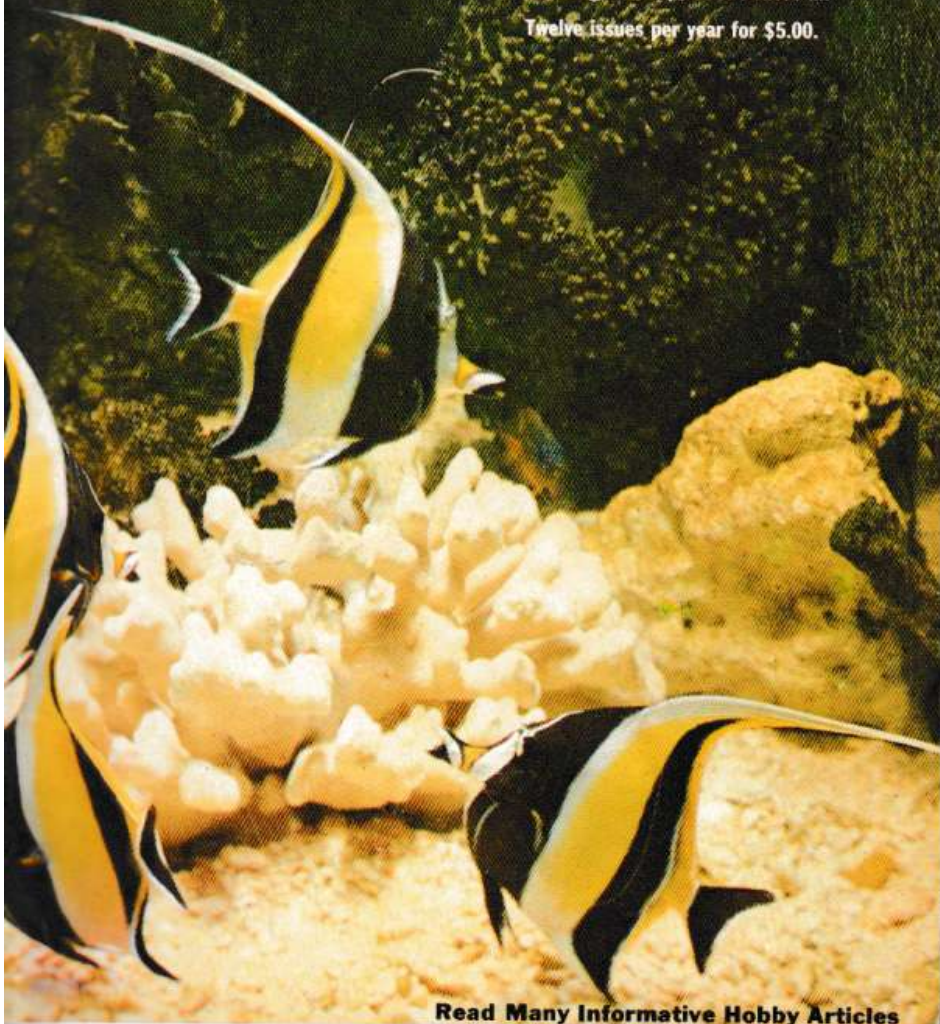


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aquarium journal

The Magazine Aquarists Believe In

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cover photograph

Moorish Idol, Zanclus canecens, as photographed by Peter Tsang of Hong Kong and Australia. Mr. Tsang photographed this specimen on the reefs of the tropical Indo-Pacific region.





Society unable to make decision at
this time; choice forthcoming soon

● Negotiations in Progress

IT IS WITH REGRET that the San Francisco Aquarium Society, Inc. announces that it has been unable to name a new publisher of the *Aquarium Journal* as of September 1, 1965. Negotiations with potential publishers are still in progress as of this date, according to the Publications Committee of the Society.

A postcard outlining the reasons for the delay of publication of the August issue was mailed to subscribers and advertisers on August 12, 1965. Information on the card reads as follows:

"Due to a contemplated change of publishers of the Aquarium Journal, the

James W. Crawford

Executive Editor

August issue of the magazine has been unavoidably delayed. Announcement of the publishing changeover will be made in the August issue coming off the presses within a short time. The San Francisco Aquarium Society Inc. appreciates your patience.
(Continued on Page 374)

Photo: (See Next Page) "Finny Folks" Mr. and Mrs. Albert J. Klee, better known as Harriet and Al to their many friends in the hobby, are shown in a rare moment of relaxation. See next page for more about the Klees. Photo by Diane Schofield.



YES, VIRGINIA, there really *is* a Mrs. Al Klee!

Taking absolutely nothing away from Al, with whom I seem to share a very exclusive club, a Mutual Admiration Society, since I am of the opinion that he is one of the most outstanding personalities in the hobby today, I do believe that behind every successful man stands a woman . . . and *not* as the old joke declares, "nagging him to do better."

Harriet Joy Klee deserves to stand out in the limelight on her own, and where often prominent men in various fields seem to choose a mate that is not quite on a par apparently with their own talents, here it is definitely not the case. Mrs. Klee is a graduate of Boston University, where she majored in English Literature and minored in German. For a number of years, she was a high school teacher and Chairman of the Department of English at Mackinaw City High School for two years. And where a number of *hausfraus* scream up into the high decibals when

their husbands trot home with another tank, Mrs. Klee shares the fishy endeavors with Al. When time permits she is fond of raising bettas and fancy guppies.

She is also fond of raising three other living things — two boys, ages 9 and 7, and one girl, age 5. They are very well behaved children, but then they have been disciplined by their father saying, "If you don't straighten up there, I'll make you read one of daddy's articles!"

The best description that I can think of for Al himself is that he is like an IBM machine with a sense of humor. Surely just one piece of human brain tissue can't hold all that he knows. There just has to

FINNY FOLKS

By Diane Schofield

be a wild collection of colored spaghetti-like wires that are accountable for it. I'm sure that it is true that many, many other men perhaps know as much as Al on the various subjects of which he is conversant but with him, it is no stuffy matter. He can slip in a pre-punched rectangular card and all sorts of brilliantly clever quips pour forth.

Degrees also come out — four of them . . . Bachelor of Chemical Engineering from CCNY; Master of Science in Chemical Engineering from NYU; Master of



Photos: (Top) Exterior of the Porpoise Building at Sealife, site of the popular performances of these piscatorial animals.

(Left) The interior of the same structure, showing one of the porpoises leaping out of the water. (Opposite Page) Rabbit Island in the distance, the place where they last saw Keiki before she beat a hasty retreat into the sunset. All photos by author unless otherwise indicated.

Arts in Business Administration from Xavier University, and Master of Science in mathematics from Xavier University. These degrees are put to good use in other fields than the fishy ones. Al is a consultant in the field of mathematics and statistics for the Proctor and Gamble Company in Cincinnati, Ohio and Adjunct Assistant Professor, teaching economics, business administration and mathematics at Xavier University, also in Cincinnati.

In a rather unusual way, did Al come upon the tropical fish hobby. In 1948 he was a page in the New York Public Library. While returning a book to its proper place on the shelves, he chanced to open and glance through it. It was a copy of Innes' "Exotic Aquarium Fishes." The fish described therein so completely fascinated him that he proceeded to memorize the aquarium and ichthyological content of the library. This only took him two years. Al remarks, "Since the library was a treasure-house of material (it had *Wochenschrift*; Home Aquarium

Bulletin; Aquatic Life, Series One; The Aquarium, etc.), I promptly cluttered up my brain with probably the greatest collection of absolute trivia the hobby has ever seen!"

If a writer attains one special position he is drunk with the essence of the sweet smell of success. Al has attained five . . . Associate Editor for the *Aquarium Journal*; Contributing Editor for "The Aquarium"; Technical Editor for "The Journal" of the AKA, and Contributor on a regular basis for "Tropicals" and for the Swedish aquarium magazine "Akvariet." In addition he is a member of the American Statistical Association, the American Society of Ichthyologists and Herpetologists, a full member of the British Ichthyological Society, a fellow and co-founder of the AKA, a founder and charter member of the Greater Cincinnati Aquarium Society and a charter member of the Butler County Aquarist Society.

If one needs any further proof that this is really quite a man when you come



right down to it, he just had an aquarium fish named after him . . . *Apistogramma kleei*. He reads seven foreign languages and translates on a regular basis for U. S. aquarium magazines and for several months his accounts of "derring do" on an exploratory trip to Peru have appeared during 1965 in "The Aquarium Journal." He also recently discovered a new genus of South American catfish on this sortie.

Many of these shaves that were just a little too close would have sent a better man walking back to Cincinnati from South America, ocean or no ocean, but Al just turned them all off with a funny aside or two. But then he must believe in the same axiom that I once heard and fully adhere to . . . "The world is much

too grim to ever be taken completely serious."

Normally when one thinks of pioneers, visions of weather-beaten folk spring to mind, draped out in homespun and peering from under poke bonnets while plodding along into misty horizons behind their oxen. One hardly ever thinks of "pioneers" as being a pair of charming Chinese and yet this is just what Kay and Bill Jue are. They are, by virtue of Noah Webster's own words, pioneers . . . "Pioneer — one of the first investigators or developers in a new field of research, enterprise, etc." Because, you see, the Jues pioneered in the field of making marine fishes available to hobbyists and promoting the hobby of keeping them.

Mississippi-born Bill Jue opened his first shop in 1945 after being honorably discharged from the navy. Earlier in his life, his father had taken him to China to be educated and this often meant that he could take trips on his father's freighters between the ports of the Far East. In the course of these travels he became no stranger to the gaudy little marine tropical fish and it followed as the day the night that he had to become embroiled with them in some way.

Originally his shop, "Mei-lan," was oddly enough not a fish store, but a florist shop. Indeed . . . the name means a type of orchid. And even today, the fish share the large quarters with wedding bouquets, corsages and funeral wreaths which Kay whips out. Unfortunately, the first shop was destroyed by fire in 1950 but this only spurred the Jues on to build in an even bigger one at Madison and 12th in Oakland, California.

Bill isn't a passive sort to sit back and wait for shipments of fish from far port . . . he goes on buying trips to get them himself. On one of these buying trips, he stopped over in Manila, where he became



Photos: (Top) Kay Jue whipping out a corsage in section of their fish-flower store. (Left) Bill Jue pointing out the Pacific coral which they have been keeping in the tanks of their home for some time.

acquainted with one Earl Kennedy, who in spite of his rather Caucasian sounding name, is nonetheless an Oriental. Earl had a collecting business in The Philippines and Bill was enthralled with the fish that he was catching for import. These two Oriental gentlemen joined forces, with Bill supplying the knowledge of American marketing practices, shipping, etc. and Earl coming to the fore with collecting techniques.

From 1954 on, this fish collecting station out in the Pacific Ocean has bloomed and from here have come a great many of the lovely little fin equipped jewels that ultimately find their way into the tanks of marine hobbyists and public aquaria alike.

Kay holds down the fort in "Mei-lan" while Bill is gone and has some good and often rather revolutionary ideas of her own in regard to fish harboring. She feels, for instance, that the use of black lava sand is much better than the normally colored gravel that is usually used since it absorbs the light, thus retarding algae, and yet plants thrive in such a medium. Another idea that she adheres to firmly is that one shouldn't mix Atlantic and Pacific salt water fish in one tank. It simply isn't advantageous to either to do so.

The Jues are some of the few people to be able to keep coral alive in a tank over a long period of time. They have some Pacific Coral which is fed daily with baby brine shrimp. But on the other hand, they probably have one of the few clownfish hating anemones. As you know, there is normally a symbiosis between these two sea dwelling creatures. The clown is supposed to lure other fish into the maws of the anemones and in exchange for this, the anemone gives the clown protection against its enemies as the clown can normally swim into the poisonous tentacles of the anemone without any harm coming to it. Not the ones

Photo: Kay and Bill Jue sitting in a Pedicab which Bill had sent back from Formosa as a "conversation piece" for their shop, Mei Lan's in Oakland, California.



belonging to the Jues — they love clowns — can't get enough of them. The Jues' explanation of this one is that the clowns lose their immunity in captivity and not knowing that it is gone, just sally right into the grasp of the anemones. Only once, however . . . there is no encore to an act like this.

. . . .

There is just no getting away from it — you simply *can't* trust a woman!

Recently Sea Life in Hawaii, which is one of those large Marineland-type sea park affairs (see "The Aquarium Journal" Sept. '64) decided that they'd like to see just how fast a porpoise could go when given the whole scope of their native environment. But more particularly how fast could one go after having been confined in a tank for a while. Would it just continue to circle the confines of an imaginary tank, much like a wild animal who still paces within the ephemeral boundaries of a removed cage?

The only way to determine this would

be to take a couple of the trained porpoises out into the ocean. Now catching and training porpoises is no penny-ante affair, either timewise or moneypwise, but then again they trusted Keiki, the 3-year-old girl porpoise and Pono, the boy porpoise to come back on command. After all, hadn't they done this time and time again in the tank?

Well, when I visited Sea Life recently

again I couldn't pay my respects to Keiki. True, they were able to clock her at 17 miles per hour, but then again she was rapidly picking up speed the last time they saw her disappearing around Rabbit Island. So they sadly picked up Pono and headed for home port.

Thus endeth the very first time trained porpoises were ever released into the open sea. ◀

BOOK REVIEW

Book: "The Book of Exotic Fish"

Authors: R. and M. Bauchot

Publisher: English translation (by Denis George) edition published by Stein and Day, 7 East 48th St., New York, N. Y. 10017; 95 pages, 123 photographs, \$8.95).

Reviewer: Albert J. Klee

This is essentially a picture book of aquarium fishes, with attention divided almost equally between salt and fresh water. The book was first published in France under the title, "Les Plus Beaux Poissons Exotiques," and then in England under the title, "Album of Exotic Fish." The photography is almost without exception, superb. And why not? The list of photographic contributors reads like a list of "Who's Who" in the aquarium

photography world, including A. van den Nieuwenhuizen, Gene Wolfsheimer, Lawrence E. Perkins and Gunther Senft. The paper used in this book is of a heavy, textured type rather than the thin, glossy material we are more used to seeing. Consequently, the viewer sees not photographs of fishes, but portraits instead. The art which is inherent in the best of photography is nowhere more apparent in the hobby than here. One may carp slightly at one or two illustrations (the photograph of *Cynolebias bellottii* is of a ragged specimen, and some detail is lost in several of the black and white photos due to the textured paper) but the overall evaluation cannot be anything less than, "Well done, indeed!"

Unfortunately, the accompanying text, although an inconsequential portion of the book, probably ranks among the worst I have ever read, and misinformation abounds. On pages 59-60, for example, we are informed that the electric eel is indigenous to Africa; on page 60 we are told that the American "equivalent" of the African elephant fish is the Arapaima and contradictorily, that the electric eel is "related" to the Nile elephant fish. The extent of the incorrect nomenclature and deviant usage is remarkable (e.g., "Belloti" for *bellottii*). Time and time again, patronymic trivial names are capitalized in the manner of the botanist (e.g., "*Xiphorophorus Helleri*" rather than *Xiphorophorus helleri*) and even generic names are misspelled (e.g., "*Mollenisia*" (Continued on Page 373)

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FISHES ARE NOT only characterized by a variety of forms and shapes, but also by a great variation of behavior patterns involving the breeding cycle and the adaptation of the fish to its environment.

Eric Friese

Seattle, Washington

Breeding activities of this "beginner's fish" is fascinating for the hobbyist

Egyptian Mouthbreeder

From the strange bubble nest building procedures of the Anabantidae to the mysterious homing, anadromous migration of the Pacific salmon, the reproduction of all species is accompanied by a characteristic behavior. In its basic aspects the embryological development in most fishes is similar, regardless whether it takes place in a bubble nest guarded by a male or whether the embryo develops unattended, buried 6 to 8 inches down in the gravel of a river bed. Of course the two types of breeding behavior mentioned above are not the only types of variations. In fact, one of the most interesting and easily observable breeding behaviours is found among the mouthbreeders. To the aquarium hobbyist the easiest example is the small Egyptian mouthbreeder, *Haplochromis multicolor*. After having kept and bred many species, from the most common tetra to the rarest killifish, it still gives me hours of immense pleasure to watch the breeding activity of this little fellow, despite its reputation as being a beginner's fish.

Haplochromis multicolor is normally the only species of the African genus frequently available from commercial sources. Its range extends from eastern Africa northward throughout the lower Nile. The Egyptian mouthbreeder has not only a fascinating breeding behavior,

but it also displays colors that can easily match those of the more popular aquarium fishes.

It has once been said that the coloration of a *H. multicolor* male during courtship resembles the color spectrum of a heated copper plate. This is truly one of the best comparisons, and the name "multicolor" is well deserved. The basic color in the male is a bluish green, which gradually changes into a grey/brown toward the dorsal area. The upper portion of the head, including gill covers is yellowish with a green sheen. This is interrupted by a dark green spot with a yellowish golden border at the posterior portion of the gill covers. The iris is golden with a thin red ring around the eye. A dark, sometimes black, line extends from the eye to the mouth. Ventral area white, flanks yellowish. The body scales are bordered with a rainbow colored edge, with predominantly green or blue colors, giving the fish an appearance as if covered entirely by a metallic sheen. The dorsal fin is yellowish to light brown, covered with rows of blue dots, which seem to merge at the end of the fin. The anterior portion of the dorsal fin has a black edge with a thin red line immediately underneath. This red line runs through the entire length of the fin. Pectoral fins are transparent with a faint yellow coloration. Ventral

fins are yellowish with the first two rays often black. The anal fin is yellow with rows of greenish and reddish dots sometimes spread out into irregular stripes. The first few rays of the anal fin are also dark, often black, especially during the mating period. In fact during the entire period of courtship the whole ventral portion of the male, from the lower jaw to the origin of the anal fin and including pectoral fins, turns to various shades of black. The female has mostly a yellowish to light brown color, with only a very faint indication of the intense and bright colors found in the male.

With such distinct differences sexing *H. multicolor* is relatively easy, and it can normally be done at an early age. Maximum size is stated as 8 centimeters in most publications, however, sexual maturity seems to be reached long be-

fore that size is attained. I had my first spawning from a pair measuring slightly over 4 centimeters. Water conditions, other than the temperature, are only of secondary considerations. The temperature should not be allowed to drop below 20° Centigrade, and successful spawnings are best obtained around 25 to 28° C.

In most available literature we find that *H. multicolor* is supposed to dig small, shallow pits in the aquarium sand in which to deposit the eggs. I have found that in at least 7 out of 10 spawnings the eggs were laid on a broad plant leaf (*Cryptocoryne* or *Echinodorus*, etc.), fertilized by the male, and immediately picked up and stored in the mouth by the female. The other three

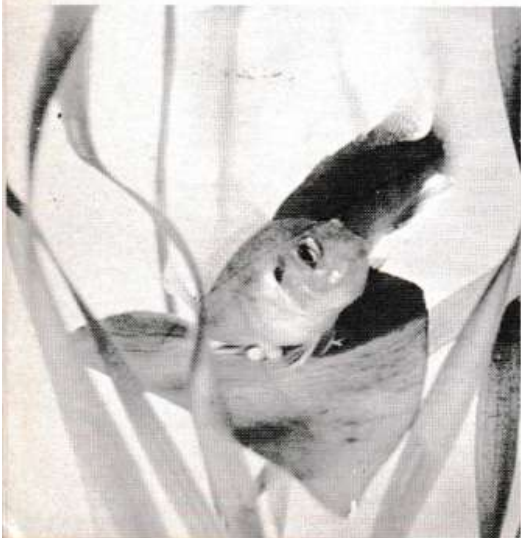
Photo: Parent with young Egyptian mouthbreeders, as photographed by Eric Friese.





spawnings I was unable to observe. As mentioned above, sexual maturity is reached at an early age, and once this has been reached the female will constantly be pursued by the male. To avoid having a physically exhausted female with shredded fins, a densely planted tank (any size in excess of 5 to 10 gallons), as well as a number of female per male is advisable.

Over a period of two months I have observed frequent spawnings of *H. multicolor* in my 30-gallon community tank, undisturbed by all the other inhabitants. Spawning took place above the selected spawning site in a whirling movement,



which often assumed the speed and general appearance of a fast moving merry-go-round. The male seemed to follow the female around in a very tight circle. Intermittently the female would pause, and resting directly on the leaf, her body faintly trembling, she would lay from one to four eggs at a time. She would then move on to continue the circle, and the male immediately behind would move up into position and fertilize the eggs. Completing the narrow circle the female would then be automatically over the eggs again and pick them up in her mouth. On occasions I have observed that the female had laid the eggs, and suddenly the male would dart away to chase a possible intruder. The female then, completing the circle, or just simply turning around, would pick up the eggs without having them fertilized by the male. Upon return of the male the cycle would continue, but in reverse. The female seemed to follow the male in their tight spin, having her mouth very close to the anal opening of the male, in an apparent attempt to collect as much sperm as possible, which was being secreted by the male. I have observed this in several pairs of *H. multicolor*, and since always all the eggs seemed to have hatched, this behavior has led me to believe that part, if not all, of the fertilization of the eggs has taken place inside the mouth of the female.

Due to the small size of my breeding pairs the number of eggs in each spawning rarely exceeded 30. The eggs, once picked up by the female, are accommodated in the expandable throat. Through chewing movements of the mouth the eggs are constantly rearranged to provide as much oxygenation as possible. In order to assure a safe hatching and subsequent raising of the young, the female

Photos: Both photographs, taken by the author, show various phases of parental activity hovering about the nest of eggs.

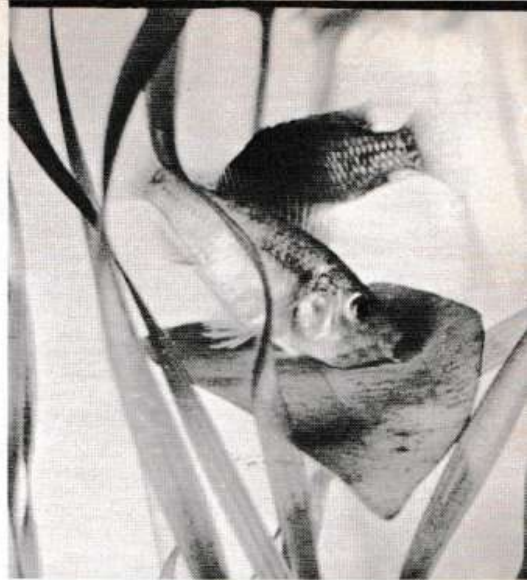
should be alone once the spawning has been completed. Normally it is the easiest to remove the male, however, if the spawning took place in a community tank the female can be removed and placed into a separate tank. The thought might occur that during such a disturbance she would either swallow or spit out the eggs, yet I have made many such transfers and never lost any eggs that way, at least, not as far as I could tell.

The eggs remain inside the throat for about 9 or 10 days. Development can easily be observed since the sac, when expanded and full of eggs, is slightly transparent. During this period the eggs hatch and the embryos develop completely into full functional baby fish. Cautiously they start to leave the mother's mouth from the tenth day on. During the entire incubation period the female will not accept any food (even though I have seen females with eggs in their mouths make passes at food, but actual feeding was not observed). However, once the young have emerged adequate food in sufficient quantities should be offered immediately to the female, otherwise she will not hesitate to eat the young. As soon as the young are out of the mouth of their mother they should be fed with newly hatched brine shrimp. With regular feedings of this or other minute live food (microworms, etc) they will grow quite rapidly. After about two weeks I change over to chopped tubifex.

During the first 6 to 10 days the young will seek refuge in the mouth of their mother during the night, and during any occasion when disturbed. In fact, the young seem to receive an "order" from their mother by means of a number of fast, rapidly jerking motions of the ventral fins. Once this signal has been given a mad scramble into mother's mouth sets in. This often assumes hilar-

Photos: Parental activity about the nest of eggs. Note the distended jaws of one of the parents in the bottom picture caused by a mouthful of eggs. Photos by the author.

AUGUST, 1965

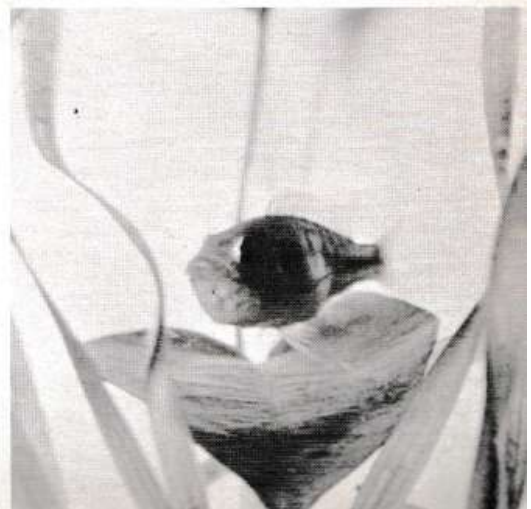


ious proportions, especially after the young have grown some and a few stragglers just simply will not fit in anymore. With progressing age, however, the young become increasingly independent, and the female can be removed and returned to the male for another spawning. ◀

Book Review

(Continued from Page 368)

for the correct *Mollienesia*). The text is plagued by a number of inane statements such as the legend after *Geophagus brasiliensis* ("The only fish of this type that may easily be bred in an aquarium") and



the habitat given for the South American leafish ("North of South America"). Since Idaho is north of South America, Idaho aquarists surely have been overlooking their local streams these past generations?

But it should be remembered that the real objective of this book is, as stated in its introduction, that the selection of fishes represented "may awake the interest and satisfy the aesthetic sense of our

readers." In this, it is admittedly highly successful. This is a book which might be considered by a club as a prize or as an award of some sort, but aquarists are generally already "interested" and "awakened aesthetically" in aquarium fishes, and in view of the sorry text, it would appear that there are other books upon which the money would be better spent (e.g., Herald's, *Living Fishes of the World*). ◀

New Publisher

(Continued from Page 363)

ciates your kind patience and understanding of the situation in the interim."

The original plans of the Society called for appointing a new publisher in time for inclusion in the August issue. With this plan in mind, the front cover of the August issue was printed well in advance of the remainder of the magazine, as is customary in the publishing business, and hence the premature legend: "New AJ Publisher."

As of press time, Publications Committee had invited three prospective publishers to submit their proposals for future publication of the *Journal* in writing to the Committee. Following review recommendations of the Committee to the Board, the prospective publishers will then be invited to make their presentations in person to a meeting of the Board

of Directors, according to Frank Tufo, Chairman of the Publications Committee and President of the Society.

The Board of Directors anticipates announcement of a new publisher in an early issue of the magazine, and wishes to thank subscribers and advertisers of the *Aquarium Journal* for their sustained support during this difficult period in the magazine's 36-year history.

The Society also expressed the hope that out of these protracted negotiations will come a truly significant contribution to aquarists everywhere — by providing the legacy of a bigger and better magazine for tropical fish enthusiasts the world over. ◀

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IN RECENT months the Journal has received several inquiries about standards for judging fishes. Unfortunately, widely accepted standards are not available except for the guppy. The need for standards increases as competitions become more popular and breeders become

and consequently tends to eliminate variation in the breed. With respect to body size, the closed standard may require that a fish be exactly 1½ inches long while an open standard may set no limits or may be open on one end and closed on the other. For example, the fish may be al-

There is an increasing need for a set of standards for judging tropical fishes

Fish Standards

more serious. As a result, groups and individuals are tempted to write their own standards. After authoring two standards, one on bettas (*TFH*, Nov. 1963) and another on veil angels (*All-Pets*, April 1965), the author hopes he can make several suggestions to prospective standard writers.

What is a standard? A standard is essentially a description of what a perfect specimen of the breed should look like. The standard is a means of assigning worth to individuals of a breed. The degree of worth may determine if the fish will be used in breeding, its position in a competition or its price in the market place.

There are several kinds of standards. An open standard allows a wide range of characters and therefore encourages variation in the breed. A closed standard requires a very narrow range of characters

Frederick J. Kerr

Bozeman, Montana

lowed to be 1 inch or longer or conversely, three inches or smaller.

Another characteristic of standards is that they may be either maintenance or evolutionary standards. The maintenance type attempts to keep the breed in its present state while the evolutionary type tries to change the breed. If the evolutionary standard is also a closed standard, it becomes a maintenance standard when the breed has become sufficiently improved. Usually a standard will be a combination of open and closed evolutionary and maintenance.

Standards may also be either general or specific with respect to the kinds of fishes they are made for. General standards, those written for a number of species, suffer several ills. We do not give the same value to the same qualities in all species. Color is much more important in platies than catfish and fin length is more important to bettas than to rasboras.

The standard can be written either by an individual or a group. The disadvantage of a standard written by a single individual is that prejudices of that person

(Continued on Page 358)

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San Francisco 18

California



tempt the muddy, slippery roads (and then too, there was some concern for the road itself!). "Lobo," our driver, returned the four of us to the Hotel and informed us that he would be back at 4 a.m. the next morning. True to his word, his arrival in the wee hours was signaled by shouts of "Arriba!", and vigorous blasts of the raucous horn. In

Better they should have walked than pushed the bus through a sea of mud!

"Leave the Driving to Us"

PART VIII

IT WAS RUMORED that it had rained in Tournavista but we had no idea of the condition of the road between Pucallpa and our home base. Win, Zeke, Jerry and I hopped on our "bus" for the return trip but the authorities would not permit the bus to leave town, fearing that it was too dangerous to at-

Albert J. Klee

West Chester, Ohio

a soporific stupor, we herded into the vehicle. The next few hours were spent in picking up other passengers, including men, women, children and chickens. However, we couldn't complain since we ourselves were featuring fish, capybara and monkey. The passengers didn't mind and I doubt that they would have even effected a glance had we tried to board a hippopotamus!

This time, the authorities let us through. At the fork which separates the Tournavista road from the Lima road, the constabulary still blocked the latter but we were free to continue. The road was somewhat muddy and it became even more so as we progressed. Soon the road turned into nothing more than 8 inches of mud and our truck-bus slipped and skidded from one side of the road to the other. Every few minutes, we were all obliged to jump out and



Photos: (Top) "Fluffy," our three-toed Sloth. Note Jerry's wired snake gloves for protection. (Middle) Our pet agouti, nicknamed as "Agouti-fruiti." (Below) Dick holding a pimelodid catfish caught on rod and reel. All photos by author.

AQUARIUM JOURNAL

push, and every 20 minutes, Lobo was forced to stop to let the engine cool off. We had to make frequent trips to nearby creeks for radiator water. At these stops, the Indians on board would exercise their chickens, and we would graze our capybara.

Many times, the truck would almost slide off the road with the prospect of falling into the ravines which occasionally would line both sides. It started to rain and we were up to our knees in mud, tired and miserable. Further, we had had no food nor water for hours. Finally, Lobo came to an isolated Campa Indian house by the side of the road and we stopped to bargain for food and water. "Quaker" was number one on the menu but it tasted this time, better than a filet mignon. With the Quaker came a mugful of yucca brew made in the following manner. The Indian wife would collect the roots of the yucca palm, and proceed to chew them fully. When sufficiently softened, she would spit this into a large, cast-iron kettle,

continuing until the kettle was full. The kettle was then set aside for a week to 10 days, whereupon the mixture would ferment. It tasted like a sweet, somewhat alcoholic buttermilk, containing lumps of woody rhubarb. I doubt that the beverage will ever replace Pepsi Cola here in the States, however. Again, at the time it was pure ambrosia.

The Campa Indian establishment was a complete family unit consisting of young adults, children and oldsters alike. The floor was raised about 10 inches off the ground and there were no sides to the thatched structure. Sleeping was via hammocks enclosed in mosquito netting, and for privacy, a cloth was hung between them. Although these people were poor, they nevertheless shared what little they had.

Zeke, Jerry and Win, with 20 miles remaining to Tournavista, elected to walk the remainder of the way. Dumping their luggage, capybara and monkey

Photos: Wading through the mud after pushing the bus for a distance. Photograph by Albert J. Klee.





into my lap, they waved goodbye and started off. After an hour or two, the rain stopped and we were off again, slipping and sliding most of the way. Some six hours later, we caught up with Jerry and Win, and they were a pitiful sight indeed. They had been forced to take off their boots because the mud would suck them down, and they were so tired that they could hardly stand. Thirty minutes later we came to a sharp drop in the road which was under about 4 feet of water. Here we found Zeke, surprisingly in pretty fair shape. We marked the road where it went under water and timed the drop of the torrential stream. We calculated that it would be close to midnight before we would be able to get the truck through. Zeke and two of the Indians finally managed to ford the stream and an hour later, Win, Jerry, and I ferried our equipment across (wearing the monkey and capybara as hats)! Win struck out for Tourna-

vista, some 10 miles away still, while Jerry and I guarded our belongings. It turned dark and soon we discovered that our flashlight batteries were exhausted. Our 10-minute spot "bushmaster checks" had to be discontinued and we promptly imagined all sorts of animals lurking about. This was not so funny since this was jaguar country and these oversized pussycats were the last things we wanted to see. We were well-armed, however, Jerry having a sharpened popsickle stick and I having a safety razor. Help arrived from Tournavista in the form of a 4-wheel drive truck, and soon we were back in camp. In 29 hours, we had traveled but 60 miles!

During our stay in Tournavista it became known that we desired animals of all sorts (for the Cincinnati Zoo). Indians (many of them children) brought

Photo: Zeke and Jim looking for crocodiles—or is it vice versa? Photo by author.

us many animals and it wasn't long before we had quite a collection. Frequently, an Indian would approach us and state that he had such and such an animal and would we be interested? Unfortunately, these collectors knew only the native name for the animal where we knew only the scientific name or American popular name. We would always answer that we were interested and it never ceased to be an adventure to see what finally was delivered!

We had to store these animals somewhere, and the closets in our dormitory served the purpose admirably. Zeke had the crocodile concession in his closet; Win and I had the monkey and marmoset concession; Jerry had the agouti and sloth concession; the poisonous snakes were on the back porch, the boa constrictors on the front porch; the tarantulas were in cans in our living rooms; and so it went. One day our Peruvian maid opened the door to Jerry's closet to deposit his laundry only to be greeted by Fluffy, our 3-toed sloth. She took off through the house, toppling furniture as she went. Fluffy was later found, hanging upside-down from the rafters in the bathroom. Our maids soon learned to open doors in our dormitory with a broomhandle only!

Collecting crocodiles (actually caymans) was quite an operation. Every little dinky pond by the side of the road had its own crocodile population. These would submerge as soon as we approached but would soon put their eyes above the water surface after they calmed down a bit. Zeke, and sometimes Jim, would enter the water while others of us would try to attract the animal's attention from the shore. Then Zeke would slowly creep up behind the all but submerged crocodile, and at the proper moment, would jump it. At such time, all heck broke loose and lasted



Photos: (Top) Win Rayburn unraveling himself from a boa constrictor. (Below) Win holding his favorite "varmint"—a Peruvian cayman.

AUGUST, 1965

until the animal was subdued. Many caymans were caught in this manner, normally at night (it was easier then) until one evening, Zeke crept up on a small croc perched upon a very large (about 10 feet) log. A few feet away from the croc, the "log" submerged and Zeke promptly gave up bare-handed crocodile wrestling for the duration!

The time to return home drew near and we all pitched in to box the many fishes caught. This was an all-night operation. First, the cardboard boxes were assembled and then filled with their own plastic bag. The bags were filled with water and the long, hard process of netting, sorting and placing fishes began. This took us until 3 o'clock in the morning and we were plenty tired. After a few hours' sleep, we returned to the compound and tied off all the bags, closed the boxes and loaded them onto a truck. At the plane, cargo, fishes and

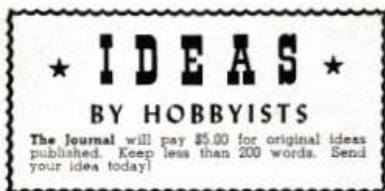
other animals were loaded aboard. During loading, we dropped the crate containing Francesca, our baby Tapir. However, Francesca wasn't hurt and we patched the crate and finished loading.

Many of our cages were made on the spot a few days before, of mahogany, a very available wood in Tournavista. I felt criminal using this wood on mere crates! Zeke discovered a convenient way to ship crocodiles, viz., by just slipping a canvas bag over their head and tying it behind their front feet. One large croc, however, simply wandered off, never to be found. If, by chance, you should happen to find a crocodile in Peru with a bag over its head some day, it's ours!

There was one incident during loading. Zeke temporarily stored two large crocs in the bathroom, neglecting to pass this information to the rest of us. Win strolled in to use the facilities and was promptly attacked by one of the reptiles. Win did not break the 4-minute mile, but then Roger Bannister didn't have his trousers down when he did it either!

Our plane was heavily loaded and it had sat, unused, for over 17 days in the jungle. The strip was 4900 feet long and we calculated that we would need 4300 feet for take-off. We started our roll but old Betsy balked at leaving the ground. I could hear Bill, our co-pilot, yelling into the headset, "Rise, Baby, rise!" We were only 12% off on our take-off calculation (12% of 4300 feet is 516 feet.

(Continued on Page 386)



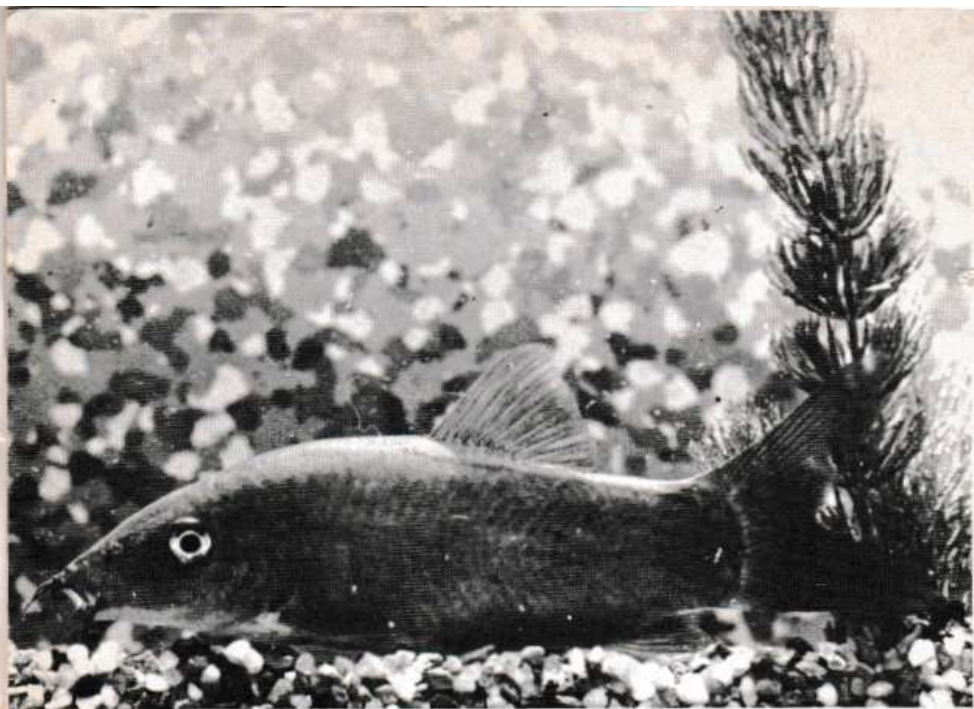
Freeze Those Bags

Summer has come and the temperatures in my aquaria are on the rise. For three days now the battle of ice cubes and plastic bags being filled, emptied and re-filled to float in the aquaria have filled my whole day. Today a brainstorm! The plastic bags are filled with water and frozen. Now it is only a matter of taking the melted water filled plastic bag out of the aquarium and putting it back in the freezer to re-freeze and substituting a stand by water filled frozen plastic bag in the aquarium. I place the frozen plastic bag close to the filter system so as the water cools it is evenly distributed through the aquarium. — Mrs. G. S. Wallace, Bel Air, Maryland

CLUB NEWS

The Davenport Aquarium Society

The D.A.S. held its Fourth Annual Tropical Fish Show at Vander Veer Park Conservatory, Davenport, Iowa, May 29 through May 31, 1965, according to Helen Wainscott, Society Editor. Over 60 tanks were displayed.



On some parts of the globe this
tropical fish is a prized food item

Botia modesta

IN OUR COUNTRY of well fed aquarists, where food is a pleasure as well as a necessity, it is sometimes a little startling to find that a prized and desirable aquarium fish is a popular food item in parts of the world to which it is native. This is true of several members of the genus *Botia* including one of the most satisfactory of the larger aquarium fishes which I have kept, *Botia modesta* (Bleeker).

Less striking perhaps than his brilliantly colored cousin the clown loach, *Botia macracantha*, there are a number of color variations within this species which for all practical purposes represent several different fishes to the aquarist. The body may be varying shades of yellow, blue or green combined with fins which are

Braz Walker

Waco, Texas

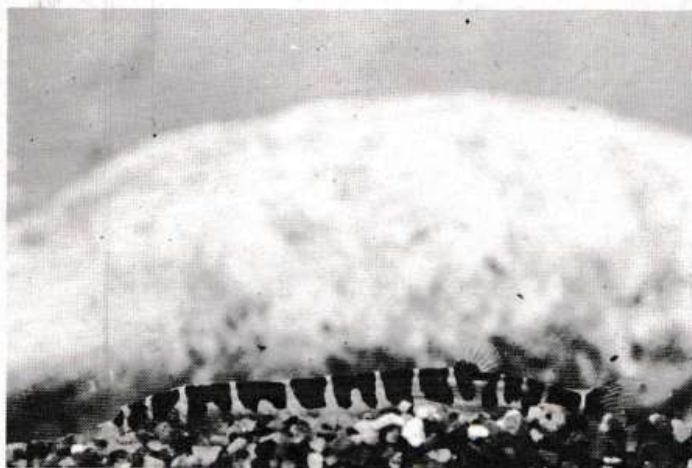
red, orange or yellow. Even the color of the eye varies among specimens. Perhaps the most beautiful is the variation whose fins are brilliant red-orange and whose skin is an unreal looking blue-gray which catches the attention possibly because this color is so seldom seen in nature. This is a very difficult color to describe since its apparent brightness exceeds any vision of blue-gray which the mind can conjure.

Photo: *Botia modesta* posing on the aquarium bottom for Braz Walker's camera.

Fishes of the genus *Botia* belong to the loach family, Cobitidae, members of which are native to Europe and Asia. Because of their nocturnal nature, smooth skin (in most species) and the presence of barbels, they are sometimes mistakenly thought to be catfishes. As a matter of fact, they belong to the order Ostariophysi along with catfishes, minnows, characins and hillstream fishes because of an anatomical peculiarity known as the Weberian apparatus. Actually they are much more closely related to the carps or minnows, than catfishes. Somehow the species of *Botia* seem a far cry from some of the other loaches such as the koolie, *Acanthopthalmus*, or the Dojo, *Cobitis*.

given to the fact that they are bottom feeders and the food should be sunk for them. Dried dog food which has been presoaked in order to soften it meets all the requirements and is excellent as it is for most large fishes.

The Siamese have colorful names for a number of their native fishes including this species. Pla mu, which means hog fish, is given to this particular species because of the pair of large erectile spines which are ordinarily kept sheathed in slots beneath each eye, but when erected and locked in place are similar to the tusks of a hog. Like an Arkansas razorback, he can use these "tusks" to slash at an enemy and the blood of more than one aquarist has been



Although somewhat shy in small quarters, *Botia modesta* is much less retiring in large aquaria. This is a heavy bodied fish which consumes large quantities of food and it makes little difference what the food consists of as long as it is edible and there are other fishes competing for it. Since in nature loaches root along the bottom, searching for worms, insect larvae and small crustaceans, the food should have some meat or fish content. Consideration should be

spilled through careless handling of some of the loaches possessing this protective device.

These fishes are virtually all imported from the Far East and little is known of their breeding habits. Although it has been suggested that breeding size might not be reached in captivity, Hugh M. Smith examined a mature female which was approximately $3\frac{1}{2}$ inches long and

Photo: One of the many loaches discussed in Braz Walker's article, and photographed by the author.

this size is often attained in aquaria. There is a possibility that there is something lacking in their diet or in other physical conditions in captivity essential to their spawning. Since this fish is less available and more expensive than some of the more common aquarium fishes and is usually kept in a show aquarium with other species, it is more likely that a mature male *Botia modesta* and a mature female *Botia modesta* have not been brought together under conditions conducive to setting up housekeeping.

[Editor's note: Spawning of *Botia modesta*, like that of *Botia macracantha* continues to elude us. I have kept both species by themselves in separate tanks, had both sexes together, had the females of both species become heavily laden with eggs; all without result. I have kept them under a variety of water conditions and a variety of temperatures, with no success. The loaches seemed in perfect health, to "enjoy life" but there was no evidence of breeding. Perhaps careful experiments with length of light per day will prove to be the answer but certainly no answer to breeding "botias" is known to me.] ◀

Peru

(Continued from Page 382)

add that to 4300 and you get 4816 feet) and so had a comfortable 84 feet to spare. The trip back home was uneventful except for two things. Number one was that we cracked an exhaust manifold over the Caribbean. By the sheerest of luck, we landed at Kingston, Jamaica, without catching fire. A B-25 two months before us had similar trouble but was not so lucky. It caught fire and had to land at Kingston, a total loss. The airport invited us to salvage a replacement manifold from the burned-out hulk, and in five hours, Bill successfully made the switch. The second item was that the

left engine, which alone sustained us for so long on the trip down over the Caribbean, leaked oil like a sieve. Every time we touched down, Bill had to check the oil level and refill. The plane was a pile of junk when we returned.

Our arrival at Miami International Airport on Labor Day caused quite a commotion. When the animal inspector learned about the crocodiles lying around loose in the plane, the bushmaster, the boa constrictors, tarantulas, etc., they looked at each other and just stamped the plane, "PASSED"! For some reason, they were not anxious to make a personal inspection, especially when we couldn't remember which container the bushmaster was in. We arrived home in Columbus (Dick and Jim left us in Miami) to be greeted by wives and children, friends and relatives. Fish, equipment, souvenirs, animals and personal belongings were unloaded and transferred to our personal automobiles. We took Jerry, loaded with fish, spears, crockery, bow and arrows, etc., over to the commercial side of the airport where he caught a plane home. I don't think that the ticket agent has recovered from that sight yet!

Without doubt, our trip was the experience of our lives and for my part, it couldn't have been made with a grander bunch of fellows. A lot of people have asked me if I would do it all over again if the opportunity presented itself. The answer is that I wouldn't have missed the trip for anything in the world but as for repeating it, I quote Jerry's favorite expression, "Lots o' luck fella!" ◀

The Northeastern Ohio Aquarium Society

The N.O.A.S. will hold their first open fish show Nov. 6 and 7, 1965 according to James Bradbury and Herb Platt, Show Chairmen. Arrangements for air freight shipments to Painesville, Ohio, will be made.

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Standards

(Continued from Page 376)

may be incorporated into the standard. Committees also have disadvantages. Some wag has called a giraffe a horse designed by a committee! Whether written by an individual or a committee, the process of standard writing is essentially the same.

Standard writers should be thoroughly familiar with the breed in question. Even if the writers have bred the variety for several years, they should carefully examine as many specimens of the breed as possible. Color, size and form of the fins and body as well as deportment and possible disqualifications should be considered.

Variation in the various characteristics is particularly important. Variation is the key to breed improvement and if no variation exists in a given characteristic the standard need not be concerned with it. If the breed shows several forms of caudal fin, the standard will have to decide which are to be preferred. If the breed shows only one dorsal form, the standard writers have no decision to make.

After variations have been noted, judgment must be made as to which variations are desirable and which are not. The criteria for such decisions are largely arbitrary. Many people feel that a standard should represent some sort of indisputable truth. This is an impossible requirement. To cite an example of the arbitrariness, let us consider dog standards. It is safe to say that there are very few things that are specifically denied to one breed that are not allowed or even required by the standards for other breeds. White Great Danes, especially albinos, are an abomination to the standard for that breed. The German Shepherd standard tolerates white dogs but does not prefer them; the American Spitz standard requires that the dog be white. Which

standard is right? They all are. The standards have been accepted by breeders of the various dogs and for these people the standards represent law by mutual agreement.

This is not to indicate that judgments as to which variations are desirable are made on illogical grounds. Judgments are frequently made on the basis of utility, naturalness and aesthetics. Utility is a popular basis for judgments about animals and plants that have a more or less practical use. Naturalness may be appealed to on the grounds that nature has selected the most functional variations in the evolution of the species and these variations are therefore the best. Under this system mutations for color or fin length are judged to be undesirable.

Judgments about the desirability of a variation can also be made on an aesthetic basis. The variation which makes the fish most attractive, is best. As might be expected, there is very little agreement on such matters. It is like trying to prove red is superior to blue. As arbitrary as aesthetic judgments are, this is the basis by which many ornamental plants and animals are standardized. Usually several kinds of judgments are used to make any one standard. While aesthetic bases may be used to justify long fins, natural considerations may require that the rays of the fins be truly aligned and utilitarian needs may require that the fins be strong enough to prevent splitting.

After deciding which varieties are good
(Continued on Page 392)

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Atlantic Marine Tropical Fish—Buy healthy fish direct from collectors. For information write: Atlantic Tropical Industries, 3420 N.W. 6th Street, Fort Lauderdale, Florida.

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Selling Postage Stamps—with pictures of "fish" on them. Stamps include British, Cuban, Vatican and the U.S.A. Write: Acuario, Box 3936, Miami, Florida 33101.

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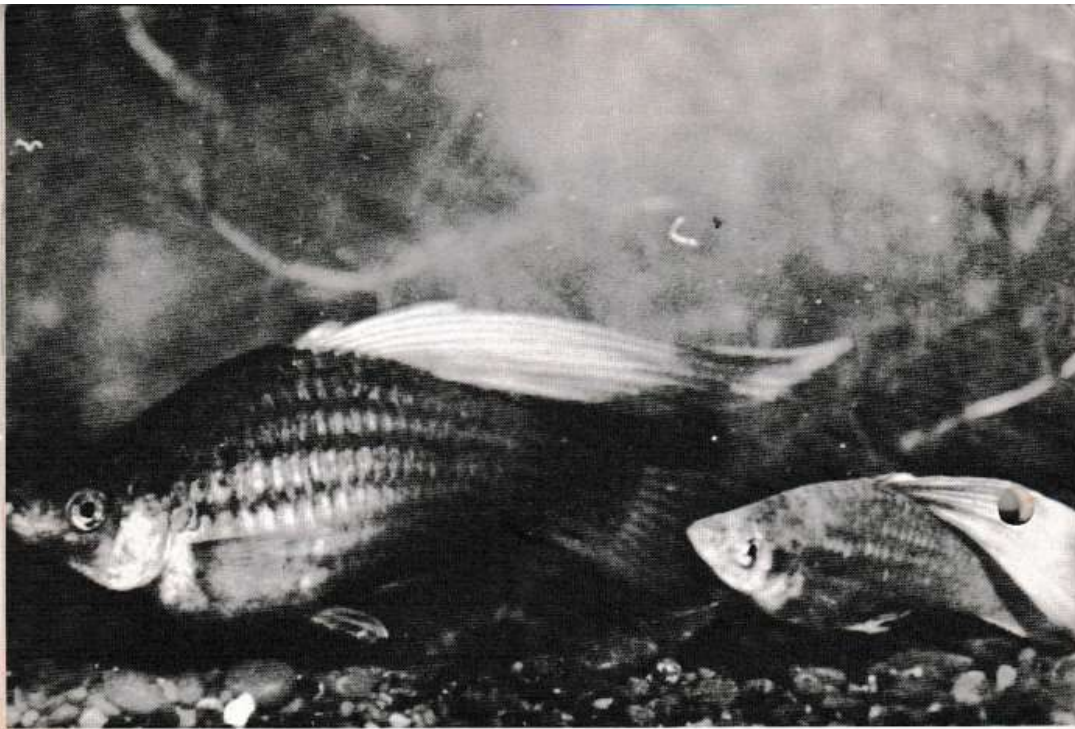
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Bettas, Excellent Finnage—Yellow, white, yellow and blue, \$3.50 pair. Black, \$5.00 pair. Blue black, \$2.50 males only. Very small amount colored males, \$1.50, females, 75c. Low price, high quality, supply limited. Add sales tax where applicable. Mary Ewell, Route 3, Box 358, Escalon, California.

Pretty two 5-inch Discus—One 4-inch blue Heckle, \$55.00. Fluorescent-lighted tank, water pump, thermostat available. Telephone 532-5823, C. B. Chiu, 2049 18th Ave., Oakland, Calif.

WANTED

Electric Catfish—Under 8 inches. Send size, price and packing charges. R. Jones, 3634 Greenland Avenue, N.W., Roanoke, Virginia 24012.



This giant hi-fin variatus was developed from the first imported mainland stock!

Hawaiian Red Hi-Fin

FROM the first stock of hi-fin variatus imported to Hawaii, a giant red hi-fin variatus was developed by hobbyist George T. Yamada. This giant high-fin variatus reaches a body length of about 3 inches, much larger than the normal high-fin variatus length of 1½ inches. The first few giant specimens were produced in the progeny of a normal sized specimen after it reached Hawaii. It was from these few specimens that Mr. Yamada developed the giant strain. Through careful selection and inbreeding, this strain at the time of this writing is very close to breeding time. It seems to me probable and interesting to note that the creation of this giant strain was the result of just a few mutations instead of a hybridization.

Glenn Takeshita

Honolulu, Hawaii

This giant red high-fin variatus is a slow maturing but very active, the average specimen taking approximately 9 months to a year to reach full maturity. All specimens of this "strain" carry a large and beautiful but narrow dorsal fin which rivals any high-dorsal of the Simpson swords. At present, Mr. Yamada is attempting to develop the dorsal fin of his fish strain by crossing his giant strain with selected individuals of another strain which carry a wide flowing

Photo: A pair of these amazing giant red hi-fin variatus as photographed by the author.

large dorsal fin. The progeny from this combination are about 3 months old at this writing and show great promise because a large percentage are carrying the desired wide flowing high dorsals. This giant strain may lead to new roads in the development of many other varieties which will easily rival any high-fin swordtail in body size and color.

The individuals of this giant strain are very robust, active fishes with a very good appetite. The color of the body is a warm orange with the high-dorsals being a deep yellow-orange. The anal fin of many females of the giant strain are also greatly modified when compared with a normal female variatus. The anal fins are maybe normally shaped or extremely elongated like the anal fins of an angelfish or a male lyretail mollie. The modified anal fin may easily be mistaken for the male gonopodium by the inexperienced. This type anal fin is really quite unique in appearance; and careful selective breeding may lead to accentuating this unusual anatomical characteristic.

The fishes that do not carry the high-fin characteristic grow to be much larger than the ones that carry it. These "low-top" females reach 4 to 5 inches in length at maturity, and they are indeed beautiful and majestic creatures to behold.

A problem Mr. Yamada faces at present is that the females of his giant strain are very poor producers of young in comparison with their normal sized counterparts. By careful introduction of "new blood" from several different strains, Mr. Yamada feels quite confident that this problem can be remedied.

Because of the intense interest of the tropical fish hobbyists of Hawaii in developing different strains and color varieties of the high-fin variatus, the Honolulu Aquarium Society is looking forward to very keen competition in this class during their annual fish show to be held in the summer of 1965.

Because of the ease with which the variatus can be crossed with the moon fish, it would not be surprising if a giant

Photo: A closeup shot of the giant red hi-fin variatus as photographed by the author.





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high-fin moon fish strain is developed in the very near future. This dream is definitely now in the realm of reality. ◀

Standards

(Continued from Page 389)

and which are bad, the standard writer faces the task of determining to what degree they are good, both in relation to variations on the same theme (round caudal as opposed to oval caudal) and in relation to other themes (fin shape in relationship to body color). Working out the various relationships brings the writer into contact with the point system. Usually, but not always, there are 100 points allowed for the ideal specimen. The writer's task is to allocate these points to the various characteristics with respect to their relative importance to the fish under consideration. If the writer is dealing with a long finned fish, he may want to give a relatively large number of points for fin size and relatively few for color. If color is the main attraction of the fish, the writer may do just the opposite.

In addition to indicating the number of points to be given various characteristics, the standard may also indicate the number of points to be given for various degrees of perfection. The standard may allow 8 points for fin length but it may require that the fin be 50% of body length to be awarded 1 point. The standard may also indicate the number of points to be deleted for specific faults as in deducting 2 points if a fish has yellow instead of red eyes. A standard which indicates the number of points to be given in these two situations would seem to be more desirable than one which does not. Such a standard relies less on the opinions of individuals and allows a more universal agreement.

If the standard writer finds a variation in the breed which is particularly objectionable, such as a tendency to lack

pelvic fins, he will want to not give points, he will want to bar such fish from competition. This type of situation is usually handled in the standard under the heading of disqualifications.

After points have been allocated to various variations and the disqualifications determined, the next step is putting the standard onto paper. In many ways this is the most difficult part of standard writing. A standard must be written in such a way that it communicates what the standard writer has in mind to anyone who cares to study the standard. Certainly this is a difficult task and is never 100% successful. There are several procedures which make standards more understandable.

The mere listing of possible points given for each characteristic is of little value. Even if the reader knows that color has a value of 40 points, deportment 20 and fins and body 40, he does not know what color qualities result in loss of points or what form of body or

fin is to be prized.

There are two ways of elaborating on the point system. One is a verbal description and the other is a pictorial description. Each has its special virtues. Although words are the most efficient way we have of communicating, there are several kinds of description that should be avoided. Poetic or arty language should be avoided. While we can be sure how long one inch is, it is more difficult to agree what the term "red" means. Imagine trying to figure out what it means for an animal to be courageous or intelligent looking (as so many dog standards require). There is always doubt as to what such requirements mean. Even describing fin length as being sufficient to appear to be in visual harmony with the body is too vague.

The alternative to such language may seem bland, but it conveys a more predictable meaning. Lengths can sometimes be expressed in inches, but more

(Continued on Page 405)

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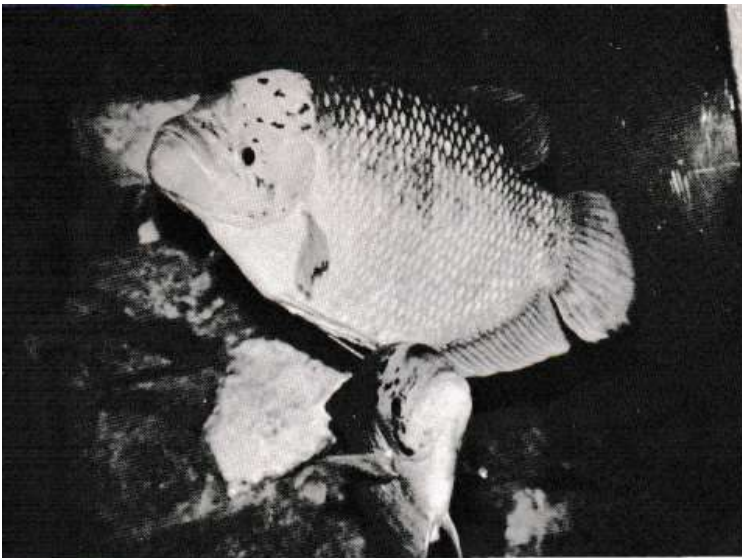


Photo: Giant gouramis in the Van Kleef Aquarium—and these are really giants, with rather a nasty look on their faces! All photos by the author.

Singapore's imposing public aquarium stands regally in George the V Park

Viewing Van Kleef

IN WHAT might be almost termed the heart of anabantid land, because so many of them hail from there, lies a most imposing modern structure . . . a huge fish apartment house that is called Van Kleef Aquarium. It stands in Singapore in the green manicured "wilds" of George the V Park.

Now, all public aquaria could almost

Diane Schofield

Burbank, California

be fashioned in a magnet shape, insofar as I am concerned . . . they have that much of a drawing power to me. What better place in any country to peer at the



Photo: One of the beautiful streams in the environs of Singapore that are literally bulging with tropical fishes. Photo by the author.

native fish, see what particular problems are encountered with them and just how these are handled?

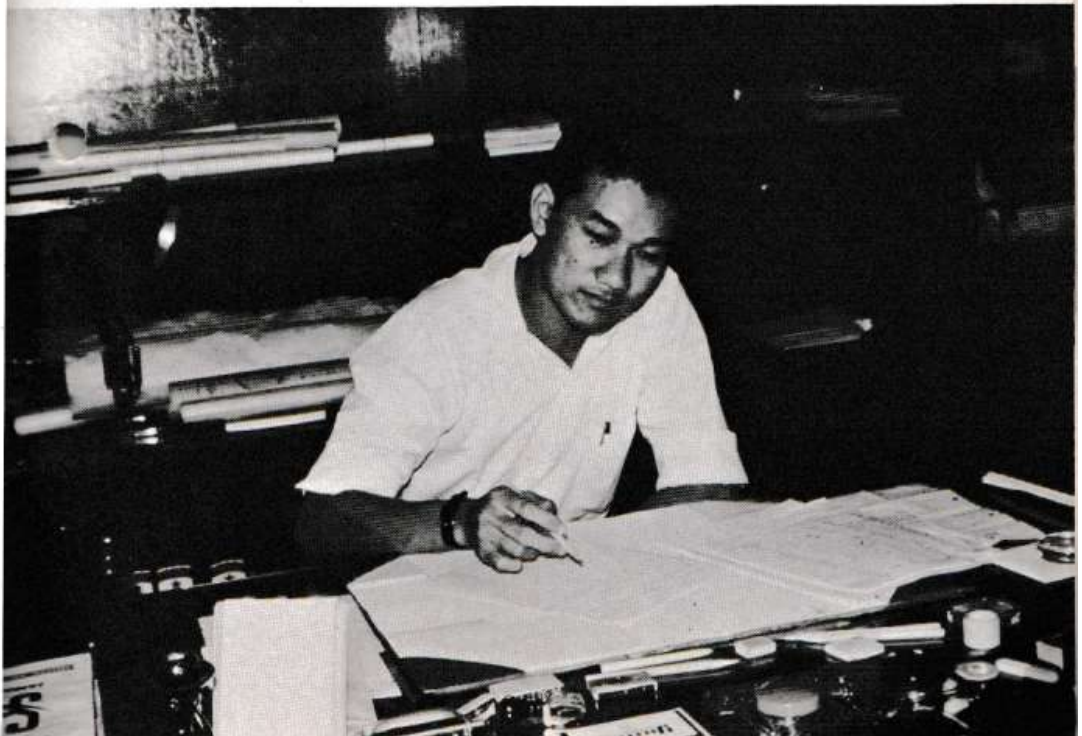
Singapore is especially good in this regard because so many of our common aquarium fishes come from the vicinity of the Malay Peninsula. Every time I would cross one of the sepia colored muddy streams, I would wonder . . . does somewhere beneath its ochre surface swim pearl, blue or kissing gouramis? Or perhaps all sorts of barb, such as the beautiful *Barbus tetrazona*, *Barbus hexazona*, and several others? Or does it contain a collection of rasboras like *Rasbora taeniata*, *Rasbora maculata*, *Rasbora pauciperforata* and *Rasbora elegans* or even the little fish that is often called the "flying barb," *Esomus malayensis*.

It is rather a heady experience to be so near to the home grounds of the fishes you have nursed for years and years. Here is where they actually do their spawning. Here is where they live out their lives. You find yourself wondering



who dumps methylene blue and malachite green into their water to cure them of all their various "vapours and pips"? Who assures just the proper spawning

Photos: (Top) "Kong" plant, as mentioned in the article. (Below) Teo Teck Hiang, curator of the Van Kleef Aquarium in Singapore.





conditions? Then you realize that you are the foreigner here, not they, and that this is the habitat to which they are adapted. They don't need help here. I even started to think, for just a brief whisper of time, that perhaps it is rather a pity to take them out of all of that tropical loveliness and confine them to tanks where they do need all outside help.

They probably do require as little of this assistance in the huge tanks of the Van Kleeef Aquarium as anywhere. Their aquariums run from a tiny 13-gallon to a gigantic 200-gallon, depending upon the size of the fish that they are to "fit." And the fishes that are "fitted" into these containers are divided between 40 fresh water tanks and 30 salt water aquaria. There they sit on display for the 243,816 people who view them each year since September 19, 1955, when first opened.

It is a great education, especially to avid aquarists, to see native Malaysian

fishes broken down into two categories in two of their tanks. One is called the "Singapore Polluted Stream Fishes" and the other the "Singapore Forest Stream Fishes." In the first tank dwell guppies, *Anabas testudineus* (climbing perch), *Tilapia mossambica*, and *Trichogaster pectoralis* (snakeskin gourami). Conceivably, by taking their native habitat into consideration, the best way to simulate the natural conditions in which these fish live is to dump a bucket of yellow mud into their tanks. Although it is not evident upon dissection, the only possible way that these fishes could see where they are going must be by either sonar or radar.

The second aquarium, that of the forest stream fishes, had a healthy showing of various barbs such as *B. pentazona*, *B. lateristriga* and *B. binotatus* with *R. maculata* and *R. heteromorpha* representing

Photo: A typical view of Singapore—fortunately without the accompanying smells which are also a part of the "local color."

the rasboras. *Betta pugnax* was the lone anabantoid delegate.

The backgrounds of the tanks have been done with great artistry. Palm fronds, Philodendron, various aquatic plants and rugged rockwork have all been painted right onto the concrete backing, but it has been done so adroitly that it almost appears to have a third dimensional aspect, especially when viewed through the water.

All labeling of the fishes is done in glass strips up above the individual tanks with each fish being clearly pictured, named and a short resume of its habits outlined in detail. As Singapore once belonged in "John Bull's stable," English is generally spoken (unless, of course, you insist on riding in taxis) so all legends are printed in this language. There are few things so completely frustrating as to see a strange fish about which you would love to know more and to find that fish pictured beautifully but all the information written neatly in Chinese.

It was also a most delightful surprise to find a curator who spoke excellent English. I have been in a similar situation where all we could both do was smile and bow to one another. This is a very pleasant pastime for a while but really gets neither of us anywhere.

Teo Teck Hiang is a very suave young man and a very erudite one too. He replaced Alec Fraser-Bruner as curator in August of 1964, after he (Hiang) had served on their temporary staff for some time and had received his degree at the University of Singapore. One of the reasons that he likes this type of work is that, as he relates, "So many unexpected things happen all of the time." This sounds like verse and chorus of a day in the Life of an Average Aquarist. We, too, have "unexpected things" happening



Photos: (Top) Main entrance and ticket booth of the Van Kleei Aquarium. (2nd) Another view of Singapore—a fascinating city to visit. (3rd) A tank in the Van Kleei Aquarium showing how the backgrounds are painted on the back of tanks—most realistic. (4th) Mr. Hiang in his laboratory researching parasites in fishes.

AUGUST, 1965

all the time . . . ick, leaky tanks, air going off, heaters failing . . . if nothing else, the appeal lies in keeping oneself on one's toes. One will never get old and sedentary being an aquarist on either a large public aquaria scale or a small home tank one.

Teo Teck Hiang is involved with doing experimental work on both fresh and marine parasites and particularly on that little monster we refer to as "ich." Apparently progress is slow but I told him if he ever made any overwhelming discoveries to be sure and flag me down immediately on one of my trips to Singapore.

Stateside aquarists often brag copiously about their "huge pair of giant gouramis." Now, of course, the fish to which they usually refer is *Colisa fasciata* but in a tank in the Van Kleef Aquarium is a fish that *really* could be called the giant gourami and nobody would disagree. *Osphronemus goramy* is, of course, the

only true "gourami" and by its size nobody is going to question the fact that it is a leviathan amongst gouramis. You read in aquarium books where this fish gets to be 2 feet in length . . . but then you see these little 2 to 3 inch gems that come into your friendly neighborhood dealer, to remain stunted by the smaller aquariums, you think, "No, it *couldn't* be!" It just seems to stagger the imagination that this fish could ever reach such a herculean size . . . it does until you actually see some of these fish which were caught wild. This is a fish that could make a meal . . . and for a large family!

One of its favorite foods that apparently helps it attain this breadth and girth is rather an attractive little semi-water plant, called "Kong" in Singapore. These soft bulbous plants are put into the tanks and the fish nibble on them delightedly until they are no more. It is not only *Osphronemus goramy* that eats them . . .



PROGRAMS



Readers and societies are invited to submit ideas to The Journal for Aquarium Society meeting programs, includ-

For information regarding the following TIFAS society programs, write to Mrs. Carol Schultz, R. R. 2, West Montrose, Ontario, Canada.

DEVELOPMENT OF THE ZEBRA EGG Time lapse photography of the development of the Zebra Egg. 16 mm black and white film and recording (25 minutes).

BREEDING OF THE ANGEL FISH Shows the methods of raising Angels, both natural and artificial. 8 mm color film and recording (20 minutes).

THE AQUARIUMS Showing the birth of livebearers and egglayers, breeding habits of Cichlids and bubble-nest builders, betta fighting, etc. 16 mm color film (25 minutes).

THE SUNFISH The spawning of the Sunfish whose habits and methods are much the same as those of the Cichlids. 16 mm black and white sound film (11 minutes).

SALT WATER FISH SETS No. 1, No. 2 and No. 3. These discussions on salt water fish are the best yet provided to those interested in this stage of the hobby. The photography is outstandingly good and certainly the brilliantly colored fish will take your breath away. 35 mm color slides and recording (36 slides in each set).

SHOW AQUARIUMS. The show slides of the Southern Tier Aquarium Society of Binghamton, New York. The lecture material accompanying this

ing lectures, slides, films, demonstrations, etc. There is no charge for these listings.

set demonstrates the proper method to use in photographing aquarium and fish. 35 mm color slides and lecture material (35 slides).

LIFE IN A POND The slides provide an excellent program and are very instructive. 35 mm black and white slides and lecture material (40 slides).

WATER PLANTS The narration is done to provide maximum information. Shows many of the plant life growing along and in streams and ponds. Delves into the stem and root structure and describes types of reproduction. 35 mm black and white slides and lecture material (51 slides).

HYDRA AND OBLIA Describes all structures and methods of reproduction. A most excellent study. 35 mm black and white slides and lecture material (38 slides).

GREAT BARRIER REEF The accompanying narration and the slides provide a very complete discussion of the Great Barrier Reef which abound in marine life. 35 mm color slides and lecture material (27 slides).

SEASHORE PLANTS AND ANIMALS The slides and the printed narration provide a very complete story of the plant and animal life found on the seashore. 35 mm color slides and lecture material (25 slides).

LIFE IN PONDS Showing the different forms of life found in the different areas of a pond. 35 mm color slides and lecture material (33 slides).

many of the other fish-citizens at Van Kleef do too. This plant is not softened in any way, such as we do spinach or lettuce by boiling, it is simply dumped into the tanks and the fish take it from there.

To supplement this local vegetable, Van Kleef fish are also fed a variety of the meaty foods — beef, cuttlefish, prawns, tubifex and dry food. In addition the 35-foot collecting boat, which goes out twice a week, brings back, not only specimens for the aquarium, but live food to feed the existing ones as well. Incidentally, all of the marine fish on display here are local. None are imported, but then why would they be with such a wide variety in Malayasian waters from which to pick and choose?

Two oddities that I saw in this State of Singapore operated aquarium . . . one was an albino *Botia modesta* and the other was a marine tank in which a *Tilapia mossambica* lived with an octopus as his room mate. I had known, of course, that tilapia could be converted over to straight sea water, but somehow I just had never thought of them sharing quarters with an octopus. It just seemed as though somebody had blundered into somebody else's "room" somehow.

CLUB NEWS

San Francisco Aquarium Society, Inc.

The August meeting of the S.F.A.S. was held Thursday, August 5, 1965, at Steinhart Aquarium, California Academy of Sciences, at 8:00 p.m., according to Frank Tufo, President.

Dick Law presented a program about goldfish, showing many of his prize color slides, Charles Bange gave a talk on spawning catfish, according to Jim Crawford, Program Chairman.

There was the usual fine selection of door prizes — and incomparable potables by Joe Zins and his Refreshments Committee. ◀

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for a fish the identity of which is uncertain but may well be the same as the fishes placed in the genus *Anthias* by modern ichthyologists. The name *furcifer* was derived from the Latin *furca*, meaning fork, and *fero*, I bear; this indicates simply, "I bear a forked tail".

Paranthias furcifer is a member of the seabass family Serranidae and is now commonly referred to as Creole-fish. This unusual beauty is too seldom displayed in public aquaria. It has found its way alive to Seaquarium only three times during our nine and one-half years of operation.

In May, 1963, one seven-inch specimen was taken on hook and line from a

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Hair Dryer

If you have a tank that leaks, you can hasten the drying of the tank, after you have washed it clean, with the use of a hair dryer. Set the the dryer on hot. Blow hot air into the corners with the dryer hose. This will hasten drying of the tank and you can start applying a sealant sooner. — *Myra Reineking, Sheboygan, Wisconsin*

CLUB NEWS

South African Aquarists Association

The S.A.A.A. will hold its 1965 International Championship Show in the Selborn Hall, Johannesburg, South Africa, from Nov. 15 to 20, according to W. C. Jones, Show Chairman. There will be no entry fee charged for overseas exhibits, but exhibitors will be expected to pay all airfreight charges to South Africa, Mr. Jones said.

depth of 125 feet off Miami Beach. After being kept for six months by its captors, the fish was donated to Seaquarium. Here it was displayed for an additional six months. During this time positive identification without dissection seemed impossible. We knew its end would come all too soon, and preferred to have thousands of visitors enjoy this beauty in its aura of mystery. The fish was labeled merely, "an as yet unidentified and possibly new species." That it might be a stray normally not found in this locale was also taken into account.

A second Creole-fish was caught in December, 1963, from a depth of 110 feet off Bear Cut. This fine specimen measured eleven inches. Unfortunately, it lived only one month, but it did preclude the thought of the first being just a stray.

The third was hooked in roughly the same location as the second; it died en route to Seaquarium. All three were donated to Dr. C. Richard Robins, Curator of Fishes, Professor of Marine Science, University of Miami Marina Laboratory. Working back to the original 1828 French writings, Dr. Robins made the final identification. Valenciennes' body form and color descriptions fitted perfectly, but seabasses are notoriously unreliable in color and frequently change patterns spectacularly. The clincher was the large number of gill rakers, associated with the groupers' habit of feeding on plankton to some extent.

A fourth Creole-fish was caught near Fowey Light in twenty feet of water by the father of a Staff Diver. Upon his arrival at home one evening, he was horrified to find his father happily fileting his prize for dinner. C'est la vie!

In March, 1965, the third *live* specimen reached Seaquarium. This one, too, measured eleven inches. The aquarium in which it lives contains the lookdown, *Selene vomer*; sand perch, *Diplectrum formosum*; and longspine squirrelfish,

Holocentrus rufus. The latter are red in color and it was hoped that this color match might help the Creole to adjust to its new environment. There was no fighting, which often occurs among many species, upon introduction of this single new specimen, and it readily found a niche in the rock wall in which to live. Whether color had any bearing, or not, one can only guess. Within five days, the new arrival was feeding upon pieces of fish file.

Once again, thousands of people are enjoying this seldom seen, lovely fish. An interesting point is that once an odd, unusual, or unnoticed creature is brought to light, it often reappears with increasing frequency. There is little doubt, in fact, it is my sincere hope, that such will be the case with the Creole-fish. They are definitely there, in both Atlantic and Pacific Oceans, just waiting to be caught. They need only to be seen in an aquarium to be appreciated as one of the finest of marine displays. ◀

Kissers

(Continued from Page 400)

another. The young do not 'kiss' either, until about 6 to 8 months old." I asked him how he could tell the difference between the male and female visually, since they had both appeared identical to me. His answer was, "The top dorsal fin in the male is noticeably longer." Further questioning disclosed some valuable information that would be of worth to those aquarists contemplating the addition of *Helostoma temmincki* to their aquariums.

1) Water temperature is to be kept at about 78°, a few degrees warmer perhaps but definitely not colder.

2) The water should be kept a little acid, about 6 to 7 pH.

3) Feeding is best with tropical dried food, cooked shrimp, and occasionally finely chopped spinach. Ground oatmeal can be given to the young fry.

AUGUST, 1965



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4) It is not a good idea to put them in a community-tank since they have the nasty habit of rasping the scales off other fish in the tank.

5) Unless the tank is large it is advisable to remove the female after she spawns since she may tend to disturb the male which has the responsibility of guarding the nest.

I was tempted to stop at this point for my questions had been expertly answered, but I was led to do further research on the matter. I searched through material by Breder, Tavalga, Cuvier, Valenciennes, Jordan, Norman, Weber & de-Beaufort, Sterba, and Aronson. The following is a short summary of some of the more important facts about *Helostoma temmincki*.

There seems to be a great diversity of opinion as to the distinction of the word gourami, goramy, or gurami, both in the correctness of spelling and in its application to certain fishes. The kissing gourami belongs to the family Anabanti-

dae (some, for example Liem, place it in the family Helostomatidae) and the species name is *Helostoma temmincki*. The first known description of this species is attributed to M. le B. Cuvier and his aid M. Valenciennes in their book *Histoire Naturelle Des Poissons*, 1831. The several authoritative sources were generally in agreement that *Helostoma temmincki's* natural habitat was in the rivers of Java, Borneo, and Sumatra. It was stated that they had been recently introduced into the fresh water rivers of Ceylon also. Courtship of these naturally likeable little fish involves such various actions as following each other, chasing, swimming to the nesting site, backward swimming, mouthing, nipping, erection of fins, and other unusual behaviour. In their breeding habits they are known to be bubble-nest builders and perform an embracing ritual wherein the eggs are deposited in the nest. They are herbivorous fish with moveable teeth, but have been described as being "omnivorous" (the indiscriminate, greedy, habit of eating food of all kinds) by Dr. Gunther Sterba in his book *Freshwater Fishes of the World*.

There are several theories as to why *Helostoma temmincki* kisses, but actual scientific proof seems to be lacking. As L. P. Aronson states that assumptions are often made about the nature of aggressive and reproductive behaviour without adequate evidence about what is actually taking place. Three main theories seem to be: 1) That kissing is an aggressive

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CLUB NEWS

Greater Atlanta Aquarium Society

This brand new group, known as G.A.A.S., is now holding meetings on the first Thursday of the month at 8 p.m., on the 6th floor conference room of the Peachtree Palisades Building, 1819 Peachtree Rd., according to Edwin C. Symmes Jr., Secretary. Mailing address: P. O. Box 13212, Station K, Atlanta, Ga.

action derived from the formation of territories and social organizations. 2) That it is an act of courtship and/or presexual behaviour. 3) That it is merely a habitual play trait, characteristic of other fishes also. A more recent suggestion claims that it may possibly be a method by which the fish remove tiny parasites from each others mouths. An extensive research in the future may finally solve this mystery; until that time, however, this strange little ritual remains the secret of *Helostoma temmincki*.

Well at least I can finally say that my inquisitiveness has now been satisfied — or has it? I still don't know why kissing gourami "kiss" each other. ◀

Standards

(Continued from Page 393)

frequently proportions, or ratios, are more useful. A fin may be described as one-half of body length in length and two times body depth in width. In this way fish with body lengths of four inches and two inches can still be compared.

Color descriptions are more difficult to describe but terms such as iridescent, velvety and satiny are fairly objective. Describing colors has generally been avoided in standards but the use of standardized color charts, such as those used by artists or those used by horticulturists, could form an objective reference for color names.

Form, both of fins and body, can occasionally be described verbally if reference can be made to well known geometric shapes such as triangles or circles. If the forms do not lend themselves to verbal description, a diagram is frequently the answer. A carefully drawn diagram of an ideal specimen of the breed answers many questions raised by obscure wording.

Generally, the finished standard should consider the following: fin color, fin form (shape), fin length, body color,

body form, body length, eye color and deportment. A verbal description should elaborate on what is desired of each of these items and a list of disqualifications given. A clearly drawn line diagram of the ideal specimen should also accompany the standard.

In the final analysis, the success of the standard must be judged on the basis of its acceptance by breeders, societies and judges. This success is frequently dependent on the availability of the standard to these groups. For this reason publication in a national magazine is desirable. ◀

CLUB NEWS

Tropical Fish Hobbyists of Dallas

The T.F.H.D. will host the Federation of Texas Aquarium Societies on August 27, 28 and 29, 1965, according to Mrs. Jerry Head, Chairman of the Convention Committee.

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From: Paul R. Vegoda
Dayton, Ohio

About six months ago I purchased two young *Astronotus ocellatus*. I am sure that I don't have to describe to you the pleasure I derived from watching these two beauties grow. Their rate of growth seemed astonishing for a while, but for the past month it seems to have tapered off. One fish is almost twice the size of the other. I have recently noticed two facts about the smaller fish which have

From: S. Sgt. J. S. Duffy
Nashville, Tennessee

I am writing to you to try and find out something about the opaline gourami. My mated pair spawned April 12th and hatched April 13th and I still have over a hundred of them now. From what I can find out they are supposed to be hybrids, a cross between the blue three spot gourami and the pearl gourami, and are supposed to be infertile. I have checked all kinds of books and have yet to come up

Letters to the Journal

caused me to write this letter. First, I noticed that the smaller fish started to miss pieces of food that were falling past him. Whereas before no food ever reached the bottom, suddenly he would miss these pieces of food by over an inch. I have noticed that an opaque film is growing over his eyes. The second problem is that when he does manage to get some food into his mouth, he immediately spits it out. I have been unable to find either of these conditions listed in any book that I have available to me, and I wonder if you can shed some light on the subject for me.

REPLY: You had better isolate the smaller fish. I cannot tell what may be wrong with it, however, I can assure you that it won't last long unless it is fed live food and treated for possible eye fungus with argyrol. See page 201 of April '65 issue for comments on the use of this silver compound for eye disease in fishes. Any fish that cannot swallow food that gets in its mouth will be difficult to save. The causes could be many, from some kind of neurological derangement to a physical object obstructing the esophageal apparatus or a bacterial infection.

Join the S.F.A.S.

with anything about them. Please give me any information that is available.

REPLY: It is difficult to know for sure which gourami you refer to when you say opaline as I have seen this term applied to the beautiful "moonlight" gourami (*Trichogaster microlepis*), and to the Cosby gourami, a form of *Trichogaster trichopterus*. There are several forms or varieties of the three spot gourami, *Trichogaster trichopterus*. These are (1) the "regular" three spot gourami, (2) the blue gourami (sometimes called the Sumatra gourami), and (3) the Cosby gourami, which is a sport (mutation) of either the blue or the three spot. It could actually have both blue and three spot in its ancestry. At any rate all these forms belong to the same species and all are very fertile when bred to their own color forms or to the other color variations.

From: Milton Knobler
North Hollywood, California

The January 1965 issue of *Aquarium Journal* was interesting from the very first page, and when I reached the column "Letters to the Journal," I received quite a surprise.

A reader of the publication, Joseph S. Presha, was seeking information pertaining to statistics, performance and quality ratings, and price comparison of various aquarium equipment. In reply,

one of the statements made, is that the writer of the column has a piston type pump purchased in about 1936. Then, the variety of this type of pump was not plentiful, and therefore the selection of a choice was quite simple. The average small pump retailed for approximately \$20.00, and I assume the writer has one of these. However, they did not produce as much air as present day piston pumps do. His remark is that it is still usable (but not without a lot of noise), the following is probably where the noise emanates. Worn motor bearings; the common construction in the motor itself, is to use bronze sleeve type bearings. Eventually, through use, the inner diameter of these bearings become larger, the motor shaft becomes smaller now due to an eccentric rotary motion,

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Neo-Prontisil

I observed that my large catfishes had trouble navigating because their eyes were swollen and red. A friend who had had similar problems with some of his tropic fish suggested that I apply a medicine, "Neo-Prontisil," to the eyes of my catfish. He stated that the results he had with the medicine were excellent. I then isolated the catfish in a separate tank because Neo-Prontisil contains a very strong red dye which would discolor the water in the community tank. I gently dabbed both eyes of the fish with the medicine, while holding him very gently in my hand. Three applications were made, once every twenty-four hours. Results: clear, sharp eyes and excellent navigation. Neo-Prontisil may be obtained from most veterinarians. — *John T. Gorin, Santa Maria, California*

creating what is termed as a "sloppy fit." We are speaking in thousandths of an inch, which is far in excess of the one-half thousandth of an inch total tolerance, which is standard bearing and shaft tolerance for this type of application. This condition is a contributing noise factor. A similar condition of bearing and drive pin on the larger pulley, scored walls inside the cylinder, improper angle adjustment of those pumps which use an adjustable cylinder are also common causes of noise.

It may be of interest for you to learn that I was responsible for promulgating the importance of the amount of air which a piston pump developed, i.e., the cubic inch displacement of air, rather than the pressure which was obtained. With the introduction of the pressure tank, one was led to believe that because the standard stock pressure gauge which was graduated from zero to fifteen pounds was used, that if a pump connected to it did not develop fifteen pounds, it failed to meet the test. This fallacy was brought to the attention of many by and through my efforts, salesmen, retail merchants and customers alike. To discredit this misleading opinion, I would offer as proof the fact that a human being could cause air to emit from an air stone by merely exhaling through the connecting tubing which had an identical pressure gauge in the line for measurement of the

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The Aquarium Journal

Back issues of the Journal are valuable and are in constant demand at 40c each. However, we are overstocked on some issues and to move them we offer 12 back issues (our selection, all different) for \$1.75, or 24 issues (all different) for \$2.95.

THE AQUARIUM JOURNAL
Steinhart Aquarium

San Francisco 18

California

pressure so exhaled; and furthermore suggested that anyone who doubted this statement to be anything but true should be the participant in the demonstration. In doing so, he was amazed to learn that he had exhaled only three to four pounds of air and had produced bubbles of air in a tank of water 20 inches in height. Today, that which I promulgated, cubic inch displacement of air rather than that of pressure, is an accepted standard in the industry.

Research in the tropical fish industry as to the availability of information for comparative purposes, and the development of more scientific and useful equipment, is and has been lacking. Based on the annual dollar volume the industry

CLUB NEWS

Greater Pittsburgh Aquarium Society, Inc.

The June meeting featured a jar show of guppies, along with a Neptune Special Raffle — with refreshments by Liz Rowland, and was held at the Buhl Planetarium, Federal and Ohio Sts., North Side, Pittsburgh, Pa.

Blackhawk Aquarium Society

The B.A.S. will hold their Sixth Annual competitive fish show on Sept. 11 and 12, 1965, at Blackhawk State Park, Rock Island, Illinois, according to Curtis Carlson, Publicity Chairman for the event.

The Fireside Aquarium Society, Inc.

The following officers were elected and installed for the year 1965: Russell Gallini, president; George Gula, vice president; Norma Duffy, treasurer; Virginia Parker, recording secretary; Joan Gallini, corresponding secretary; Norma Roberts, membership secretary; Theodore Roberts, Northeast Council delegate, and Russell Gallini, N. C. alternate delegate, according to Mrs. Gallini.

represents, this is anything but true. I, personally, have this information of reference material on equipment for aquarium use which will be released in due time. This data was one of the requirements so that I could develop several items. These include a single piston air pump for aquarium use, of which a model had been tested for four and half years. It will produce 50% more cubic inch displacement than the most powerful twin piston pump. If and when it is mass produced, it will retail for not much more than you paid for yours almost thirty years ago, and considerably less than the price of twin piston pumps which are available today.

Many of the items which I have designed and developed, and others which will go to the drawing board shortly are what I term to be of a "revolutionary" nature in that they are not "carbon copies." The industry needs new ideas, new products, modifications and improvement of "taken for granted" items. The retail merchant requires merchandising aids, not in the sense of window streamers, manufacturers literature, counter displays which praise a product; but informative knowledge at his "fingertips," which he is unable to obtain unless he compiles them by his own efforts. *This* is what the ultimate consumer wants, and there are many such as Joseph S. Presha. ◀

CLUB NEWS

Aquarium Society Notes

A new aquarium group has been formed by the following: Cindy Riley, Cindy Rolfe, Mrs. Bach and Mr. Bach. In their handwritten letter, it was stated that they "enjoy the *Aquarium Journal* very much — and hope that this fact would be published" in the magazine. It was — and just in time! ◀