from Page 25

My first pair came to me in not exactly an everyday manner. They were in a store window and had spawned on a piece of petrified wood. I was particularly interested in the elliptical shape of the eggs and was given these as well. The water in which the spawning occurred was pH 7.0, DH 4-5, temperature 75° F. The eggs, when loosened from their fastening, were transferred to an all-glass tank which was overgrown with algae and had a clean bottom. Water measured 6.9, DH 14 and 75° F. in temperature. An airstone ran vigorously and constantly agitated the eggs in the water. The

extreme differences in water chemistry did not bother the eggs in any way, and about 90% hatched on the 9th day.

The growth of the fry is very even. After 24 hours they begin to swim in the middle regions of the water. Here they hunt for their first food, nauplii and rotifers. When they approach $\frac{1}{2}$ inch in length they also take food from the bottom. When first hatched the fry are about 6 mm in length, almost totally transparent and very thin.

When they had become about $1\frac{1}{2}$ inches long, I gave some of the youngsters to "interested" friends. Two of these friends live nearby, giving me a chance to observe the progress they were making. In both cases they got equally large tanks (150 liters). Water was similar, but the basic feeding was different. After about one year the heavily fed fish were 5 $\frac{1}{2}$ inches and had spawned, while the others were only half that size and showed no egg development. A comparison of these cases shows that both the size of tank and the food given are important for good growth.

Mogurnda mogurnda mogurnda spawns like Cichlids at 75° F., using stones, large plant leaves, or the glass tank sides on which to deposit eggs. The male takes over all brood care duties. He remains constantly over the eggs and fans them with fresh water, causing them to sway rhythmically, being fastened by a tiny bit of the eggshell. If the spawning takes place in a small tank the female should be taken out. My fish always spawned about 8 P.M. under bright fluorescent lighting. The entire procedure lasted 1 $\frac{1}{2}$ hours.

Before spawning, the pair slides over the spawning site, their bodies pressed closely together, in this way cleaning off algae and impurities. Suddenly the male dashes away and then turns around to remain dancing about 6 inches from the female, who presses her ovipositor against the spawning site and releases about 30 eggs. These are round and about 2 mm in diameter, later taking on their elliptical shape. When this is done she bends her body in a semicircular fashion toward the male, who runs his sperm tube over the eggs and fertilizes them. There is a pause of about 5 minutes between each mating, and then the entire procedure is repeated. After the female has become about two-thirds depleted the male begins to take care of the eggs and the female is driven away. The spawning urge must be very strong, however, because she finds her way back again to the spawning site and lays more eggs. When she does, the male leaves the eggs he is guarding and remains at an angle to the female with his fins folded. Otherwise the fins of both sexes are spread to the utmost. In all my spawnings the females were depleted when they had laid about 350 eggs.

Sex differences cannot be recognized with 100% accuracy when the fish are not spawning. Observations of my own fish showed very little if any differences in body shape, color, and fin shape. Only at spawning time can one see the difference in the spawning tubes: the male's is pointed, and the female's is round.

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