modern AQUARIUM

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Greater City Aquarium Society - New York

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AQUARIUM
Series III Vol. XXI, No. 9 November, 2014

ON THE COVER

The very attractive fish on our cover this month is *Betta simorum*, one of the so-called "wild" bettas. To learn more about this unfamiliar and not-so-tiny betta, see Al Priest's "The Simor Fighter" on page 16.

Photo by Alexander A. Priest

In This Issue

From the Editor

by Dan Radebaugh

The article subjects in this issue of **Modern Aquarium** run the gamut, from the beloved favorites that most of us started out with, to a less familiar cousin of a common favorite, to an "oddball" species that may or may not "call out" to all of us.

Jules Birnbaum starts us off with a well-timed review of keeping livebearers. This group of fishes includes species that many of us began with: swordtails, platies, guppies, mollies, and their various kith and kin. There is after all a reason that these fishes have retained their popularity through the years, and I'm glad that Jules has put this article together for us. See "Livebearers Are For Everyone!" on page 9.

Another long-time favorite in the hobby has been *Betta splendens*, the so-called Siamese fighting fish. Beautiful, small, easy to keep, and selectively bred for outrageous color and finnage, this fish is practically emblematic of the hobby. Well, *B. splendens* has a number of cousins, and fish hobbyists include a lot of curious people, some of whom want to know more about these less famous cousins. One of these curious people is Greater City's own Al Priest, who, since before my time here, has been keeping, breeding, and writing about these less well-known *bettas*, as well as other anabantids of greater or lesser renown. One of these less well-known *bettas* is the subject of our cover photo this month. See Al's "The Simor Fighter" on page 16.

Over the years that I've been in the hobby, I've had an ongoing interest in "different" fish, as well as the more commonly encountered species. Some of these "different" fish have been members of the group called "bichirs," which include the genuses *Polypterus* and *Erpetoichthys*. Some of these fish eventually grow too long for most home aquaria, but not all. All are escape artists, so care and attention are required to keep them wet and alive. One of the species I've been watching for is *Polypterus delhezi*, an attractive fish (to me) that does not grow to an impossible length.

Following up on one of Dan Puleo's LFS Reports, I stopped in to see Monster Aquarium, and was delighted to see that they had some *P. delhezi* youngsters, so I bought one. It has by now outgrown its tankmates and been moved to a 55, where it's less likely to eat its neighbors.

During this time, I came across a web site called Aquaarticles.com, and to my delight found an article on my new fish, complete with some very nice photos. I commend it to your attention.

Chapter 9 of Rosario LaCorte's autobiography, **An Aquarist's Journey**, begins on page 19. This chapter gives us a time-machine view of our hobby in the 1950s and 1960s, as well as a window into a rather controversial episode in Rosario's long and distinguished career.

Saluting the season, The Undergravel Reporter tells us about "Celebrating Guppyween," and saluting tonight's speaker, the issue closes with our Fin Fun puzzle, "Over the Rainbow."

* * * * *

Remember, we need articles. We always need articles! **Modern Aquarium** is produced by and for the members of Greater City Aquarium Society. Our members are our authors, and with ten issues per year, we always, always need more articles. I know several of you are keeping and/or breeding fish, or working with plants or inverts that I would like to know more about, and I'm certain other members would be interested as well. Share your experience with us. Write about it! If you're a little unsure about the state of your writing technique, don't worry – that's why there are editors. If you don't share what you know, who will?

If you have an article, photo, or drawing that you'd like to submit for inclusion in Modern Aquarium, it's easy to do! You may email it to gcas@earthlink.net, fax it to me at (877) 299-0522, or just hand it to me at a meeting. However you get it to me I'll be delighted to receive it!

GCAS Programs 2014

It is our great fortune to have another admirable cast of speakers who have so graciously accepted our invitation to join us throughout the coming season, bringing us their extensive knowledge and experiences. You certainly won't wish to miss a moment of our prominent guests, not to mention the friends, fish, warmth, and camaraderie that accompanies each meeting.

March 5	**Harry Faustmann** *Live Foods*
April 2	**Rosario LaCorte** *The Fish I've Worked With*
May 7	**Leslie Dick** *Fish Jeopardy*
June 4	**Joseph Ferdenzi** *Aquascaping*
July 2	**Joseph Graffagnino** *Tips & Tricks on Breeding Fish & Raising Fry*
August 6	**Silent Auction**
September 3	**Joe Gargas** *Water and the Aquarium*
October 1	**Dan Puleo** *The LFS Report*
November 5	**Gary Lange** *Rainbowfish*
December 3	**Holiday Party!**

Articles submitted for consideration in ***Modern Aquarium*** (ISSN 2150-0940) must be received no later than the 10th day of the month prior to the month of publication. Please email submissions to gcas@earthlink.net, or fax to (877) 299-0522.

The Greater City Aquarium Society meets every month, except January and February. Members receive notice of meetings in the mail. For more information, contact: Dan Radebaugh (718) 458-8437 or email gcas@earthlink.net. Find out more, see previous issues, or leave us a message at our Internet Home Page: http://www.greatercity.org or http://www.greatercity.com.

President's Message

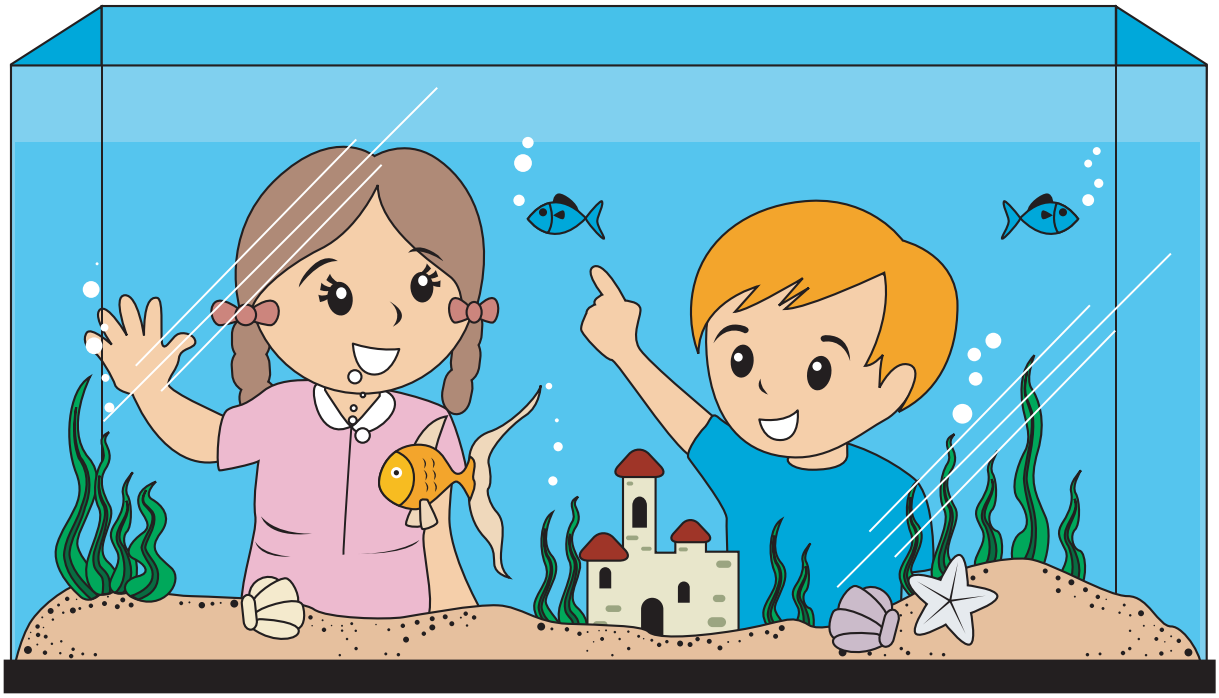
by Dan Radebaugh

Well, it's that time of year again! We welcome our final speaker of this year, Gary Lange, and look forward to his presentation on rainbowfish. Indeed, thanks and praise are due to Dan Puleo for his work this year as Programs chairperson. Well done! Also on the subject of speakers, I note that Ed Vukich spoke to the Nassau County Aquarium Society at their October meeting, and that Jeff Bollbach will be speaking to the Bucks County Aquarium Society.

Our December meeting will be our annual Holiday Banquet and Awards Dinner, which will once again be held at the Flagship Diner, at 138-30 Queens Blvd. Please plan to arrive between 7PM and 7:30. That's the same venue as the past two years. If you make your reservations (including payment) by this evening, the cost per person is $20. If you pay at the door the rate will be $25 per person. I hope to see all of you there! We have some very nice donations for our special raffle, and we will once again have our "buck a bag" auction, in which the club takes only $1 per item, regardless of the sale price. Remember, this auction is for live fish & plants only.

Congratulations to all our members for another very successful year. I'll see you there!

Dan



Support Fish in the Classroom!

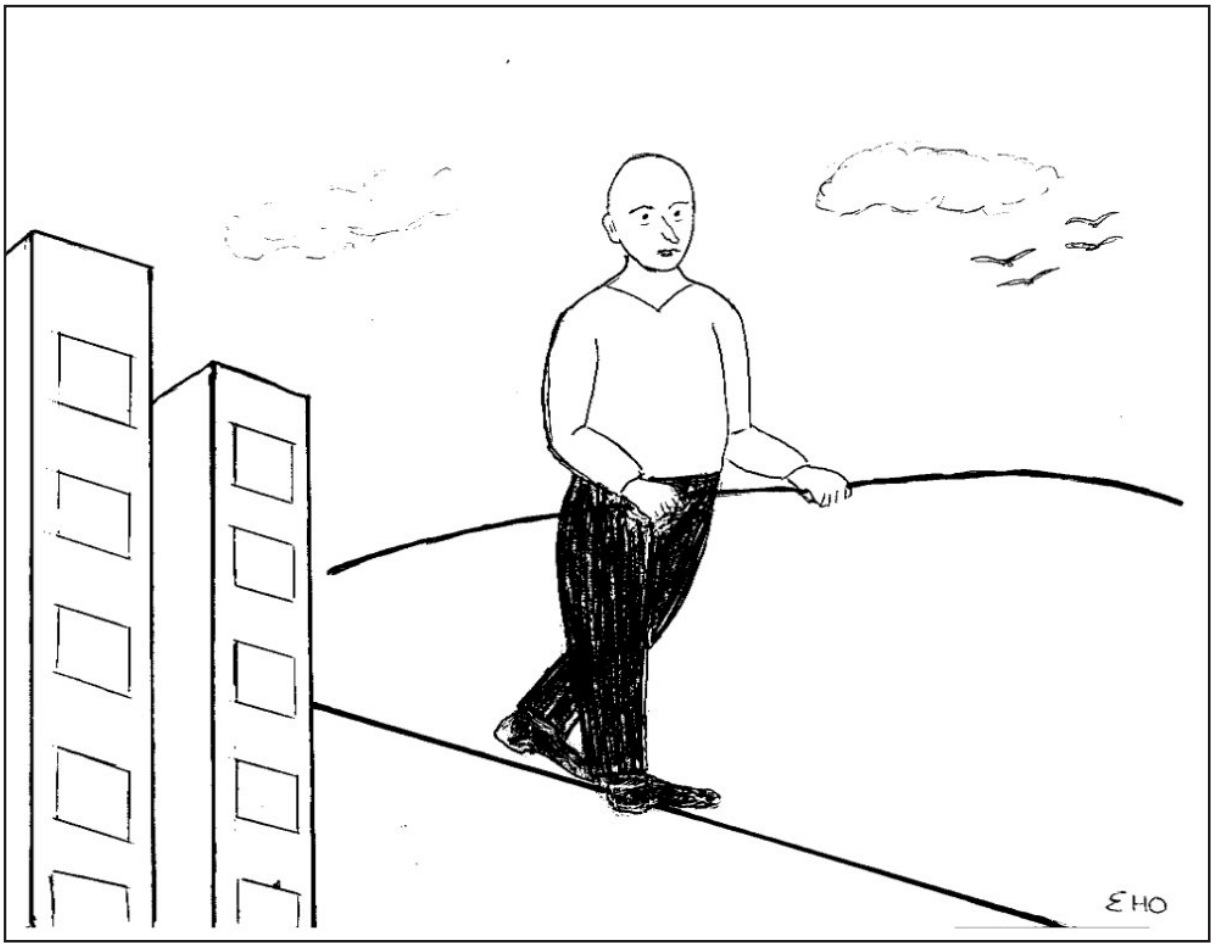
If you have any 5 or 10 gallon tanks, or any filters, pumps, or plants that you could donate to NYC teacher Michael Paoli's classrooms, could you please bring them in or email Rich Levy (**rlevy17@aol.com**). If you'd like to donate larger tanks, be sure and email Rich so he can make sure Michael can accommodate it.

October's Caption Winner:
Al Priest

*Now let's see how **you** like getting bitten!*

The **Modern Aquarium** Cartoon Caption Contest

Modern Aquarium has featured cartoons before. This time though, you, the members of Greater City get to choose the caption! Just think of a good caption, then mail, email, or phone the Editor with your caption (phone: 347-866-1107, fax: 877-299-0522, email: gcas@ earthlink.net. Your caption needs to reach the Editor by the third Wednesday of this month. We'll also hand out copies of this page at the meeting, which you can turn in to Marsha before leaving. Winning captions will earn ten points in our Author Awards program, qualifying you for participation in our special "Authors Only" raffle at our Holiday Party and Banquet. Put on your thinking caps!



Your Caption:

Your Name:

LIVEBEARERS ARE FOR EVERYONE!

by Jules Birnbaum

I've heard so many disparaging remarks about livebearers, such as "What should I do with all my livebearer fry?" The typical answer is, "Feed them to your cichlids." "Livebearers are only for beginners." is another remark that has no foundation in fact. As many of us of get deeper into the hobby, we stop maintaining livebearers and become snobs when it comes to these fish. Livebearers include not only easy to keep but also difficult to extremely difficult to keep as well.

Montezuma swordtail, *Xiphophorus montezumae*.

It is helpful to understand the biology of livebearers if you want to maintain them. The male in the Poeciliidae family (guppies, swordtails, platies) has a copulatory or intermittent external organ called a gonopodium. This organ is formed at sexual maturity by a restructuring of the anal fin. The female has a simple opening just forward of the anal fin, which the male must penetrate. There are sperm packets deposited by the male through the gonopodium, each containing 3,000 to 20,000 sperm cells depending upon the species. In another family of livebearers the copulatory organ is called an andropodium, and has a more simple structure. The Goodeidae family male has an andropodium.

Most livebearers come from fresh or brackish waters of Central America, South America, and Malaysia. A good percentage of the Poeciliidae family, which includes mollies, can even become accustomed to marine conditions.

General guidelines for caring for livebearers include trying to match the conditions from which they came. As a rule, livebearers are quite adaptable. Frequent water changes are a prime requisite for their well-being and health. Changes should be weekly, and in my experience, only one-third of the total water replaced. My fish don't seem to tolerate large water changes well. The pH should be approximately 7.5 to 8.1. I've found mine do better in slightly harder water.

My tap water in Nassau County, New York is approximately 7.2, so I keep some crushed coral in my livebearer tanks to add a little hardness and raise the pH. The temperature should be approximately 22 to 28°C. The normal temperature in my fish room is 26°C. I clean my box filters, including replacing the fiber material, approximately every four weeks. If the bioload of the tank is high, more frequent maintenance is required. Most livebearers can stand drops in temperature much better than long term, excessively high temperature. There are varying opinions about mulm in the bottom of tanks, but scientifically it seems to have no useful function and can only cause trouble. Many breeders advise that it be removed. If you are worried about removing beneficial bacteria, don't. Plenty of beneficial bacteria are everywhere in a cycled aquarium, including the substrate, filter material, plants, rocks, and the water column itself.

The size of the aquarium for these fish depends on a number of factors. Most tanks chosen are generally too small rather than too big. I keep my wild forms pure by maintaining separate tanks. A tank size of 10 gallons is adequate for the smaller species, and 20 gallons or more for the larger ones. I do have one larger, heavily planted, livebearer community tank in our den. Often fry should be started in a smaller tank, to better control their access to food and grow them big enough to be housed in a larger grow-out tank or back home with their parents.

Plants are a must, offering livebearers protection and a food source. Most low-light, easy to grow plants, such as Java moss (great breeding plant to hide fry from hungry parents), ferns, *Anubias*, and crypts planted in pots work best for me. I have just a thin layer of substrate in each tank, which facilitates easy maintenance, thus these plants that don't need deep substrate work best for me. The look should be as much like the natural habitat as possible. A well planted tank with drift wood and some rocks always looks good.

In my opinion, substrate should be kept to a minimum, with no more than a very thin layer partially covering the bottom to build some nitrifying bacteria

and provide some esthetics. If you want plants that need to be rooted, use clay pots. Try this, and you will find it will make maintenance so much easier. I do have one 36 gallon livebearer community tank, started years ago, with a 3-inch layer of substrate and plants from wall to wall. Maintenance of this tank is simply performing a 40% weekly water change and cleaning the two Emperor filters at the same time. Filter pads are cleaned, but not replaced as often as the manufacturer would like us to. I don't syphon the gravel anymore, mainly because I can't get through all the plants. This tank has been going for many years with crystal clear water, and the fish produce fry regularly. The lesson here is there are many ways of reaching the same goal, which should be healthy fish.

Livebearers are always begging for food, and should be fed several times a day when trying to condition them. It is easy to see whether the livebearers are getting enough food by the size of their bellies. My method is feeding a quality flake in the morning, then a couple of feedings in the evening, supplemented by live or frozen foods once per week. Brine shrimp are prepared daily, and work very well for feeding fry and keeping the adults in breeding condition. I stopped using live worms as a precaution against disease, and also because of the expense. Some additional vegetable matter, in the form of slices of zucchini weighted down with a rock, is added occasionally. It is also a good idea to have a group of cory catfish in the tank to clean up any excess food.

If you wish to breed livebearers, it would be helpful have a little knowledge about inbreeding, backcrossing, and the fundamentals of genetics. Backcrossing is breeding the son or daughter with a parent. Inbreeding can be a problem when the highly inbred forms lose their vigor and fertility by being crossed among themselves. Inbreeding is an easy way to develop and maintain purebred lines, but should be limited to just a few generations. My all-black guppy strain was weakened badly by too much inbreeding.

Genetics play a role in the traits you are trying to develop. Colors, sex, and size would be important to me. There are dominant and recessive genes. Each species has a specific number of chromosomes (material in the nucleus of a cell) typical for that species. Each chromosome is paired, one part from the mother and one from the father.

The average time between litters in the Poeciliidae family is generally from 24 to 28 days. The yolk sac bursts shortly before birth from the mother's body and is the only nutrient. The fry will start eating brine shrimp or fine dried food shortly after birth. The Goodeidae are different, with litters generally smaller and less frequent. Their fry will also accept live and dry foods shortly after birth. Livebearer breeders usually have grow-out tanks for the fry, and select future breeders as soon as they can be sexed.

There are a couple of livebearer families you might wish to consider. The Goodeidae family includes the *Ameca splendens*, a very active, three-

Albino blood-red swordtail, *Xiphophorus helleri*.

Black Moscow guppy.

Four-spot micro livebearer.

***Ameca splendens*.**

inch fish with some interesting color. The male has a yellow band at the end of the caudal fin, and the female only some scattered black markings. The females are slightly larger than the males. Another fish in this group is the *Characodon lateralis*, which has a very nice red color. There are usually six to eight fry in a spawn, and if provided with plants in which to hide, they seem to survive the parents' hunger.

The Poeciliidae family includes many types of guppies, swordtails, mollies and platies. The spawns in this group are much larger those than of the Goodeidae. These fish are surface feeders, as can be seen by the upturned shape of the mouth. In the wild or in outdoor tubs they are great mosquito larvae eaters.

If you are going to maintain livebearers for the first time, I would recommend selecting from the Poeciliidae family. The guppy is readily available at our auctions, is bred locally, there is a great variety to choose from, is inexpensive, and is small. You can usually acquire advice on maintenance and breeding from the breeder. The guppies I've seen at our auctions are healthy and have good color. Don't be fooled into thinking these simple little fish don't need the same care as the more exotic fish available in our hobby. Regular water changes, quality dry and live food, and proper temperature and water parameters are all important for these fish to survive, grow, have proper color, and produce larger spawns.

There are many livebearer hybrids in the hobby, namely mollies, swordtails (*Xiphophorus*), platies and Guppies (*Poecilia*) and it can be confusing. A good reference I recommend is the **Atlas of Livebearers of The World** by Lothar Wischnath. This book has 980 color photos, and can be acquired online. Be aware that this book is 8" X 12" and is heavy. There is also the American Livebearer Association (ALA) that offers advice on acquiring, keeping, and breeding these fish.

I previously wrote an article for **Modern Aquarium** ("Tropical Fish to the Rescue" April, 2012), about Greg Sage, who specializes in rare livebearers. His website, **Select Aquatics**, has very helpful information, including videos on acquiring, keeping and breeding livebearers. I highly recommend you visit this websute if you decide to maintain livebearers in your tank or tanks.

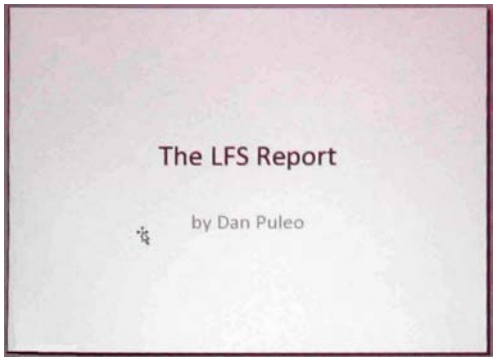
Give livebearers a try, and maintain some endangered species at the same time. There are so many varieties out there that there must be one or two for you.

References:
selectaquatics.com
Wischnath, Lothar. **Atlas of Livebearers of the World,** T.F.H. Publications, 1993
American Livebearer Association: livebearers.org

Pictures from our last meeting

Photos by Susan Priest

Dan Radebaugh and Dan Puleo



Dan Puleo takes us on a tour of local fish stores

Welcome new members:

Bob Klein

Ron Webb

Bowl Show Winners:

2nd place: Mario Bengcion

1st place: Ruben Lugo

3rd place: Rich Waizman

Door prize winner: Jules Birnbaum

The Armored Bichir

by Joe Gallo

The fish of the genus *Polypterus* and the related genus *Erpetoichthys* are widely considered to be 'primitive fish' or 'living fossils.' In fact, a number of large pet store chains are now selling *Polypterus senegalus* under the name 'dinosaur eel,' a reference to their primitive nature and their snake-like structure. Fossils of Polypterids have been found in rocks that date back to the Triassic period (206 - 248 million years ago) when the dinosaurs were still in the infancy of their development.

The armored bichir is commonly found in lakes, rivers and flooded areas, often in turbid (muddy) water. Like other polypterids, *P. delhezi* is generally nocturnal, spending much of the day hidden in, or along the edges of aquatic plants or on the bottom. Food items found in wild-caught armored bichirs include insects, insect larvae, and small fish.

Head-on with the armored bichir. Note the prominent tubular nostrils, the powerful lobed pectoral fins, and the graceful swimming style of this fish.

One of the most distinctly marked of the genus, *Polypterus delhezi* has an elongated body, with a light gray to olive gray background coloration on its dorsal side grading to a yellow-white to white color ventrally. There are numerous black specks, sometimes forming a reticulated (net- like) pattern on the back and sides. *P. delhezi* has seven to eight nearly vertical black bars that are more or less distinct, depending on the individual.

The dorsal finlets that give the genus its name (*Polypterus* means 'many fins') number between nine and twelve, and these begin a bit closer to the head than in most other *Polypterus* species. *Polypterus delhezi* has a relatively small head for its body size. The tubular nostrils are prominent.

The scales of polypterids are called 'ganoid' scales because they are covered with a coating of a material called ganoine. This material is very tough, and helps to prevent water loss through the scales, enabling polypterids to survive out of water for a day or two. They are generally diamond-shaped and often have fine, tooth-like projections at the rear of each scale.

The swim bladder of Polypterids is modified into a pair of functional lung-like structures which permit these fish to use atmospheric air. Also equipped with efficient gills, *Polypterus* species are able to use both means of respiration to survive, and will frequently come to the surface of the aquarium to gulp air.

The pectoral fins of *Polypterus* are lobe-shaped, similar in appearance to those of the 'lobe-finned' fishes like the coelacanth (*Latimeria*) to which they are not closely related. Bichirs have been known to propel themselves across land by using their pectoral fins as 'legs'.

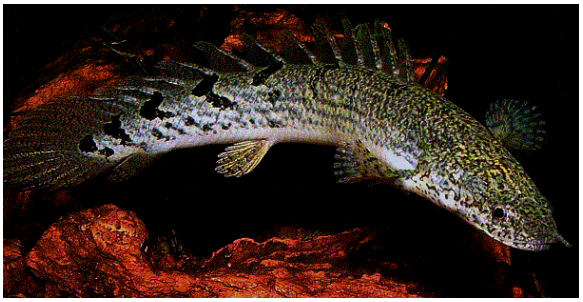
Very young Bichirs have prominent external gills very similar in appearance to those of some young salamanders. These feathery gills are lost as the individual matures.

There have been reports of captive breeding of the armored bichir, but very few details are available. Courtship in *P. delhezi* is likely the same as in other *Polypterus* species. Males can be distinguished from females by the appearance of their anal fin, which is much broader in males than in females.

I first encountered the armored bichir in 1977 and immediately fell under its spell. In my opinion, *Polypterus delhezi* is the 'prettiest' of the bichirs, possibly rivalled in this area only by *Polypterus ornatipinnis*. It has a fluid swimming style, and is very active for a bichir, frequently making appearances to search for a snack when the aquarium lights are on. In this behavior it is very much like *P. senegalus* and *P. palmas*.

Though many people keep polypterids in bare tanks, I have found that all the species that I have kept over the years are more comfortable when there are hiding places available. A well-planted tank (real or artificial) is appreciated.

Because it is relatively active, *Polypterus delhezi* has a tendency to be a bit more 'scrappy' than some of its relatives. More than one can be kept in a tank, but minor squabbles are not unusual, and damage is



A young *Polypterus delhezi*.

Another young *Polypterus delhezi*. Note the external gills present on this juvenile.

occasionally done, especially to fins and snout. They will sometimes take an exploratory nip at other fish in the tank, probably to find out whether they are something that can be swallowed. Fish that are small enough to be swallowed often will be!

Tank-mates for *Polypterus delhezi* can include any fish that will not fit into its mouth. I personally do not recommend aggressive fish like large cichlids or very large catfish. Fish that could eat the bichir are obviously not a good idea! These might include snakeheads, piranhas, and other significantly larger *Polypterus*. I have kept *Polypterus delhezi* with similarly-sized *Polypterus* of other species, various *Ctenopoma* species, African butterfly fish (*Pantodon buchholzi*), large Congo tetras (*Phenacogrammus interruptus*), '*Kribensis* type cichlids (*Pelvicachromis* species), African knife fish (*Xenomystus nigri*), and various species of *Synodontis* catfish. (Note: It has been reported that 'Plecostomus' type catfish are not good tank-mates for *Polypterus*, because they tend to attach to the scales of the bichir and damage them.

Feeding *Polypterus delhezi* is a relatively easy chore, as they are likely to eat almost any meaty food. I have had great success with frozen bloodworms, shrimp (fresh, frozen or freeze-dried), frozen beef heart, sinking carnivore pellets, and carnivore sticks. Flake food is generally ignored. Small feeder fish are eagerly hunted, especially at night, as are small live shrimp. Occasionally a bichir will tackle a fish that you wouldn't think they could eat. I have read reports of a 30cm (11.7 inch) *Polypterus* that ate a 15cm (5.9 inch) gar! Larger crustaceans like crayfish are often killed but frequently are not eaten. My juvenile armored bichirs have learned to come to the surface to take food from my fingers. To this date I still have all of my fingers!

Polypterus species are generally fairly healthy fish and seem to be more resistant (but not immune) to diseases like ich. One parasite that is sometimes seen on wild-caught polypterids is a freshwater fluke called *Macrogyrodactylus polypteri*. Polypterids are somewhat sensitive to commonly-used aquarium medications, so those should be employed with caution. It is often best to use them at 1/2 to 2/3 of their recommended strength.

Because of its ultimate large size, I recommend an aquarium of no less than 50 gallons for adult *Polypterus delhezi*. They can be kept in smaller aquariums when young, but will eventually need to be moved into a tank more appropriate to their size. One special caution regarding all polypterids needs to be mentioned here. They are all accomplished escape artists, and their aquarium needs to be prepared in such a way as to block all their possible escape routes. Larger polypterids can bump an aquarium lid hard enough to shift it aside, so a thick glass top or some sort of weight needs to be provided.

Species Profile

Scientific name: *Polypterus delhezi* Boulenger, 1899
Synonyms: *Polypterus ansorgei delhezi* (not valid)
Common Names: Armored bichir, barred bichir, Delhez's bichir
Region: Congo River basin in the Democratic Republic of Congo (formerly Zaire), Africa.
Maximum Size: about 45cm (17.6 inches)
pH Range and Hardness: Tolerant of a wide range of water conditions. Typically from pH 6.0 - 8.0, and dH between 5.0 - 19.0
Temperature Range: tropical; 75 - 82 degrees F.

Reprinted from Aquarticles.com.

References:

Haruto Kodera, et al., 1994. **Jurassic Fishes**. T.F.H. Publications, New Jersey.

Herbert Axelrod, Warren Burgess, et al., 1985. **Dr. Axelrod's Atlas of Freshwater Aquarium Fishes**. T.F.H. Publications, New Jersey.

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J.J.Hoedman, 1975. **Naturalist's Guide to Fresh-Water Aquarium Fish**. Sterling Publishing Co, Inc., New York, New York.

http://www.fishbase.org/Summary/SpeciesSummary.cfm?ID=8116&genusname=Polypterus&speciesname=delhezi

BOWL SHOW RULES

- Only current GCAS members may enter fish in the Bowl Show.
- There is a limit of 2 entries per member per meeting.
- Unlike some other clubs, every month is an "open" Bowl Show at the GCAS (i.e., there is no "theme," such that one month cichlids are judged, the next livebearers, the next anabantoids, etc.).
- Any fish that wins any prize (1st, 2nd, or 3rd) may not be entered again in the same meeting year.
- The current Bowl Show Coordinator is Leonard Ramroop, who usually also serves as judge (although guest speakers are often asked to do the judging honors).
- 2.5 gallon containers are available for use (brought to the meetings by the Bowl Show Coordinator), but entrants are responsible for providing enough (and suitable) water for their fish.
- For a fish too large (or too small) for those containers, entrants must supply a suitable container, which must be clear on at least three sides.
- Only one fish per container (i.e., no "pairs").
- No plants, ornaments, or equipment (filters, airstone, etc.) are allowed in the judging tank (an external mirror, or opaque cards between containers is acceptable, as is a cover that does not obstruct side viewing).
- Points are awarded: 5 points for 1st Place, 3 for 2nd Place, and 1 for 3rd Place.
- Ribbons are awarded: blue for 1st Place, red for 2nd Place, and green for 3rd Place.
- The person with the most points at the end of the meeting season receives the Walter Hubel "Bowl Show Champion" trophy at the Awards Banquet.
- The decision of the judge(s) is final.
- A running UNOFFICIAL total of the points awarded is printed in **Modern Aquarium**. Only the tally of points maintained by the Bowl Show Coordinator is official.
- **In case of ties**:
- 1st Tiebreaker – most 1st Places
- 2nd Tiebreaker – most 2nd Places
- 3rd Tiebreaker – most entries

The Simor Fighter

Betta simorum

by Alexander A Priest - photo by author

It's not often that I totally misidentify a *Betta* species, but I admit that *Betta simorum* fooled me. While I usually do a search for information about any new species I acquire, I also admit I failed to do so at first in this case. So, when I first saw this relatively large (up to five inch) fish, I assumed it was a mouthbrooder. (In fact, most *Betta* species are paternal mouthbrooders.)

Further research indicated that it is a member of the "Bellica Complex," and reproduces in very much the same fashion as the common "Fancy Betta" (*Betta splendens*), meaning that the male builds a nest of bubbles under a floating plant or object, entices a female under his bubblenest, wraps around her to expel eggs, and deposits the eggs in the nest of bubbles, which he then tends. As with *B. splendens*, it is advisable to remove the female after the spawning.

The eggs hatch in 24-48 hours, with the male returning fry that fall from the nest until their yolk sac is fully absorbed, in 3 to 4 days. After that, the fry are free swimming, and the male should also be removed. The fry can then be fed microworms and newly hatched brine shrimp.

For several months after I acquired my pair of *simorum*, I had them in a tank with no floating vegetation or other floating object under which the male could construct a bubblenest. Fortunately, their acidic, dimly lit, soft water tank with minimal water movement was otherwise nearly ideal for their needs until I realized the error I made

Scientific Name: *Betta simorum*
Common Name: Simor Fighter
Temperature: 75 - 80°F (24-27°C)
pH Range: 4.5 - 6.0
Hardness: 18 – 90 ppm (soft)
Adult size: up to 5 inches (12 cm)
Reproduction: Bubblenester
Sexual dimorphism: Males more colorful with longer and more pointed fins
Temperament: Males can be aggressive to each other - house in single species tank
Native habitat: Jambi, Sumatra, & adjacent province of Riau, and the Kapuas River system (West Kalimantan) in Borneo
Aquascaping: Heavily planted tank, including floating plants or other floating objects
Nutrition: primarily carnivore (live or frozen worms, brine shrimp, etc.)

in their mode of reproduction and added floating plastic container halves. I'll explain later why I did not use floating plants.

I like to know some of the "history" behind the species I keep, and I'll share some of it in the hope that it will be of interest to others. *Betta bellica* (A.K.A. "Slender Betta" or "Striped Betta") was first described in 1884. While it has subsequently been introduced elsewhere (including the Dominican Republic!), *Betta bellica* is native to Peninsular Malaysia, and the northeastern part of Sumatra. In 1996, specimens closely resembling *Betta bellica* were collected from lambi province, Sumatra. These were compared with *Betta bellica* from Peninsular Malaysia and were determined to be a new species, which the authors of the study named *Betta simorum*, in honor of Thomas G. K. Sim and his wife, Farah, proprietors of Sindo Aquarium Pte. Ltd.[1]

Betta simorum then became only the second member of the "Bellica Complex," and can be distinguished from *Betta bellica* by a slanted head; the dorsal surface of the head being noticeably concave behind the eye; and various differences in fin extensions.

Betta bellica occurs in many parts of Peninsular Malaysia, as well as in the northeastern part of Sumatra. *Betta simorum* is found further south. It is native to the east coast of Sumatra in Jambi and the Indragiri Basin, Riau Province. Both species inhabit blackwater peat swamp forests, which typically have a pH of between 3 and 4.

I have found *Betta simorum* (at least those I have) to be extremely shy. Due to their shyness, *Betta simorum* should be kept in a dimly-lit, heavily planted tank with many hiding places. Since, as I mentioned, they are bubblenesters, you might consider adding floating plants. However, since I don't know many floating plants that can tolerate fairly acidic, very soft water and low-light conditions, I use plastic fish food containers cut in half. They float, and all bubblenesting fish I have used them with seem to accept them. The non-floating plants I use are mostly *Anubias* species. Even under the fairly harsh conditions *Betta simorum* require, *Anubias* will survive (just don't expect rapid growth or flowering).

In its native habitat, *Betta simorum* is found in shallow parts of peat swamp forests, among thick leaf litter and overhanging vegetation, in slow-flowing to stagnant water. So, your filtration should not produce rapid water movement (which, of course, would disturb any bubblenest at the water's surface). A sponge filter and perhaps a box filter with some peat or crushed Indian almond leaves (in a filter bag) should suffice. Driftwood also helps acidify the water, and provides additional hiding places. I use coconut shell "caves" for additional hiding places (and their tannins also help to lower pH).

Betta simorum is a **leaper**. It is essential to keep a tight cover on the tank (and that includes covering openings for air lines and electric cords). In the wild, it has been observed to leap from the water to catch prey from overhanging leaves or branches![2]

Water temperature should be from the mid 70s to low 80s F. While they can be acclimated to accept neutral pH, they do best in acidic water, with a pH no higher than 6.0. You can keep them in a pH as low as 3, but there are many additional issues in tanks with that low a pH, and unless you are very experienced in this area, I would not recommend anything lower than 4.5 (which itself can be very challenging).

These fish are carnivorous. In nature, they eat insects. A 1994 study of a species considered to be *B. bellica* revealed a preference for odonate (dragon and damselfly) nymphs.[2] In the home aquarium, frozen or well-cleaned live blackworms, and brineshrimp are readily accepted.

[1] **Redescription of Betta bellica Sauvage, 1884 (Teleostei: Belontiidae), with description of a new allied species from Sumatra.** Raffles Bulletin of Zoology, 44(1), 10th June 1996: 143-155. [Zoological Record Volume 133]

[2] http://www.seriouslyfish.com/species/betta-simorum/

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AN AQUARIST'S JOURNEY

Story and Photos (unless noted) by Rosario LaCorte

Chapter 9

In 1961 I received a phone call from a fellow from Brooklyn. His name was Elliot Glanz, and the conversation started like this: "Hello, how would you like to become a millionaire?" To which I responded, "Who wouldn't?" Elliot then began to tell me how he found me. He started by telling me that he had attended a toy show which had been held in the Hotel New Yorker, the same hotel which held an annual pet trade show that I had attended several times in the 50s and 60s. Elliot said a company from California, Wham-O, had displayed a toy, and the box that held its contents was called Instant Fish. Elliot said as a child he had several aquariums, and this was something he had never encountered. Elliot's interest in toys and related things sprang from his own company, which was called Glanz Scientific, Inc., and located at 291 East 98th Street in Brooklyn, New York. His father had started the business, and was the president. Elliot was the V.P., and his brother-in-law the treasurer. Their main product was butterfly collections and butterfly art jewelry. They had fancy tie clasps and key chains which held a piece of colorful butterfly wing. They were all very attractive. At this writing I still have a tie clasp that Elliot gave to me about 48 years ago.

Elliot's inquisitiveness about Instant Fish led to him making several calls to museums, and even the Smithsonian Institute to find out the history of Instant Fish. His phone calls fell flat, not getting him any information, until he called the New York Aquarium. They put him in touch with Jim Atz, the associate curator of the Aquarium. Jim, a personal friend of mine, told Elliot, "The guy you want to speak to is Rosario LaCorte, in New Jersey." Jim gave him my phone number; hence the call.

Tie clasp with butterfly fragment to highlight color.

Elliot purchased a sample of Wham-O's product, which contained a small plastic tank, artemia cysts, salt, eye dropper, magnifier, and fish eggs contained in peat moss. Elliot wanted to know how much I knew about this so-called "Instant Fish." I told him that I had a great deal of experience with it, and had pioneered some of the innovations that were used in its production. After giving him an overview of what it entailed, I then remarked that the idea was good, but knowing how fickle the average novice trying it out would likely be, the product would eventually fizzle. However, despite my misgivings about the project, I was willing to become involved.

The three of them made an appointment to visit with me, view my fish house, and discuss what would be involved and what investment they were willing to make to get the program into gear. The visit was pleasant and promising, as they said they would be willing to invest several hundred dollars to start. That's of course several thousand in today's money. My fish house at that time, as I have described earlier, was in a 3-car garage, with one section partitioned and insulated to house the aquariums. They said that if the project took off, they would be willing to help expand the garage into a full fish house. Elliot said if it all went well I could have a lifetime job. He would not entirely reveal what his plans were, but they advanced me two hundred dollars to help purchase more *Nothobranchius* breeding stock to increase the number of eggs that could be produced.

Parts that were included in an Instant Fish package. This is Wham-O's product.

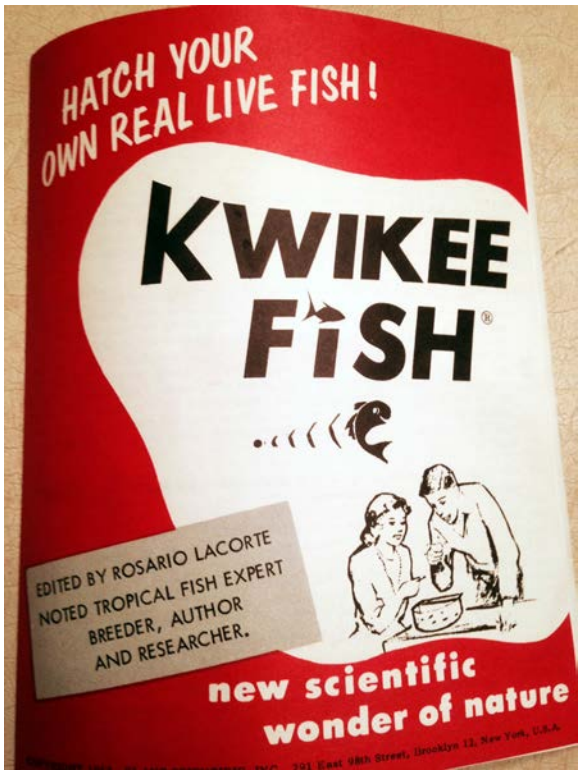
I had a good collection of cyprinodonts, at that time probably one of the best in the country. I also had a number of other fish, such as rare African characins, that required additional aquariums. Involvement in this project would mean I would have to house my non-cyprinodont species with friends until I had enough space to take them back. I knew deep in my heart that this was a project that would eventually fail, but a contract was hammered out with my cousin, Nick LaCorte, who had been the Republican mayor of Elizabeth, New Jersey during the Eisenhower administration. Once I signed the contract Elliot told me that he and I would be going to New Haven, Connecticut to visit a large company, name still unknown to me. The plan was for me to drive to Elliot's home, stay overnight, and get an early start the next morning. Elliot had a nice family, and my overnight stay was comfortable and enjoyable. The following morning we departed for New Haven, whereupon Elliot finally revealed to me that we would be meeting with the president of the A.C. Gilbert Erector Set Company.

Most kids knew of the Gilbert Erector Set. I had one as a child, and it was a very popular toy. The A.C. Gilbert Company was started in the early 1900s as the Mysto Magic Company, and in 1913 A.C. Gilbert, Senior developed the Erector Set. Gilbert Senior was a dynamic man, owning over 150 patents. In 1908 he had won a gold medal in the Olympics for pole vaulting. He went on to become a millionaire, selling over thirty million Erector Sets. With the Erector Set one could build trucks, Ferris wheels, zeppelins, and on and on. The Erector Set was one of the most educational toys of its time. In 2002 CBS aired a movie called **The Man Who Saved Christmas**. It chronicled A.C. Gilbert and his association with the U.S. Government, and his contribution to the war effort during World War I. The Gilbert Company also manufactured chemistry sets that were very popular with children. In the late 1950s Gilbert Senior turned the company over to his son, Gilbert, Junior.

Prior to Elliot revealing his plans for Instant Fish, he had contacted the Gilbert people and come up with a novel idea to add fish eggs to their chemistry sets to boost sales, especially during the Christmas holiday season. Elliot wanted to remain secretive until a contract was signed. There was nothing to stop me from going directly to Gilbert and cutting Elliot out. I would never have done that, but Elliot had to protect himself and his investment.

An interesting sidelight to this story was that this whole episode occurred during the Soviet Premier Nikita Khrushchev's visit to the U.N., where he removed his shoe and started banging it on the desk, boasting that Russia would bury the U.S. Khrushchev's son, who was a collector of butterflies, had accompanied his father, and visited Elliot's company, where butterfly collections from Russia were exchanged for American butterflies.

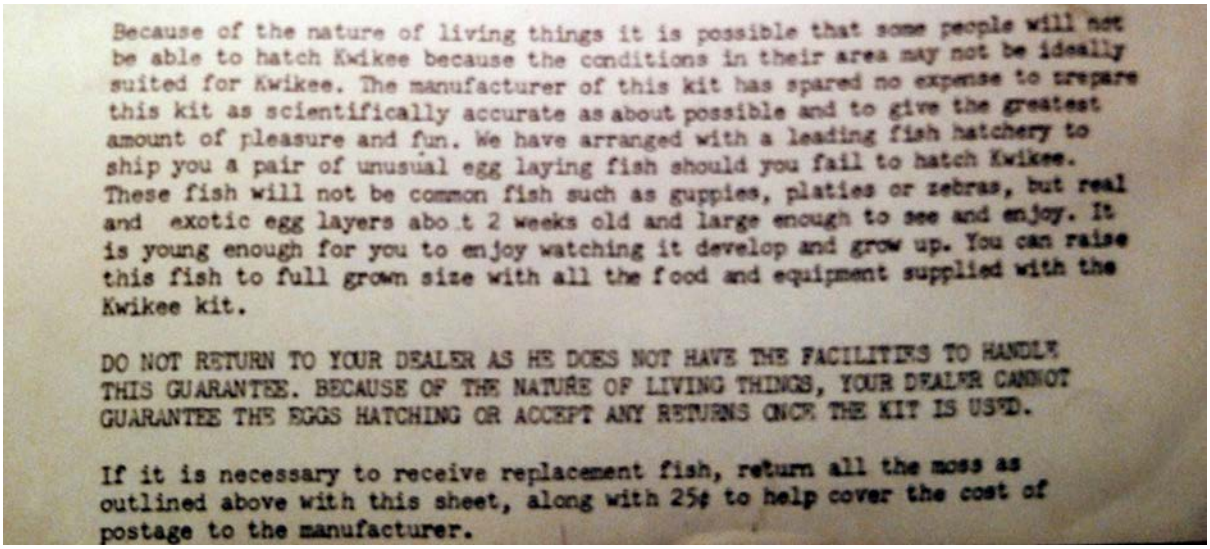
When we arrived at the Gilbert Company, we were ushered into a large executive office containing an oak meeting table of impressive length. On the



The cover of the Kwikee Fish booklet. Our product was the same as Wham-O. Plastic tank, small eggs packaged in moist peat moss, magnifying glass, and a small portion of *Artemia* eggs to hatch and feed the fry. Instructions were also enclosed.

***Nothobranchius foerschi*, one of the egg producers used for Kwikee Fish. 1962**

***Nematolebias whitei*, another of the Kwikee Fish egg producers.**



Because of the nature of living things it is possible that some people will not be able to hatch Kwikee because the conditions in their area may not be ideally suited for Kwikee. The manufacturer of this kit has spared no expense to prepare this kit as scientifically accurate as about possible and to give the greatest amount of pleasure and fun. We have arranged with a leading fish hatchery to ship you a pair of unusual egg laying fish should you fail to hatch Kwikee. These fish will not be common fish such as guppies, platies or zebras, but real and exotic egg layers abo.t 2 weeks old and large enough to see and enjoy. It is young enough for you to enjoy watching it develop and grow up. You can raise this fish to full grown size with all the food and equipment supplied with the Kwikee kit.

DO NOT RETURN TO YOUR DEALER AS HE DOES NOT HAVE THE FACILITIES TO HANDLE THIS GUARANTEE. BECAUSE OF THE NATURE OF LIVING THINGS, YOUR DEALER CANNOT GUARANTEE THE EGGS HATCHING OR ACCEPT ANY RETURNS ONCE THE KIT IS USED.

If it is necessary to receive replacement fish, return all the moss as outlined above with this sheet, along with 25¢ to help cover the cost of postage to the manufacturer.

The Glanz guarantee that necessitated supplying adult killifish to some purchasers.

walls were many photographs of the senior Gilbert in years past. One stood out for me because of my involvement with baseball in my younger days: a photo depicting A.C. Gilbert Sr. along with Babe Ruth.

It was a large gathering of the important people who ran the company. I was introduced to Gilbert Jr., as well as to other officers of the company. Then Elliot introduced me, and I was given the time to make my presentation. I had brought a vial of eggs in various stages of development. I asked for a microscope from their chemistry set, placed a well-developed egg under the microscope, and gave a presentation covering the natural history of the fish and the egg. No one there had had any idea of this miniature miracle. The heartbeat and pumping motion of the blood flowing through the body had all of them spellbound. The immediate thought was that this could be added to the Gilbert Chemistry Set, and could possibly stimulate a 7% increase in sales at Christmas time.

One of the problems I brought to their attention was that the Christmas season meant it would be winter, and shipping at that time presented a problem—freezing weather. The solution was to add a card to the chemistry set that could be mailed back to the company, and as the weather improved the eggs would be shipped as part of the package. For the next several weeks I was inundated with calls from the company.

They were totally enthralled with the concept, and eventually they presented an eleven-page contract to Eliot and his company. It was so filled with legal jargon, with ifs, ands, and buts, that it was impossible for Eliot to sign the contract. The whole deal fell through. It was impossible to meet their demands, as they did not seem to comprehend that we were dealing with living material. Anything could happen—disease, bad weather, and so forth, where production might be halted, and they would be in a position to sue. Glanz simply could not agree to their terms.

However, Elliot still wanted to move forward with the Kwikee Fish concept as a toy. This was agreed upon, through a contract drawn up by my cousin Nick LaCorte, which specified that I would be paid half a cent for each egg, and one per cent per sale of each toy. In three months' time I produced a quarter of a million eggs.

Now was my opportunity to expand my fish house to its complete size. I had a new concrete floor poured, with some drains cast in the floor so that I could roll a garbage can that had a rubber hose attached to the floor drain. I could siphon tanks in any part of the room, saving many steps.

Six skylights were added, as light is very important in the reproductive behavior of fish. It would also allow for wonderful plant growth. I was able to replace my simple heating unit with an automatic gas heater and hot water tank. It cost over a thousand dollars to have the gas burner installed. If it had not been for the egg project, I would never have been able to finance these imporvements.

Since eggs are subject to all kinds of hazards, we provided a guarantee that if you didn't get any eggs to hatch, you could contact the company and we would send two young *A. gardneri Akure* (at that time *A. nigerianum*). The whole project fizzled, as I had predicted, after several months. I was relieved, as my heart was in breeding *all* types of fishes. Even though I was being paid, I didn't like being obligated to work exclusively with cyprinodonts to supply their eggs.

In the end, though, I got the fish house I had always dreamed of, and it was visited by hundreds and hundreds of people from all over the world. I put cuttings of philodendrons into any of the aquariums where they would thrive, and they spread from tank to tank, giving the illusion of individual mangroves, while helping to maintain water quality.

This production of eggs on my part involved some controversy. It was the same time that the concept of the AKA (American Killifish Association) had evolved, inspired by Al Klee and Bob Criger. The formation of the early AKA was intended as an international movement, but it included mostly Americans, to join all those aquarists who had an interest in the propagation of cyprinodonts. A monthly journal would be published, listing eggs and fish that would be available for sale. There was an annual fee to help support the organization.

Most of the initial board members were friends of mine, and at that time I had one of the best collections in the country. Bruce Turner, one of the original board members, gave me a call, suggesting that I become a board member. I felt that it would be a problem, and I declined Bruce's request, explaining that I already had contacts in many parts of the U.S. and Europe. I also worked, had five children, a large hatchery, and pen pals in many ports. My concern, as I explained to Bruce, was that if my address were posted I would be inundated with correspondence. I always answered all letters that I received, I was stretched thin, and I didn't think I could handle the whole situation. It wouldn't have been fair to my family.

Soon after this, I received a visit from Ron Gafrich, an aquarist and AKAer from Chicago. Ron was interested in some cyprinodonts that I had, and wanted to purchase two pairs. While we chatted, he brought up the fact that he couldn't understand why I wasn't a member of the AKA. My explanation was as I outlined above. I did say that I thought the formation of the organization was a splendid idea, and it appeared that it was well on its way to becoming very successful. I agreed with Ron that ideally I should join, since so many of my friends were members. Eventually we agreed that instead of paying for the fish, Ron would pay for my initial dues—five dollars at that time. Shortly thereafter, I received a very nice letter from a Mrs.Lorraine Khun, who was the secretary of the membership committee. In her letter she was very complimentary, mentioning that she was very pleased, as was the AKA, to finally have me as a member. She also mentioned the contributions I had made to the advancement of cyprinodonts.

This is the fish that Ron Gafrick got from me to cover my membership in the AKA. At that time it was known as *Cynolebias ladigesi*, which was not correct. It is now known as *Notholebias minimus*.

I expected to soon receive a membership card and the initial package that was sent to all new members. Weeks passed and nothing happened. Then one summer day, as I was expanding the hatchery, I was sitting atop a ladder, spackling the ceiling joints of sheet rock, when a man entered the room. A quick glance revealed someone who was unfamiliar to me. "Can I help you?" He responded, "Hi, I'm Stan Weitzman." I almost fell of the ladder in complete shock. "Hi, Stan."

Stan Weitzman was the technical editor of **The Aquarium Journal**. We had had many letter exchanges, as I had written several articles for the magazine, and Stan was always a help in maintaining accuracy. He was a student of Dr. George S. Myers at Stamford University. We had never met prior to this encounter, so we had no idea what one another looked like. I asked what he was doing on the East Coast. Well, he had driven cross-country with Marilyn, his wife, and his kids. He was in pursuit of a position with the Smithsonian Institute and was going to be interviewed for the position. I asked if they were in a hurry to leave, and invited them to stay for a cookout. "Sure," Stan replied.

We had a great visit, chatting about fish. Stan was a charter member of the AKA, and important to its formation. While we sat in the yard chatting, he told me that the subject of my entry into the AKA had been brought before the officers, and informed me that my request had been denied by a vote of 4 to 3. I couldn't believe what I had just heard. I had contributed a number of innovations that are still used by the AKA, had had articles published in all of the major

magazines, and a number of *Nothobranchius* species had been propagated in my hatchery and distributed.

It was a great disappointment to learn of the resulting vote. It seemed that a small group of aquarists from Chicago, led by George Maier, had circulated a letter condemning my involvement with the Kwikee Fish project. There were two other companies selling Instant Fish type kits. Herb Axelrod became associated with one of these, and I believe they may have linked my involvement with his.

The original company that took the toy industry in New York by storm in the early 60s was Wham-O, located in California. The founders of the company, Richard Knerr and Arthur Melin, began their company as college students in 1948. In 1958 they resurrected the Hula Hoop from the late 1800s, and in 1959 made a profit of 45 million dollars. Melin went to Africa in 1957 and learned of the natural history of *Nothobranchius*. With this knowledge, he came up with the idea of Instant Fish. It was novel idea for its time. Since I was well versed in the reproductive behavior of annual fishes, I felt that when dealing with living things and expecting success with the public, it would not last. Sure enough, the project didn't last. Wham-O could not achieve the egg production they had anticipated. The success of egg production was dependent on the amount and quality of food that could be supplied to the parents. Whereas I had a great source of tubifex worms and live daphnia, apparently Wham-O's suppliers couldn't or didn't match this parental nutrition. I conducted an experiment with the average egg production that I could receive from *Nothobranchius guentheri*. I had huge females, and the average production, as I recall, totaled 45 eggs per day.

Nothobranchius guentheri.

While the AKA controversy swirled about with the condemnation of Instant Fish, one of my close friends and an influential early AKAer, Dick Lugenbeel, from Washington D.C., told me that he had called Bob Criger, one of the founders of the AKA, and came to my defense. Criger's response was "We can't have people prostituting their fish." It was an incredible remark, as at that time members were listing *N. rachovii* in the fish and egg listing. Twelve eggs could be purchased for five dollars. I was receiving half a penny for my production of eggs. The whole episode made no sense to me. I quickly turned off the incident and decided I was quite pleased about how everything had finally turned out. I now had a fish house that was a must-see to visitors from around the world.

GCAS Happenings November

Last Month's Bowl Show Winners:

1	Ruben Lugo	Sunshine pleco
2	Mario Bengcion	Bi-color plakat betta
2	Richard Waizman	Green betta

Unofficial 2014 Bowl Show totals:

Ruben Lugo	25	Mario Bengcion	22	Richard Waizman	9	William Amely	5
Carlotti DeJager	1	Leslie Dick	1				

A special welcome to new GCAS members Bob Klein and Ron Webb!

Here are meeting times and locations of some aquarium societies in the Metropolitan New York area:

GREATER CITY AQUARIUM SOCIETY

Next Meeting: December 3, 2014
Speaker: N/A
Event: *Annual Holiday / Awards Banquet*
Flagship Diner
138-30 Queens Blvd
Briarwood, NY 11348
(718) 523-6021
Contact: Dan Radebaugh (718) 458-8437
Email: gcas@earthlink.net
Website: http://www.greatercity.org

BIG APPLE GUPPY CLUB

Meets: Last Tuesday each month (except Jan, Feb, July, and August) at 7:30-10:00pm.
Alley Pond Environmental Ctr.: 228-06 Northern Blvd.
Contact: Donald Curtin (718) 631-0538

BROOKLYN AQUARIUM SOCIETY

Next Meeting: November 14, 2014
Speaker: James Fatherree
Event: *REEF Basics*
Meets: 2nd Friday of the month (except July and August) at 7:30pm:
NY Aquarium - Education Hall, Brooklyn, NY
Call: BAS Events Hotline: (718) 837-4455
Website: http://www.brooklynaquariumsociety.org

LONG ISLAND AQUARIUM SOCIETY

Next Meeting: November 21, 2014
Speaker: Rick Rego
Topic: *Water Quality*
Meets: 3rd Fridays (except July and August) 8:00pm.
Room 120 in Endeavor Hall on theState University at Stony Brook Campus, Stony Brook, NY
Email: Margaret Peterson - president@liasonline.org
Website: http://liasonline.org/

EAST COAST GUPPY ASSOCIATION

Meets: 2nd Tuesday of each month at at 8:00 pm.
Alley Pond Environmental Ctr.: 228-06 Northern Blvd.
Contact: Gene Baudier (631) 345-6399

NASSAU COUNTY AQUARIUM SOCIETY

Next Meeting: November 11, 2014
Speaker: Mark Denaro
Topic: *A week in the Peruvian Amazon*
Meets: 2nd Tuesday of the month (except July and August) at 7:30 PM
Molloy College - Kellenberg Hall ~1000 Hempstead Ave - Rockville Centre, NY
Contact: Mike Foran (516) 798-6766
Website: http://www.ncasweb.org

NORTH JERSEY AQUARIUM SOCIETY

Next Meeting: November 13, 2014
Speaker: Matt Kaufman
Event: *Killifishes*
Meets at: See our ad in this issue.
Contact: NJAS Hotline at (732) 332-1392
Email: tcoletti@obius.jnj.com
Website: http://www.njas.net/

NORWALK AQUARIUM SOCIETY

Next Meeting: November 20, 2014
Speaker: Don Maloney
Topic: *Maintaining and Breeding* ***Synodontis multipunctatus***
Meets: 8:00 P.M. - 3rd Thursday of each month except for July & December at: Earthplace - the Nature Discovery Center - Westport, CT
Contact: Sal Silvestri
Call our toll free number (866) 219-4NAS
Email: salsilv44@yahoo.com
Website: http://norwalkas.org/

Celebrating Guppyween!

A series by "The Undergravel Reporter"

In spite of popular demand to the contrary, this humor and information column continues. As usual, it does NOT necessarily represent the opinions of the Editor, or of the Greater City Aquarium Society.

The last time I tried my hand at pumpkin carving, I wound up with a pretty gruesome mess, but certainly **not** a "Jack-O-Lantern," and this was done on a kitchen table. I can't even imagine doing it underwater (although I **can** imagine the mess!).

At the Florida Aquarium divers held an underwater pumpkin-carving contest. The aquarium also provided pumpkins to the otters and lemurs because the animals love the diversion — and people love watching adorable animals play with pumpkins. These aquatic-themed Halloween activities at the aquarium are being called "Guppyween."[1]

The South Carolina **Aken Standard** reported that divers at the South Carolina Aquarium were planning to carve (underwater) a 110-pound pumpkin from a local farm. During the carving (taking about 30 minutes), divers are able to talk to visitors watching from outside.[2]

The **Santa Monica Mirror** reported that the Bay's Santa Monica Pier Aquarium is incorporating a number of spooky themes into its family-friendly activities by hosting a "fintastic" Halloween and Dia de Los Muertos celebration, with costume wear encouraged.[3]

Now you can plan your next year's spooky getaway!

In this photo provided by the Florida Keys News Bureau, Jana Vandelaar "eyes" her version of a Sponge Bob Square Pants pumpkin at the Underwater Pumpkin Carving Contest in the Florida Keys National Marine Sanctuary off Key Largo. *(Does she remind you of our own Donna Sica?)*

[1] http://tbo.com/events-tampa-bay/florida-aquariums-guppyween-gets-spooky-under-the-sea-20141023/

[2] http://www.aikenstandard.com/article/20141024/AIK0105/141029648/1002/AIK01/divers-carving-pumpkin-underwater-at-sc-aquarium

[3] http://www.smmirror.com/articles/seven-days/Santa-Monica-Pier-Aquarium-To-Turn-Spooky-This-Weekend/41514

Fin Fun

Can you correctly match the scientific with the common names of these rainbowfish?

Chilatherina bulolo	Fly River rainbowfish
Kiunga ballochi	Forktail rainbowfish
Melanotaenia caerulea	Dwarf rainbowfish
Marosatherina ladigesi	Blue rainbowfish
Melanotaenia praecox	Northern rainbowfish
Melanotaenia trifasciata	Celebes rainbowfish
Pseudomugil furcatus	Bulolo rainbowfish
Melanotaenia sexlineata	Banded rainbowfish
Melanotaenia splendida tatei	Balloch's rainbowfish
Melanotaenia solata	Desert rainbowfish

Source: http://www.aquariumfishexperts.com/tropical-fish-fish/rainbowfish-species/Melanotaenia

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Answer to our last puzzle: **Are you a Malawi cichlid "Genus Genius?"**

Astatotilapia	----------	*calliptera*
Aulonocara	----------	*jacobfreibergi*
Copadichromis	----------	*cyaneus*
Corematodus	----------	*taeniatus*
Ctenopharynx	----------	*pictus*
Cynotilapia	----------	*zebroides*
Dimidiochromis	----------	*compressiceps*
Diplotaxodon	----------	*ecclesi*
Eclectochromis	----------	*lobochilus*
Hemitaeniochromis	----------	*brachyrhynchus*
Labeotropheus	----------	*trewavasae*
Labidochromis	----------	*freibergi*
Lethrinops	----------	*auritus*
Lethrinops	----------	*macrophthalmus*

GCAS Member Discounts at Local Fish Shops

The fish shops listed below offer discounts to members of Greater City Aquarium Society. To take advantage of these generous offers, just present your Greater City ID before checking out.

10% Discount on fish.

20% Discount on fish. 15% on all else.

10% Discount on everything.

10% Discount on everything.

10% Discount on everything.

10% Discount on fish.


Greater City Aquarium Society
Established 1922