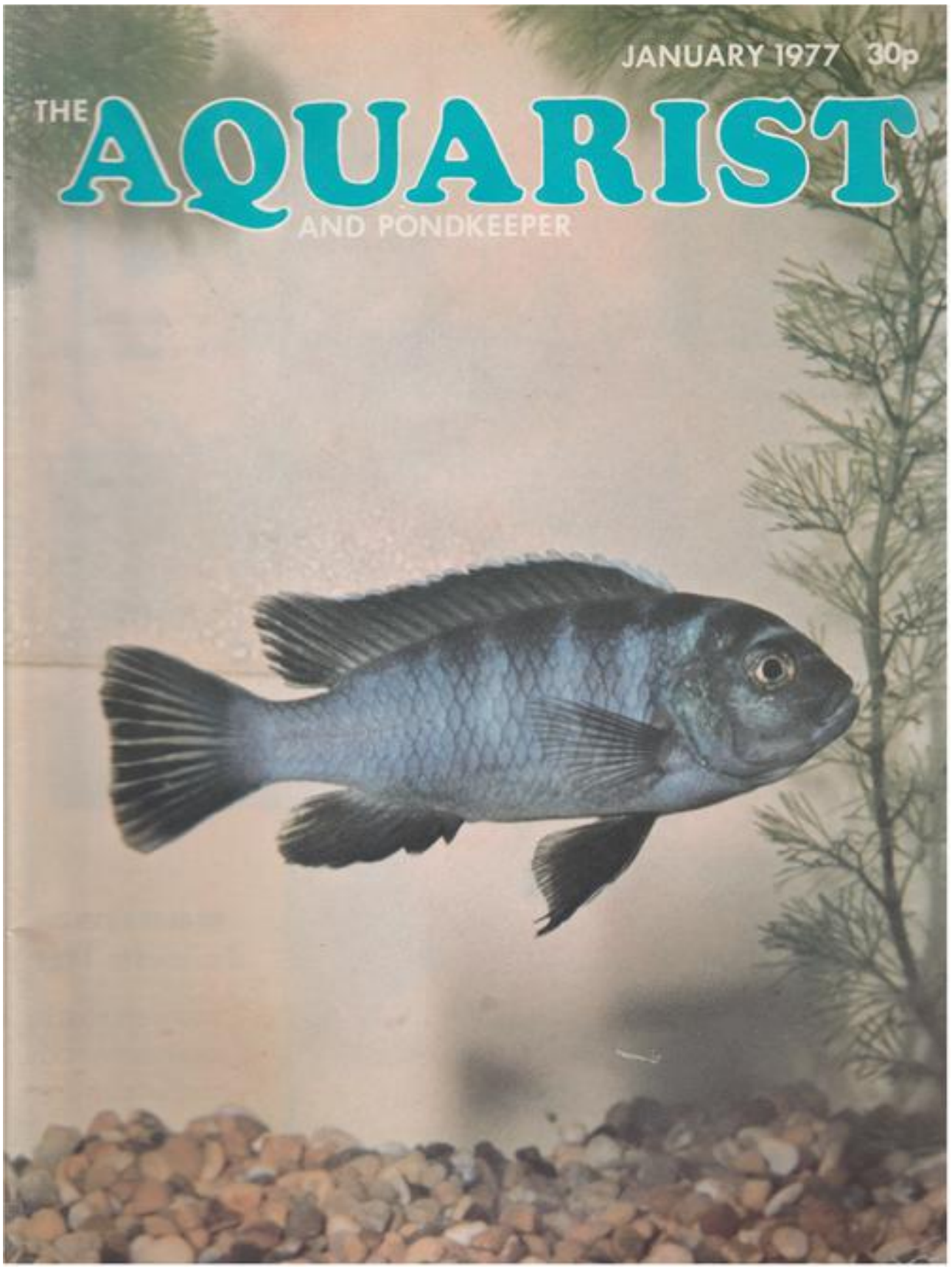
JANUARY 1977 30p

THE AQUARIST

AND PONDKEEPER



THE AQUARIST
AND PONDKEEPER

The Aquatic Magazine with the Largest Circulation in Great Britain

Published Monthly 30p

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J. E. Young

Our Cover:
Pseudotropheus zebra

Cichlasoma severum

by Jorgan Hansen & Pamela Stewart

Cichlasoma severum is a free spawning monogamous cichlid from South America, where it occurs in the northern Amazon basin. It was caught for scientific study as early as 1840 and was first described by Heckel as *Heros severus*. Later the name was changed by Regan who in 1905 described it under its present name. Regan showed further in 1906 the possible connection between the different genera of South American cichlids. The *Cichlasoma* genus is easily distinguishable by the presence of at least four spiny rays in the anal fin. From the *Cichlasoma* genus six independent lines lead further to other cichlid genera.

It is not hard to imagine that the genera *Pterophyllum* (angel fish) and *Symphysodon* (discus) are on a line of development leading through *C. severum*, as fish from these genera have, amongst other things, a body form similar to *C. severum*. It is, for example, difficult to distinguish between two-month old young of *S. discus* and *C. severum*. The term "false discus," which is a favourite expression for *C. severum* young amongst aquarist dealers, stems from this likeness.

Specimens of *C. severum* caught in nature have had a stomach content of green algae and chewed plant material. In nature feeding condition varies with the seasons. In the rainy season, which lasts from May to September, caught specimens are in fine condition and the reproductive organs are visible in many, which could indicate that the rainy season is also the breeding season. In the dry season, where food is scarce, the fish are less well-nourished, wherefore it will be difficult for them to produce eggs and even more difficult for the fry to survive.

Both male and female grow to a size of 25 cm. and have a plate-formed body, which is a little longer than high. The basic colouring is brown to olive-green with up to seven perpendicular bands of an almost black colour. The second last of these bands connects a black spot in the bottom hindmost part of the dorsal fin with a corresponding spot in the upper hindmost part of the anal fin. When the fish is of spawning age the body colouring becomes lighter and at the same time almost the whole body and head

becomes studded with a number of violet spots of about 2 mm. in diameter. The eye can vary in colour from dark violet to a strong luminous red.

The fin ray count is as follows:

	Spiny rays	Soft rays
Dorsal fin	XV-XVII	13-14
Anal fin	VII-VIII	12-14

We obtained our *C. severum* in two lots. First an aquarist friend came with a single fish which he didn't know what to do with as he already had a pair in his only tank, and these were making life unbearable for the odd man out. Some months later another acquaintance came with a further three half-grown *C. severum*, which we placed together with the first one. During the course of the next couple of months we fed the fish with *Daphnia*, snails, fish balls, shrimps, ox heart and duckweed. Their tank was of 100 litres, that is, somewhat on the small side for such large inhabitants, but all our other tanks were already fully occupied. A large sword plant, behind which the fish could hide, stood in the middle of the tank and on the bottom lay some large pieces of slate. Furthermore a large piece of slate was placed against the one side glass. The fish had thus several spawning sites to choose between.

After this couple of months' feeding, two males and one female could be distinguished. The two males measured about 20 cm. and the female 12 cm. at this time. Both males fussed about the female so much that they hardly had time to fight over her. In order to encourage a spawning we removed one of the males and the extra fish to a tank for themselves; it was also possible that these might also have got together and formed a pair, although there was nothing to indicate this possibility.

As soon as our decided pair were alone, they began to cleanse the farthest corner of the tank. All the pebbles and gravel were moved into the middle of the tank in a large untidy heap. They lost interest in the nice large piece of slate leaning against the side glass just beside their corner, after finding that they couldn't manage to remove it too. The male's genital papil and the female's ovipositor were both in evidence, and the belly colouring of both was pale yellowish. Apart from the size and the visible reproductive organs there was no apparent difference between male and female. We noted the following:

2-1-76. In the course of the night about 200 eggs have been spawned on the back glass. The eggs are brownish-yellow, sticky and about 2 mm. in diameter. They have been placed on the area of aquarium bottom which the parents cleared of gravel. Both parents tend the eggs and fan fresh water over them. The water temperature is 26°C, the hardness is 14 DH and the acidity pH 7.

3-1-76. Early morning. None of the eggs have hatched yet, neither have any fungused. The female apparently guards the eggs most, and occasionally drives the male away.

4-1-76. All the eggs have disappeared. The female appears a bit ragged and hides, while the male seems to be guarding something in the hole the fish have dug, although nothing can be seen. Neither of the two touch any food offered them.

5-1-76. The fish eat normally but fight a bit.

Afterwards came a period of almost six weeks where we tried to feed the fish according to the same schedule as before. Eventually 44 days after the previous spawning eggs were discovered on the same spot as before. This time the notes are very short and sad.

14-2-76. Both parents tend the eggs.

16-2-76. The eggs have been eaten.

We now separated the fish by a piece of glass along the centre of the tank, so that the female could not be mistreated. A week later we removed the sheet of glass, and the fish then began immediately to cleanse their usual corner. As the eggs were again eaten we determined that we would remove the next batch. In order to prevent the eggs being spawned upon the back glass, we covered the usual spawning area with a piece of slate.

5-4-76. Eggs have been spawned upon the slate. We immediately cleaned out a small glass tank and filled it with clean water.

6-4-76. We moved the slate with eggs to the small tank, which was gently aerated. A few eggs have fungused and have been loosened with a sharp pin and removed with a small pipette.

7-4-76. The eggs have hatched but are still hanging to the slate. At the top of the head is a small gland secreting a sticky substance which secures the fry to the slate.

14-4-76. The fry are swimming freely and are fed with *Artemia*.

Unfortunately almost the whole of this brood perished, as we fed with *Artemia* a day too early, which resulted in a layer of slime on the bottom of the tank. Bacterial growth in this layer was more than the tender fry could cope with. The pair spawned on the slate again, however, after ten days; we removed the eggs and this time all went well. The fry's growth was very rapid and after having fed with *Artemia* for two weeks we were obliged to offer larger items such as *Cyclops* and small *Daphnia* and, after two months, mosquito larvae and large *Daphnia*.

C. severum is a very shy fish which can behave in a completely hysterical fashion if the tank for one or another reason does not suit it. If comfortable and secure, however, then it will behave worthily, and often hover close to the front glass as if to find out what is actually happening on the other side of this peculiar hindrance.

We can recommend this cichlid only to those aquarists with a tank of over 100 litres at their disposal but, on the other hand, these can be sure of the pleasure of owning some really fine fish.

THE FAMILY GOODEIDAE

by Bob Purdy

THE FAMILY of small livebearing fishes collectively called Goodeidae have long been known to aquarists. Unfortunately, they have never achieved the popularity of the better known livebearers and are, today, something of a great rarity in aquariums around the world. The first recorded instance that I can find of members of this family being kept as aquarium fishes was in Germany (where else?) in the year 1914. Unfortunately, descriptions are a little vague and the results of attempted breedings were very discouraging.

The fishes of the family Goodeidae belong, along with all other livebearing toothcarps, to the super family Poeciliicae and although this means that Goodeidae are closely related to such species as Guppies, Swords and Mollies there are two very great differences which set them apart from all other livebearers.

In all other representative species of livebearing toothcarps the female fish simply provides a cavity in which already fertilized eggs can grow and develop in safety. In theory, once the eggs of these species have been fertilized they will develop into fry without any further physiological aid from the mother. When the eggs hatch the young are ejected into the outside world to fend for themselves.

Females of the species that belong to the family Goodeidae go one very important step farther than any other livebearers. Although these females provide protection for the fertilized eggs within their body cavities they also actually nourish their young offspring by means of small, ribbon like tubes reminiscent of the umbilical cords of mammals. Because of this motherly action, the Goodeidae can be said to be truely viviparous and not oviviparous as all other livebearing toothcarps are termed.

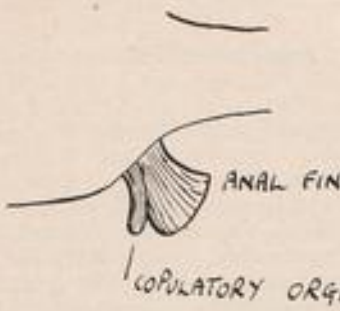
Although this interesting phenomenon cannot be directly observed by the average aquarist the results of it are more than obvious. Females of this family have a gestation period of six to eight weeks in most cases, this being almost exactly twice as long as the gestation periods of the more common female livebearing toothcarps. The eggs of Goodeidae hatch out a long time before the females give birth and careful observation of the females' gravid spot will be rewarded by the sight of "very much alive" youngsters. Some accounts that I have read claim that the young fry can actually be seen to swim around within their mother's body cavity but I must admit that, as yet, I have failed to observe this.

As a further result of viviparity the young, when born, are much larger than would normally be expected. Although their numbers will rarely exceed twenty to thirty in a single brood, the newly born fry are so much more advanced in growth than normal livebearer fry that their survival rate, even in the wild, is much better than that of their less fortunate cousins. What this means is, in fact, that young Goodeidae are an even easier prospect in the aquarium than young Platties or young Guppies etc. and a good aquarist should have no difficulty in raising a whole brood to maturity. The young, if fed well and kept in a temperature near eighty degrees fahrenheit, will grow at an exceptional rate and will soon be ready to reproduce themselves.

Apart from the fact that females from this family are capable of internally nourishing their young, there is another aspect of reproduction which makes their breeding methods resemble those of mammals even more closely. In all the more commonly kept species of livebearing toothcarps and, indeed, in all other families of livebearing toothcarps, the females store sperm and are capable of producing up to five or six broods from only one mating. Female Goodeidae, in exactly the same way as mammals, need to be re-fertilized after each brood is born in order to produce further broods. Because of this aspect of mating, it is much easier for the breeder of Goodeidae species to breed a desired male to a specific female and there are no particular reasons for trying to secure virgin females.

The second and most obvious aspect that makes

these fish different from all other livebearing toothcarps is to be seen on the males. No male Goodeidae possesses a gonopodium and this organ is, in fact, completely lacking. I know of at least one competent aquarist who, on being presented with a pair from a Goodeidae species, immediately classed them as egg layers and had the shock of his life, some time later, when the female gave birth to a brood of young fishes.

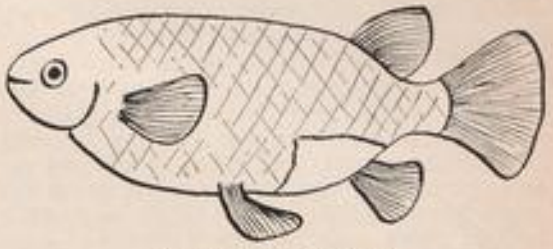


The males do, of course, have an organ that performs the same function as that of the gonopodium. The organ, however, is not very noticeable and is an integral part of the anal fin (see diagram). An organ similar to this can be found on males of the genera *Dermogenys* and *Normarhamphis* (the halfbeaks) but as these are not true livebearing toothcarps from the sub order Poecilioidea, the Goodeidae males remain unique in this respect.

According to the available literature, the family Goodeidae comprises four sub families containing between them six genera, *Characodon*, *Ilyodon*, *Lermichthys*, *Neotoca*, *Limnurgus* and *Goodea*. Although this information is gleaned from Jacobs' excellent book "Livebearing Aquarium Fishes," I don't think it is complete as I have definite evidence of two further genera, *Xenotoca* and *Ameca*, and there may even be a third. The genus *Goodea* and, of course, the family name Goodeidae were used to honour Professor George Brown Goode of the Fish Department of the U.S. National Museum from 1851 to 1896.

Practically the whole of the family is indigenous to the highlands of Central Mexico with only two species found outside this area as well. There is a report of one species, *Limnurgus innominatus*, commonly called the Armarillo and only measuring up to three and a half inches, living in large lakes and providing a substantial amount of food for the local inhabitants. All the other species are reported to inhabit fast flowing mountain streams which almost dry up in the summer season and become roaring torrents when the rains come. Of the Goodeidae species that I have kept none have exhibited any sort of preference for a particular kind of water composition. I can only assume that these fish are not troubled by water conditions and will thrive in hard or soft waters equally as well. This assumption is substantiated by my experiences with the four species that I have so far managed to obtain.

The first species that I came into contact with was the delightful and mysterious *Xenotoca eiseni*. It apears that about a dozen members of this species were smuggled out of Mexico around four or five years ago and although this species now seems to be the most commonly kept Goodeidae in Britain today, all of these fish have descended from the original twelve.



Xenotoca eiseni (female)

Xenotoca eiseni is a most colourful fish; it has a bright orange caudal peduncle and a blue sheen along the sides. The male is more intensely coloured than the female but the female is, as usual, the larger of the two. The general shape of this fish is rather squat, with dorsal and anal fins placed well back and a rather short caudal fin for the size of the fish. The male grows to about two inches and the female to about three.

That these fish are easily bred must be obvious from the way that the species has been spread throughout the aquarium hobby, both here and in the United States. Apart from being very colourful and easily bred, *Xenotica eiseni* has a number of other desirable features as well. They are an extremely peaceful species with no apparent canabalistic traits towards their fry; they are easily satisfied with all kinds of fare, both prepared foods and live foods, and they are never shy or retiring, always rushing up to the front of the tank in order to view the activities going on outside.

The next two species are easily recognisable as Goodeidae but, so far, I have not been able to identify them satisfactorily. The first of them is superficially the same as *Xenotoca eiseni* but the colour is more drab; they are smaller in size and a fin and scale count shows a more than normal variation. The shape of the gravid spot on these females varies considerably from the shape of the gravid spot on *Xenotoca eiseni* females.

The second unknown Goodeidae arrived under the unusual name of *Xenoopherus captivus* but I've been unable to ascertain if this is a valid name or not.

This species is again the same basic squat shape that *Xenotoca eiseni* shows but tends to be a bit more elongate. The ground colour of these fish is a metallic blue through to green and the whole body is generously overlaid with light brown blotches. The fins are clear and the females show no obvious gravid mark. So far, these fish seem to grow to no more than about an inch and a half but it is possible that they are capably of reaching larger sizes than this.

Although the first mentioned, unknown, species is quiet and peaceful, the males of the second species have a tendency to fight amongst themselves. This species also seems to be less hardy than other species of Goodeidae, is quite prone to outbreaks of white spot disease and, on the slightest alteration of water conditions, tends to become inundated with fin rot.

The final species and, to me, the most spectacular is blessed with the name *Ameca splendens* and is, as its name suggests, the splendid fish from the river Ameca. Because the river Ameca is used for the generic name, I suppose there is a possibility that this species isn't from that river at all but it is still a splendid fish where ever it comes from.

Ameca splendens is a more torpedo shaped fish and does not possess the squat looks of other Goodeidae species. The male of this species is a basic light brown colour, spangled with bright golden spots and possessing a rose-coloured tint around the front end of the belly. A black, fairly well defined line runs the length of the fish from the gill-covers to the caudal peduncle and each scale over the back of the fish is reticulated giving a net like appearance. The anal and dorsal fins are dark grey, the dorsal fin

Ameca splendens (male)

being very large and banner like and the caudal fin, also grey, carries a broad black band with an outer edging of bright yellow.

The female is the same basic body colouring as the male but tends to carry a black blotched pattern on the body rather than a well defined line. The female is larger than the male, growing to about two and a half inches whilst the male only attains around two inches.

Goodeidae, as I've come to learn, are peaceful towards other species and usually amongst themselves, colourful, easy to keep and feed and are bred as easily as most other livebearers. To the serious aquarist they are interesting because of their very delightful behaviour patterns and unusual reproductive methods. They are, in fact, all things that a good aquarium fish should be but even with all these qualities, Goodeidae still remain extreme rarities and it can only be hoped that this failing, will be remedied in the near future.

BOOK REVIEW

Freshwater and Soil Amoebae, *by F. C. Page* (*Freshwater Biological Association*, £2·50).

Most of us began out biology culturing the single-celled *Amoeba proteus* and gazing at its extending arms of protoplasm beneath a microscope in the school laboratory. It little occurred to us what a wide range of species belong to this group. The F.B.A. have rendered a great service to teachers and misroscopists in publishing this key to amoebea identification. The 34th in their scientific publications, compiled by a specialist from the Cambridge Institute of Terrestrial Ecology, it is supplemented with useful notes on collecting and culturing in rice-grain and grass-seed infusions, soil-extracts and agar, illustrated with photographs as well as the usual line drawings of this series. It will form a useful adjunct to Kwang Jeon's 1972 book The Biology of the Amoeba.

Though many debatable species are excluded, also the purely saltwater genera, this 154-page work reveals considerable opportunities to improve the often inadequate systematics of amoebae by anyone seeking new species to name. Some amoebae live on bacteria, others, like *Thecamoeba*, with the addition of small amoebae. They are not always of aquatic origin. Some are collected from leaf-litter, soil or moss. Most shun direct sunlight; algivorous species prefer darkness.

The fear by handlers of contacting potential disease pathogens in *Acanthamoeba* and *Naegleria*, common in freshwater and soil, is perhaps unnecessary as most strains are not pathogenic and most people are not vulnerable; but hygiene is recommended when handling them. Infection would be most likely through nose and eyes. Many amoevae, of course, affect soil fertility, feeding on soil bacteria and inhibiting the nitrogen content. They fluctuate with soil-moisture, and their destruction in soil sterilization improves fertility.

Of all the amoeboid cells, etc., this key is restricted to the *Gymnamoebia*. It is essential for the book-shelf of all who dabble in microscopic water life.

ERIC HARDY.

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Ameca splendens (male)

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ERIC HARDY.

OUR READERS WRITE

Less Trade Stands and Less Tableaux

Last Saturday I had occasion to visit the International Exhibition of Exotic and Marine Fishkeeping held at the Rogier Center in Brussels, 20th-28th November.

The floor area was not as large as at the English exhibitions, but it is the difference in principles of layout that struck me as important, and which seem to merit serious consideration for possible copying in this country.

The Brussels show devoted less space to trade stands and in common with Continental shows generally, there was less commercial activity than is usual at British shows. However, the big difference was the complete absence of tableaux, and this enabled maximum attention to be given to the display of fish themselves, all in expertedly finished settings, and mostly labelled by name and geographic origin.

The result of this emphasis on fish and furnished aquaria rather than on tableaux undoubtedly presented the hobby in a much more attractive light to a prospective entrant. Organisers in this country might do well to consider how changes could be made here to derive this advantage.

Yours sincerely,
ALAN D. G. PHILLIPS,
Park Royal Road,
London NW10 7JX.

Thank You

It is with a deep sense of gratitude, that my wife and I crave space in your columns to say "Thank you" to all who wished me well during my stay in hospital, whether by card, letter, phone, or by private visit. I have come to realise that there is far more good in this world than the popular media would have us believe.

I am pleased to say that I am now on the road to a full recovery, but I would be obliged if Society Secretaries would kindly note that I will not be able to accept any engagements until June, 1977. Wishing all a Happy New Year.

Yours sincerely,
FRANK TOMKINS.
25, Kingswear Road,
London NW5 1EU.

Reliable Thermometer Wanted

Referring to the letter in the September issue by a Mr. S. J. Baker, I also tested four of the mentioned popular mercury thermometers. I found readings of 68°F, 70°F, 72°F and 78°F, a difference of 7°F. As most good books stress the importance of temperature, could you recommend an accurate and reliable thermometer?

Yours faithfully,
J. G. A. SUMMERS,
Narrie Croft,
Oakland Road,
Sandal, Wakefield,
Yorkshire.

Missing Trophies

Would anyone knowing Mr. T. Roberts, 3 Dart Avenue, Mill Hill, Tunstall, Stoke-on-Trent, please ask him to return the two trophies won at the 1975 Coventry Open Show.

The Best Fish in Show trophy and Frank Hirst trophy. Also, if anyone knows his present address, could they inform me at the following address: T. L. Emms, Show Secretary, 79 Edward Road, Coventry CV6 2GS.

SHARED LIVING!

By Hilary Maynard

My 1st is in RANCID but not in FRESH,
My 2nd is in NETWORK but not in MESH.
My 3rd is in WORMS but not in FEED,
My 4th is in AMBITION but not in GREED.
My 5th is in HUMOUR and also in FUN,
My 6th is in ARMAMENT and also in GUN.
My 7th is in TERRAPIN but not in SHELL,
My 8th is in WATER but not in WELL.
My 9th is in YOUTHFUL but not in OLD,
My 10th is in TELLTALE and also in TOLD.
My 11th is in EASY and also in HARD,
My 12th is in PLAYGROUND but not in YARD.
My last is in KNUCKLE but not in BONE,
My whole means togetherness,—never alone!

ANSWER ON PAGE 407

WHAT IS YOUR OPINION?

by B. Whiteside, B.A., A.C.P.

Photographs by the Author

MY BEST wishes to all readers for a happy, peaceful and successful New Year. I hope it will be a prosperous one for us all.

The first of this year's letters gives food for fresh thought about our hobby in 1977. It reached me from Mr. James Thompson, of 236 Glebe Green, Winsford, Cheshire. Mr. Thompson writes: "The time has come, I feel, for a fresh look at fishkeeping in the home aquarium. Persons who only keep fish for decoration will remain unmoved by my ideas; but people who love their small animals—I think of them as such—may care to think about my theories.

"I object to the dimensions of any tank in any shop. They are, all of them, incorrect as a method of keeping fishes in a happy and healthy environment, and I hope to see a change in accepted standards. I do not object to the length or breadth of a tank: the bigger the better. The depth bothers me. (Oscar owners read no further; I excuse you.) Tanks are, for most of us, far too deep. I speak for the 95 per cent of us who keep fish of three inches or under. Bigger fishes must, of course, have bigger homes. The tetras, the popular barbs, the livebearers, killifishes and so on are housed in aquaria that millions of years of evolution have not designed them for. Take a walk around any lake or pond; tread lightly and observe the shallows near the bank. See the hundreds of small fishes dart away as you approach. They are there because they: (a) like to be there; (b) there's less chance of being eaten; (c) they have their millions of years of evolution telling them that they should seek out their food where the pressure of water is the least; (d) in short, it is natural for them to be in the shallows. So what do we do about it? Most of us rush out and buy a 15 in. deep tank and put our little charges into it without realising that, above all else, they actually *fear* deep water and do not feel secure in it. I have graduated through the stages of fish keeping, making all the mistakes, learning how to breed some egglayers, experimenting and observing.

"A year ago I built a different tank. It is only 6 in. in total outside depth. Inside, set up, the water depth ranges from 1 in. to 5 in., most of it being around 4 in. Small plants thrive; that alone must prove something. Especially good growers are some of the marsh plants that usually fail in the traditional tank. My fishes pick over the sand much more than they ever bothered to do in their old tank. I believe they feel secure and can scavenge without fear. Also, they swim *along* their tank, and not up and down. I do not enjoy seeing a fish tearing vertically up and down the glass. The design is effective: it is long, shallow and sculpted to look like a section of river bed. Please do not worry about the heat not getting from one end of the tank to the other; it gets there. You just try and stop it. I have heard that argument before, and it is used by those who have never tried it.

"Please think about a shallow tank; they really are effective, and I will remain unshaken in my belief that small fishes prefer shallow water. In conclusion may I mention that my interest in small *animalculae* has extended to an intensive study of snail behaviour—weird and unbelievable, and I'd be stoned out of town if I penned my observations—and raising frogspawn to maturity and releasing the ensuing small frogs into the wild. The numbers of green frogs are dwindling (it's late), and I was trying to redress the balance a little. I brought the tadpoles up on that well-known German flake which is so expensive. I did this in a vivarium with only a ½ in. of water, plus a 'beach', and a miniature mossy woodland; so please don't try it in your traditional 15 in.

"I mentioned the snails and the frogs to illustrate that I am not rushing into a theory about shallow water being better without having given the matter some study—and, indeed, practice. I spend many hours nursing ideas into some semblance of fruition, and I reject 99 per cent of them without daring to tell anyone! One thing about a shallow tank: pay some attention to your hood and your stand. It is long and low and the whole thing should look clean and uncluttered. I do not favour aluminium hoods at the best of times, and certainly not on shallow tanks. Plywood is good, finished off with epoxy-resin varnish and washed before use. Please think about my idea: you won't be sorry if you make a nice job of it." (I keep all my small fishes in tanks that are 10 in. or 12 in. deep; however, one point strikes me about part of Mr. Thompson's letter: it is logical that fishes of any size kept in a

very shallow tank will have no alternative but to swim from end to end; there's no depth for them to travel up and down. While not disagreeing with most of what Mr. Thompson says, I would contend that many tanks—particularly long ones—are not nearly broad enough, i.e. from back to front. I consider that a 4 ft. long tank that is, say, only 15 in. broad looks very narrow when water is added. The refractive index of the water makes the tank look much less broad than it actually is and I consider the result to be aesthetically displeasing to the eye. B.W.)

Mr. F. J. Ayres, Chairman of the Yorkshire Koi Society, resides at 35 Manor Drive, Hilton-in-Cleveland, Yarm, Cleveland. He writes: "Further to my recent letter regarding the magazine *Rinko*, which is published by the All Japan Nishikigoi Society (Zen Nippon Airinkai), I enclose copies of the first three English editions. English *Rinko* costs 9,000 Yen (about £19·00) and is published quarterly. Anybody interested in obtaining this superb magazine should send a bankers draft to *Rinko*, Zen Nippon Airinkai, Room No. 401, Fujii Building, 1-2 Mochigahama, Beppu-City, Oita Prefecture, 874 Japan." (The three copies of *Rinko* forwarded to me by Mr. Ayres must certainly be the ultimate in specialist magazines associated with our hoppy. Editions run to up to 90 pages and contain a wealth of information about koi. The coloured photographs are superb and show a wide variety of types of koi. The occasional slip in the translation from Japanese to English adds to the interest of the text—although the sensible simplicity of American spelling tends to grate a little. These magazines are expensive; they are also excellent. Individual koi keepers who cannot afford to part with £19·00 should consider joining financial forces to buy copies that could be passed around.)

I was interested to note that the November, 1976 edition of *Koi*, the Journal of the Y. Koi Society, contained a letter from a Mr. Ralph Pretorius, of South Africa. In his letter Mr. Pretorius stated that he wishes to join the Y.K.S. and mentioned the fact that he had read about the society in *W.Y.O.?* It's interesting to note just how widely read our feature is. Mr. Jeff Hutchings, of the Fancy Guppy Association, kindly let me know that following a recent mention of the F.G.A. in *W.Y.O.?* he received thirteen replies to date.

I regret to inform readers that I shall no longer be able to write personal replies to individual queries. Queries requiring a personal reply should be accompanied by a s.a.e. and addressed to either Mr. A. Boarder or Mr. J. Hems, as appropriate, c/o. *The Aquarist*. Naturally, questions not requiring a speedy reply will continue to be asked and answered in this feature. Some months ago *W.Y.O.?* contained an interesting letter about the use of a particular brand of cure consisting of pure phenoxetol. A number of readers have asked for the brand name of the cure; unfortunately I'm not allowed to mention brand names; the product is manufactured by a leading firm based in Dorking and is sold in yellow cartons containing capsules of the pure liquid; the carton states that the treatment is specifically for fungus and finrot.

Mr. G. S. Baxter wrote to me from 'Babeny', Francis Lane, Newton Burgoland, Leics., about the subject of cures. He said: "In a letter written by Mr. B. L. Richards, in your October, 1976 column (mention was made of) the treatment of sick fish with the chemical phenoxetol. It was said that a well-known cure has this as the active drug in the substance. However, I have searched many pet

shops, chemists and various other establishments, without success. One point that I thought was rather disturbing was that all the cures (I) examined did not list their contents on the side of the container. This was despite the warnings: 'Keep out of the reach of children' and also 'Poison'. Although the chances are remote, one day a child could swallow some of the cure and an already overworked National Health Service must spend a lot of time finding out what the chemicals were in the substance swallowed. Therefore it would assist all frustrated aquarists—and especially all the members of the National Health Service—in the cases of poisoning. Lastly, I would be very grateful if you could tell me the trade name under which phenoxetol is sold. I would also like to know other readers' reactions on the subject of labels on bottles containing cures

with poisons in them." (I hope that the above paragraph enables you to identify the trade name of the cure mentioned by Mr. Richards. The cure in question consists of pure phenoxetol—and I'm pleased to note that the carton in which the cure is sold clearly states this information. It's a great pity that all other British manufacturers of aquarium cures could not do as Mr. Baxter suggests and state cures' contents on containers. Cures imported from other countries carry such information. B.W.)

As I've said before, it's also very frustrating in another way if one doesn't know the specific chemicals contained in a given cure. If one uses a specific brand of cure and it fails to work, it's difficult to select another brand when one doesn't know what either contains; one could well be using an identical treatment again without knowing. This could result in the loss of one's ailing fishes; whereas, had contents been named, one could have selected a different brand containing more appropriate chemicals or drugs.

This point hit me very strongly during the past few weeks when I suffered the worst loss of fishes I've experienced in all my years of keeping fishes. I made the mistake of introducing a couple of new fish to a large aquarium without previously placing them in quarantine. The tank housed a wide variety of adult gouramies and kribensis (many of which I'd raised from spawnings of several years ago), a large pair of *Corydoras* and a large, elderly sucking loach. A disease I could not identify broke out and I tried a variety of branded cures manufactured in the U.K. Fish began to die off daily and it saddened me greatly to see my beautiful, adult fishes apparently beyond hope of any cure. I decided to try the treatment suggested by Mr. Richards—but, like Mr. Baxter, I was unable to purchase the required brand of treatment locally. My friend Tom Jones, of Hoylake, kindly sent me a carton of the cure; but it reached me on the day after I lost the last of the fish in the infected tank. Had I known what the U.K. cures I tried contained I might have had better luck; but possibly not as the disease seemed to be lethal. I was greatly distressed at the loss of such a fine collection of adult fishes—particularly the gouramies and the old suckling loach. The experience has certainly taught me a lesson—and an expensive one at that in terms of fish and cures. I now know how a beginner must feel when he loses all his fish as a result of some common disease that could have been treated fairly simply with appropriate drugs.

Mr. Tom Jones, who lives at 43 Rudd Street, Hoylake, Wirral, Merseyside, has kindly given me

permission to quote from a personal letter I received from him today. He writes: " . . . I told you about my (marine) saddleback clownfish that had popeye disease. This is one story that has a happy ending. I had set up an 18 in. × 15 in. × 12 in. all-glass marine quarantine tank, and I dosed it with (the branded treatment produced by the Dorking firm), adhering strictly to the recommended dosage. I installed the clownfish, switched off all illumination, covered the tank completely, and gave no food for three days. After a couple of days there seemed to be a slight improvement and after three days there *was* a definite indication that the swelling of the eyes was reducing. I removed the covers and allowed the tank to be illuminated by the reflected light from an adjacent tank, and commenced feeding lightly. The eyes continued to improve and after eight or nine days the eyes are back to normal, the fish is active and eating heartily, and the tank is now under its full illumination—albeit only a 15 watt pygmy lamp which is quite adequate for the size of tank. I intend to leave the fish in quarantine for another week, and if all goes well I shall return the fish to the main tank. The only thing I am not sure of is: did the darkness or the (chemical) effect the cure?" (I should think the drug effected the cure in this case. B.W.)

Marines also feature in the next letter—received from Mr. K. J. Rodenhurst, whose address is 49 Keighley Avenue, Broadstone, Dorset. He tells us: "I have been keeping fish for approximately 18 months and recently I graduated to a 100 gallon marine tank. Fish have been added a few at a time and I have eight at a total cost of £50·00. It occurs to me that if I continue in this way I will soon have more than £100·00 worth of fish. With such money tied up, the possibility of some accident, be it to the tank itself or to the equipment, frightens me and I have one or two enquiries concerning insurance; but as yet I cannot find a company that will accept the risk. I feel that other aquarists must have encountered this problem before and I wonder if you or your readers could assist me." (Years ago I heard of one company that would insure fishes—but it was before the days of tropical marines. Can any reader help? I feel that it would be a brave company that would agree to insure a home aquarium containing tropical marines!)

Mr. David Collinge's home is at 106 Queensway, Heald Green, Cheadle, Cheshire. He writes: "Since I began keeping fish about 10 months ago I have had two convict cichlids, both males. When purchased one was 4 in. long and the other 1½ in. The 4 in. male would not tolerate any other fish in its sight and had to be kept partitioned off. It dug in the gravel constantly and threw around all the plastic plants. The smaller convict male is peaceful at all times. It lives in a tank with its mate a firemouth cichlid, and angels, various barbs and other cichlids. It is extremely peaceful and never molests any other fish. It digs occasionally, when breeding, but never uproots plants. It eats all foods, including soft aquarium plants; Amazon swords, however, are ignored. The 'peaceful' firemouths it lives with are ten times more aggressive than the supposedly monstrous convict—now about 3 in. long.

"The friendly convict and its firemouth mate have now spawned twice: once in a flowerpot and once on some bark. The conditions were as follows: the tank contained 10 gallons of water freshly drawn from the tap; it was kept at around 80°F. The eggs took two days to hatch and on hatching the fry were transferred to one of three pre-dug hollows in the gravel. The convict was very calm although the firemouth did get rather agitated. Even the removal and subsequent replacement of both parents did not cause them to eat the fry. The development of the fry went

according to schedule for firemouth or convict cichlids. I believe that a convict raised in a community tank containing plants will turn out to be peaceful because it is used to other fishes and well behaved with respect to the plants; while a convict raised alone in an unplanted tank will be vicious and a plant destroyer. The fry are now being fed on dried food and *Daphnia*. Can anyone tell me what the fry will be like when they grow up, e.g. size and colour?" (Photograph 1 shows a firemouth. Please send me details of your experiences with this species. Despite Mr. Collinge's comments I would be wary of convicts in general.)

Photograph 2 shows an Egyptian mouth-brooder, *Haplochromis multicolor*. I'd be pleased to hear of your experiences with the breeding of this interesting species. Photograph 3 shows a male *Apistogramma borelli*. Have you kept this attractive species? Have you raised any young? I've been looking for a replacement male for a long time but have been unable to obtain one locally. If you know where I could obtain a pair or two, please let me know. The female of the species is much less attractive than the male—but a pair makes an attractive sight. It is not too difficult to get the species to spawn.

Mr. M. J. Gough, M.I. Biol., etc., who lives at 12 Seaton Gardens, Reading, joins those who have been assisting other aquarists with the pronunciation of scientific names. He writes: "Mr. Sandfield's attempt to explain the pronunciation of Latin names —the problem goes beyond the 'binominal system' which existed in every language, e.g. 'brown trout', before Linnaeus used, not invented, it!—was brave but not fully correct. First, 'ae' is usually pronounced 'ee' by biologists; I learnt to pronounce it 'eye' in classical Latin. Secondly, 'i' at the end of a word should be pronounced 'ee' but is usually pronounced 'eye'. It is certainly not pronounced differently for different names as indicated by Mr. Sandfield. All scientific names of plants and animals are Latinised, whatever their origin, and not all those not of Latin origin are of Greek origin, so the rules of Greek pronunciation are irrelevant, except perhaps where there is no Latin equivalent, e.g. 'Pt'. On the whole I agree with Mr. Sandfield. However, I believe that continentals pronounce it yet another way. If you ever sort this lot out try understanding the rules of botanical nomenclature." (I think this debate could lead to even more confusion for beginners. Perhaps we should let it rest here. If aquarists can make themselves understood in conversation with other aquarists, that should be reasonably sufficient for the majority of us. Fortunately the problem does not arise on the printed page.)

A strongly worded letter of criticism reached me from Mr. Ian C. Sellick, B.Sc., who is currently working in the Department of Zoology, University of Bristol, Woodland Road, Bristol. He had the following to say: "With reference to *What Is Your Opinion?* that appeared in the November, 1976 issue of *The Aquarist and Pondkeeper*, I would be grateful if at the earliest opportunity you could correct the details you gave about the British Cichlid Association. I am the secretary of the Association, and indeed have been since June, 1975, when I took over from Terry Green, as well as editing the society's publications. I find it difficult to credit that such an error could have got past you, and your Editor, especially since in the directory of specialist societies published in your magazine in March, 1976, p. 633, my address is quite correct—although I prefer to deal with correspondence from the above address. Further to this my letter published on pages 234-5 of the September, 1976 issue also lists me as being the secretary of the Association; although no address was printed, Mr. Perkins knows it." (Please accept my apologies for the error, Mr. Sellick. As I stated in my November feature, I obtained the information from the Newbury Neon magazine—and printed it in good faith, as I do with the majority of material sent to me for inclusion in this feature. Like many others I do not have the time or interest to read News from Aquarist' Societies as the vast majority of the people named therein are unknown to me. Of necessity I have to devote what little free time I have to the reading and typing of material contributed to this lengthy feature. It's popularity should ensure that the information you have supplied will reach potential members of the B.C.A. My apologies also to Mr. Green for any inconvenience caused by letters that may, in error, have been sent to him instead of to Mr. Sellick.)

Mr. Sellick continues: "In the October issue, a reader of your column asked for details of the Cichlid Exchange Group. This is part of the B.C.A., membership being included in the B.C.A. fee of £3·50 per annum; again, details from me at the above address. I enclose a number of samples of literature we have issued in the past year, including Newsletters—containing the Exchange lists, Information Pamphlets, and Journal. Finally, in the September issue, you requested information about openings for the study of ichthyology with special reference to tropical fish as some young readers had asked you about this. There are unfortunately relatively few openings for the study of tropical fish as such; indeed I had to 'create' my own opening by thinking up a suitable research project and then writing to the Science Research Council to see if they were willing to sponsor me; which it turned out they were. The qualifications needed were a good degree in general zoology; as you say, most universities offer courses in zoology; all teach something about fish. There are, however, a number of universities that offer specialised marine biology

courses which might be more interesting to some people, although I feel that too much specialisation, especially in the current economic climate with few jobs around, is a bad thing. Following on from the first degree—after 3 or sometimes 4 years' study—it is really a question of looking for adverts in journals such as *Nature* and hoping that something will be available. A few jobs abroad are periodically advertised, but these usually request some degree of experience in aquaculture. Other than that, there is what I am doing, research where one's research animals are tropical fish, or, very rarely, joining one of the larger companies, such as Shell, Unilever, etc., many of which often have aquarium and other animal facilities to test the effects of chemicals they produce on the environment. I appreciate this isn't the whole story. I think the best advice is not to be too narrow about what you want to do. If you get anyone else asking similar questions, I would be prepared to correspond with them if they feel it would help." (Mr. Sellick kindly sent me a selection of recent publications produced by the B.C.A. These are of a high standard and most of the Information Pamphlets are illustrated with an excellent photograph. The Newsletters' 'For Sale, Want and Exchange' columns appear to indicate that this method of obtaining fish or parting with fish is popular.)

Mr. S. Wolstenholme writes about the same subject from his home at 185 Smithy Bridge Road, Littleborough, Lancashire. "A couple of your contributors have mentioned the Cichlid Exchange Group recently. The group was founded by Mrs. Jan Redcliffe and myself some years ago so we could contact and buy/sell/exchange cichlids with other breeders throughout the U.K. The scheme was very successful and when it was dissolved last year it had almost 200 members—although some of these only sold via the periodic listing and did not require the list themselves. These members did not pay any subscriptions. C.E.G. was merged into the British Cichlid Association early in 1976 after a period of parallel running. Persons who wish to use the system should join this association. The membership secretary is Mr. H. Parrish, of 18 The Barons, Twickenham, Middlesex.

"On a different subject, perhaps you could ask the people who criticise our tableaux displays to come up with some new ideas—or even new criticisms. These shows are dual purpose: both fish and tableaux are on display. The fish would be better displayed without the tableaux, of course. The reverse is also true. Why, if this type of show is so bad, does it attract many more visitors than fish only shows?

"The dried food *v.* the live food question you pose comes at a time when my own society is conducting a series of controlled experiments to determine which food, or combination of foods, is best for various species of fish. One fact which has already emerged is that the Tanganyikan species *Telmatochromis temporalis* grows about twice as fast if fed on good flake food rather than a mixture of live foods. We are now also looking at variations in growth and colour for different types of flake foods. P.S.—Will you please drop that rather sick subject of killing fish; it's not supposed to be pleasant or easy. The majority of methods suggested so far relieve the executioners' conscience, not the fish's discomfort."

A friend asks if the following items, if not already available in the U.K., couldn't be made available: non-return valves for water, to be fitted in tubing; small water pumps suitable for giving a light spray of water over the surface area of an aquarium, imitating rainfall; operational planting tongs for planting in aquaria (he asks if anyone has tried getting plants planted using planting sticks!); and a water hardness testing kit consisting of a roll of litmus-like testing paper used by dipping a sample into aquarium water and comparing its resulting colour against a colour chart. The querist states that the result is in p.p.m., that the test takes only seconds, and that such test kits are manufactured in the U.S.A. (Some of the items mentioned are available in the U.K.; however, I'll leave it up to manufacturers and distributors to comment. I'd be pleased to include any comments received in a future edition.)

No. 4 Leigham Court Drive, Leigh on Sea, Essex, heads a letter received from Mrs. M. Brown who writes: "... With reference to the recent letter concerning the use of phenoxetol, I myself had never thought of using any of the aquatic drugs available at such a high dosage until I read, with interest, Mr. Richards' comments. I had a female platy; its back was bent, it was slowly wasting away and it was unable to eat or swim properly. So I tried Mr. Richards' suggestion and decided to attempt to destroy the ailing fish using a high concentration of (another British cure, sold in a bottle, containing phenoxetol). I put a capful into a bowl of water at the same temperature as the aquarium water and gently placed the ailing fish in the solution. She immediately rolled over and death was instantaneous. I was very surprised—and relieved—at the quickness of her death. I felt I had to write and tell you as I feel that destroying ailing fish can present a problem to the aquarist."

Mr. Clive Taylor writes to us from 49 Market Road, Thrapston, Northants. He has three tanks, his community aquarium being a 24 in. × 12 in. × 15 in. model fitted with a U/G filter covered by 2 in. of gravel. The aquarium is well planted with water sprite, hair grass and corkscrew *Vallisneria*, and is stocked with guppies, neons, glowlights, kuhli loaches and *Corydoras paleatus*. He says:

". . . Due to a great deal of luck on my part I was fortunate enough to obtain two male and two female *C. paleatus*; but it appears as though only one pair is willing to breed. I first realised that I had a breeding pair when I read Jack Hems's article on *C. paleatus* in the October, 1975 issue of *The Aquarist & Pondkeeper*, which appeared too late to save any of the first spawning. About one month later I decided to try to breed them deliberately; so I started by cleaning out the breeding tank. After letting the water stand for about a week I introduced the two fish and fed them on (a British brand of food in tablet form) for a week. I then watched as the female proceeded to lay something like 300 plus eggs in something like 18 hours. As soon as the pair had finished spawning I removed them from the tank and placed them in the community tank.

"After one week the fry hatched and I replaced the carbon filter with an air stone so as not to lose any to the filter fibre. Then, after allowing about four days for the egg yolks to be completely absorbed by the fry, I started feeding the fry one (tablet of German food) every other day. Gradually it dawned on me that I had two options open to me: either to cull off 150 poor innocent fish, or, much more humane, to sell them; so I contacted my local fish shop and I disposed of them that way. Finally, has anyone had any success breeding kuhli loaches, please?"

14-year-old Stuart Harrad resides at 2 Pembury Close, Worthing, Sussex. He has the following to say: "I am writing to tell you about my 24 in. × 12 in. × 12 in. and 16 in. × 8 in. × 8 in. aquariums. The former has been successfully maintained for almost 18 months now. Its original inhabitants were four young Bristol shubunkins; they lasted a fortnight, each one dying of the dreaded fungus. Then came three of the present occupants: two common goldfish and one comet goldfish. They were soon joined by a catfish and they all lived happily together. But not for long . . After three months of bliss I decided to add some more fish: a koi carp (cost £1·00), two calico veiltails (95p each) and a celestial (95p). Within a week the koi was dead; the celestial was destroyed (using the old smash against the wall method—ugh!) after having an eye ripped out; and my two veiltails were in a sorry state. My dealer immediately diagnosed the problem: the catfish, which was promptly removed. Since then my aquarium has been such a success that last August I decided to set up a smaller 16 in. × 8 in. × 8 in. tank. It contains two red fantails and a black moor.

"Neither of my aquariums receives any artificial light; instead they are placed on the floor underneath a window. Algae are non-existent and the plants—*Sagittaria*, *Hygrophila*, *Bacopa*, *Elodea*, *Myriophyllum* and pygmy chain swords!—grow at such a rate that they have to be pruned at fortnightly intervals. My fish are fed on a well-known British flake food and frequent meals of brine shrimps and *Daphnia*. I find that my fish prefer the live food to the dried. Recently I have been enquiring bout the price of an iron stand for my larger tank (cost £4·95) and have found that it will cost about twice the amount of the tank (£10·000). Finally, I would appreciate any advice on keeping fish such as guppies and other tropicals at temperatures in the low 60s°F as I am considering starting such a tank myself. Carry on the good work with the magazine; it's worth every penny!"

Nicholas Taylor's letter reached me from Hardy House, Bryanston School, Blandford, Dorset. He wrote: "I have been keeping tropical fish for a little over three years now, and here at school we have a flourishing tropical fish club with 16 tanks and a new room about to be opened. I am now secretary. I have subscribed to *The Aquarist* for two years now and have always turned to your feature first to see if there are any useful tips in it—which there always are—which might be of use to the club. I have noticed in your feature recently that you have had a couple of letters from people having difficulty in keeping baby angelfish fry once they have hatched. I too have this problem at school. We have had about 15 batches of eggs laid by a pair of marbled angelfish; but each time when they get to about ½ mm. in length they all die. We have tried everything to combat this, but without success; and so I thought I would appeal to any of the readers of your column to send me any helpful tips they may have on the rearing of these fry.

"I would also like to comment on the recent discussion between the two types of strip lighting—Gro-Lux and True-Lite. Here at school we have tried both and although the True-Lite is more expensive the plants in its tank are thriving and sending up countless shoots—and it's only been in use for four months; whereas the Gro-Lux has been in place for two years and has only had limited success. Finally, I would like to appeal through your columns to anyone who would be interested in starting up correspondence on any aspect of fish keeping, between himself or herself and me or our club, perhaps with a chance of exchanging plants as well as ideas." (Would anyone care to take up Nicholas's offer? At the moment I have some Java moss to spare.)

I was exceptionally pleased at the large number of letters I received for this New Year's edition. I'm writing this in November, 1976 and, no doubt, the good response is closely connected with the fact that the long nights are with us once again and readers have more free time indoors to write and send me their opinions. Unfortunately we've used up all our space for this month and a lot of letters remain unpublished; however, I hope to be able

to include some of those letters in future issues. If your letter has not yet appeared in print do not despair: it could well be used in the near future.

For the March edition please send me your opinions on any topics mentioned in the previous pages; and on the following: foods for fry; tropical plants that grow well together in a given set of conditions (list pH, hardness, temperature, lighting, fishes kept in the tank, use of fertilizers, etc.); killifish hatchings from eggs bought by post; *Aponogeton* species; 'ideal' tank sizes—both large and small; new items of equipment you would like to see on the market; diseases and treatments; the breeding of dwarf cichlids; pond fishes in winter. I hope you'll send me a letter. Best wishes for successful fish-keeping in 1977.

B.M.A.A. NEWS

Recently the British Marine Aquarists Association entered its seventh year of existence. Many changes have occurred in the marine hobby during these years but the B.M.A.A. is still present and hopes are high that in the coming year its membership will increase substantially. Recently, possibly due to economic pressures, interest in the marine side of the hobby may have waned slightly but it is hoped that interest will now pick up again.

Unfortunately these same economic pressures have also had an effect on societies and at the recent A.G.M. it was decided to increase subscription rates to £4 per annum (£7·50 overseas). It was also decided to publish Marinews, the B.M.A.A.'s journal, on a monthly basis once again after it had been published for a year on a bi-monthly basis. The standard of Marinews has always been maintained, though, and it still represents excellent value for money.

One of the major projects in which members were involved last year was the raising of money for the World Wildlife Fund. This money has been earmarked for their project number 1217 which is concerned with the protection of endangered species of whales. Over £100 was sent to the W.W.F. and it is hoped that this money will be useful in helping to save the largest animal living in the world's oceans.

The B.M.A.A. has also recently produced data cards which may be used for recording information about individual specimens which the aquarist may be keeping. Each card is 6 in. × 4 in. and will fit a filing box and has spaces on it for recording information such as species, common name, size, date of purchase, diseases suffered, cure, quarantine period, etc., temperature, specific gravity, pH, remarks, etc. Any one wishing to purchase these can do so at a cost of 50p for 25 cards inclusive of postage and packing from J. Jones, 5 Catherine Road, Hurst Hill, Coseley, Nr. Bilston, West Midlands. Also available from Mr. Jones is the B.M.A.A. Beginner's Guide at a cost of 25p inclusive of postage and packing and the B.M.A.A. report on the use of cyanide in catching marines at a cost of 50p per copy inclusive of postage and packing.

Anyone who would like to have further details about the B.M.A.A. and an application form, should write to the Secretary: John Vickery, 26 Rosalind Avenue, Dudley, West Midlands DY1 4JW, England.

G. C. ROBERTSON.

BKKS Meeting held in the Lecture Hall, Royal Horticultural Society New Hall at 2·30 p.m. on Sunday, 31st October, 1976

A VERY congenial meeting took place at the above venue and the 120-plus turn-out made it well worth hiring the large Lecture Hall instead of the smaller Rhododendron Room.

An informal programme consisting mainly of slides, films and general discussion formed the basis of a very successful and happy meeting. The highlight was undoubtedly the slides produced by Ron Hodgson of the First National Koi Show held at his home at Edgbaston in September, accompanied by his painstaking and descriptive commentary. Ron was also able to procure a copy of the BBC Midlands Today film of the Show which had been shown in the Midlands areas only much to the chagrin of other entrants and members. Chairman, Roland Seal, improvised a commentary to this film which included some lovely close-ups of the Koi in their show vats.

Roland Seal also produced some slides and colour films featuring the last BKKS Tour of Japan in April, 1976, Japanese shows and appreciation of the different varieties of Koi, along with his usual amusing and descriptive commentary.

Another popular feature of the meeting was the raffle organised by P.R.O., Valerie Frost. Twelve top-class prizes sent twelve satisfied members home happy. Renewed thanks to the donors of these prizes —details of which will appear in the Society magazine.

A particularly fascinating meeting will be held at Conway Hall, Red Lion Square, London, W.C.1, on Sunday, 23rd January, when representatives from a well-known swimming-pool firm will talk to members on filtration with demonstrations on how various components may be used and incorporated in their own pools. For anyone who is re-designing their pond or building a new one this Spring the meeting is a must. And BKKS members please note, there will be a 35 per cent discount concession for Society members on all items purchased from this firm which, in some cases, could represent a tidy sum of money, so it may well be worth members travelling from other Sections to attend the meeting.

FURTHER ADVENTURES OF FAT AGGIE

Written & illustrated by Barry Durham

After their stormy courtship our two three-spot gouramis, Fat Aggie and Herbert, settled down to "married life" in the community tank. It was not unlike other marriages in that they had their fights but didn't bother the other inhabitants of their little world too much. At least until the mating urge came upon them again.

By this time we had branched out a little and in the few short weeks since their last epic performance had acquired two further tanks to house a population of young sailfin mollies, red and tuxedo swordtails and yellow wagtail platies. Even by being selective and somewhat ruthless with the various broods, our tanks were full and our pockets were empty. Added to this was the fact that with two tanks in the living room and two in the kitchen my wife had called a halt, at least temporarily, to further expansion, so another tank for another brood of gouramis was, unfortunately, out of the question.

Herbert began his nest-building again in the corner of the community tank just above the thermostat and this time there were few problems initially. The two fish got together with very little fuss and we soon had a nest full of eggs again. Aggie went off by herself and Herbert mounted guard on the eggs preventing any of the other fish from coming anywhere near. He was not too vicious, and in view of the fact that he had lost interest in his charges as soon as the last brood had hatched the last time, we were not unduly worried as we felt that soon the young fish would simply provide live food for him and the rest of the tank. But, true to form, our two devious fish had other ideas. What aroused Fat Aggie's maternal instincts we shall never know, but when the eggs hatched she joined her husband in their protection and became even more aggressive than he was.

We decided that we must clear one of the fry-raising tanks somehow and I took a brood of young swordtails up to our local pet shop. Unfortunately he had restocked his tanks the day before and even my offering to give him the fish couldn't induce him to find space for them. To split the brood between the two other tanks would have resulted in too much overcrowding so we were rather at a loss as to what our next move should be.

Partitioning the tank was a possible solution but we can only get glass cut locally if we order it in advance so that added another day to our problems. We had to leave things overnight and in the morning Fat Aggie had solved the problem for us—but not in the way we had anticipated, or were very happy with.

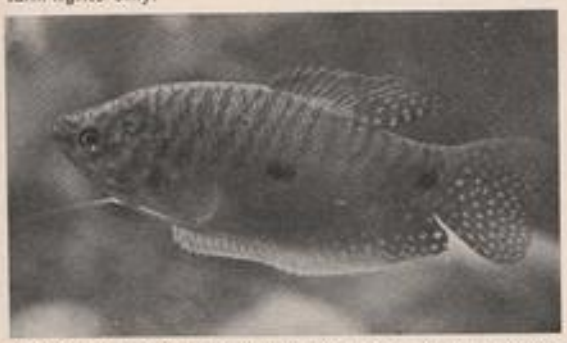
At least seven of our best fish lay dead in the community tank. They had paid the penalty of venturing too close to that nest full of succulent tit-bits. Our two devoted parents had seen off swordtails, platies, guppies, a small angel and probably one or two others that had disappeared and, no doubt, had been devoured completely.

To prevent further carnage we decided that the young swordtails would have to fend for themselves in the community tank. Most of the larger fish were dead anyway so their chances of survival were quite good.

We managed to get them all into a bucket to vacate their tank and then carefully introduced the two gouramis into the empty tank with as many of the youngsters we could catch in the lid of a gallon ice cream tub. While the swordtails didn't mind their move to new quarters the gouramis obviously did. Fat Aggie and Herbert had not been in their new home more than a few minutes before they turned on their brood and made short work of every last one of them. I doubt if the result would have been any different had we decided to leave them in the community tank and removed the other fish. They would probably have been just as disturbed. Then they seemed to blame each other for everything and their old aggressive natures came out again as they began a pitched battle in every corner of the tank. This was almost the last straw, I was sorely tempted to let them kill each other after all the trouble they had caused us, but my wife persuaded me against such drastic action and instead I partitioned the tank and left them to stare angrily at each other through the glass.

We left them that way for about a week. They seemed to have regular bouts of swimming head on at each other and meeting at the partition and on one occasion Herbert managed to find his way over or past the glass thus precipitating yet another prize fight. However, eventually, over the course of a few days

Above: Fat Aggie and Below: Herbert.
Both photographed on TRI-X Film, 1/30th sec. at F2 with tank lights only.



their anger seemed to subside and apart from the odd waving of feelers at each other, things were relatively quiet. Herbert then began to construct yet another nest.

Aggie was in no way living up to her "Fat" nickname so we thought that after just a week she could not possibly be ready for spawning again. But once again it became obvious that our princess of pugnaciousness had never read any of the books on how gouramis breed. She showed she was full of eggs by releasing them to the surface on her side of the tank while Herbert looked on through the partition. Even when we removed the glass he took no part, but simply watched her slowly roll over and release a few eggs at a time which floated to the surface. She carried on doing this until she was obviously empty and then retired to a corner of the tank for a rest. As Herbert didn't seem to want anything to do with her, and it was too late anyway, we separated them once again.

The eggs didn't hatch, of course, for they had not been fertilised, but Aggie's action certainly seemed to put paid to the theory that pressure from the male fish's body squeezes the eggs from the female. As the eggs became fungussed over the next couple of days Aggie ate them.

After this Herbert let his nest dissipate once more, but started building again just six days after Fat Aggie had tried to strike her blow for women's lib by spawning on her own. It seemed very close to the last spawning but we decided that Herbert probably knew more about Fat Aggie's condition than we did so we decided to take a chance. I removed the partition and we settled back to watch the proceedings with interest.

Herbert, who had been colouring up on and off all week, put on his Sunday best of that beautiful purply-blue colour with almost black bands. His anal fin became a flaming orange edged with irridescent blue and the white spots on his fins and tail stood out brilliantly. Aggie, too, coloured up into her true blue with darker bands which almost hid her coal-black spots.

This time they approached each other cautiously, "fencing" and caressing with their feelers, then suddenly they locked jaws and began to-ing and fro-ing across the tank in a manner more associated with cichlids than anabantids. This lasted for several minutes before the more usual nipping, nudging, buffetting and biting started. Herbert finally asserted his masculinity and cajoled Aggie under the nest for a successful spawning. When they had finished and Aggie had slipped off to what seemed to have become her favourite corner, I slipped the partition back in place and left Herbert to look after his nest full of eggs.

Once again the fry hatched quickly and became free swimming in about two days. Herbert was the model father this time, repairing the nest and quickly returning any straying youngsters to it. Then came another surprise. As the nest broke up he began shepherding the fry around—or more correctly, keeping them in a shoal and watching over them. One or two of the fry had succeeded in squeezing their way past the partition into Fat Aggie's half of the tank, but instead of eating them she began to copy the male. She collected her few children into a small shoal and kept her eagle eye on them. Would the parents work together? We just had to find out. The partition was carefully removed and the two of them came together. But the encounter was quiet, almost touching as they caressed each other with their feelers and for a few moments the fry were forgotten. Then they became proud parents and looked after their young like a pair of "angels."

However, it only lasted for a week or so until the young were about 3/8 in. long. Then Fat Aggie seemed to lose interest a little and although she and Herbert did not commence a wholesale slaughter of their charges, they were seen to swallow one or two fry which swam away from the shoal, instead of carefully returning them as they had done previously. It was time to remove them, but by now their "annoying little habits" were forgiven if not forgotten. They had provided us with a unique experience and proved that fishes can have real personalities of their own. Now we look forward to their next spawning to see if they have any more surprises in store.

? OUR EXPERTS' ANSWERS TO YOUR QUERIES

READERS' SERVICE
All queries MUST be accompanied by a stamped addressed envelope.

Letters should be addressed to Readers' Service, The Aquarist & Pondkeeper, The Butts, Brentford, Middlesex, TW8 8BN.

TROPICAL QUERIES

by Jack Hems

Can I keep *Haplochromis burtoni* and *Cichlasoma nigrofasciatum* in the same 24 in. by 15 in. by 12 in. tank?

I do not recommend the experiment. Both species are given to sudden outbursts of temper. Moreover, *C. nigrofasciatum* is a compulsive bully.

I have a pair of cichlids sold to me as Thomasi. I cannot find this species mentioned in any of my books. I should appreciate any information you can give me about it.

I suspect the fish you have is the pygmy cichlid known to science as *Pelmatochromis thomasi*. This species is native to the fresh waters in and around Sierre Leone. The male is the larger of the two sexes and attains about 4 in. *P. thomasi* is quite suited to living in a thickly planted community tank stocked with fishes sturdy enough and alert enough to take care of themselves. *P. thomasi*, however, can turn very snappy when it is preparing a spawning site (it breeds quite freely in the aquarium) or guarding its eggs or young. It is a non-faddy feeder and flourishes best in soft peaty acid water.

Please supply me with the dietary requirements of species of *Metynnis*.

Fishes of the genus *Metynnis*, commonly called silver dollars, are essentially eaters of small life food and greenstuff. I refer, of course, to the fish living in the natural state. In the aquarium they will grow large and stay healthy—provided the temperature does not change abruptly or fall below about 70°F (21°C)—on flake food, gnat larvae, scalded lettuce, cooked spinach, cooked nettles (the young tops), dried and crumbled wholemeal bread and shredded raw red meat. As species of *Metynnis* look upon most aquarium plants as an ideal greenfood, it is most unwise to introduce anything more expensive than bunches of hornwort, *Elodea densa* or dwarf bladderwort into their tank.

Have you heard of a Siamese blue shark?

I have heard of a Siamese blue shark. I have also heard of an iridescent shark and a smoky glass catfish. They are all popular names given to *Pangasius sutchi*.

What sort of fish is a harlequin shark?

Harlequin shark is a popular name given to *Labeo variegatus* from Zaire. The popular name is apt for the fish is garbed in a 'coat of many colours.' Basically the sides are yellow to brown overlaid with a mottled patterning of darker shades of brown or grey or both. Moreover, each scale is adorned with a red spot. The fish is quite comfortable at a temperature in the seventies to mid-eighties (°F) and eats almost anything. It is, however, not suited to a community aquarium on account of its quarrelsome nature.

I stocked my 36 in. by 15 in. by 12 in. tank with new plants including water wisteria, red milfoil, ludwigia and aponogetons. All went well for about a month and then the plants started to yellow and rot away. I am puzzled about this because I kept a fluorescent light switched on for roughly six hours a day.

You did not mention the wattage of your fluorescent lamp. I hope it was 20 watts or better still 30 watts. Whatever wattage, however, the light should have been kept switched on for about 14 hours a day. To make matters worse you did introduce plants that demand a bright light of long duration. You would have done better had you chosen *Cryptocoryne affinis*, *Microsorium pteropus* and *Vesicularia dubyana*. These plants can get along quite well without a bright light.

As I have limited tank space would it be possible to house a pair of *Aulonocara nyassae* in an aquarium at present housing a population of neon tetras, harlequins and diminutive cichlids of the genus *Apistogramma*?

I do not advise it. *A. nyassae* is a cichlid from an environment very different from that of the neon tetra, harlequin fish and South American pygmy cichlids. Although it is not a very quarrelsome fish, *A. nyassae* does like to lay claim to territory and will drive away intruders. Also, it has a mouth well-provided with teeth shaped especially for holding prey.

I have recently added a small arowana to my collection of tropical fishes. Can you supply me with some information regarding its general requirements?

Arowanas belong to the genus *Osteoglossum* seemingly widespread over the northern half of South America. In all probability you have *O. bicirrhosum* in your possession. General requirements are soft and peaty acid water, a temperature of 75°F (24°C) to 78°F (26°C) and a tank large enough to allow for maximum growth, which is about 3 feet. In its smaller sizes *O. bicirrhosum* should be fed on such things as gnat larvae, livebearer fry, raw flesh and whiteworms or well-washed tubifex dispensed from a perforated worm-feeder just touching the surface of the water. Some arowanas will accept flake food and other substitutes for live food and meat.

I have purchased a 4½ in. electric catfish (*Malapterurus electricus*) and would very much like to know something about its habits and general care in the aquarium.

This species from Africa within the tropics attains about 2 ft. in the wild state, less in the aquarium. It likes to hide itself away—if land drain pipes and rocky fissures are available—during the day. At night, and after dark, it searches about for food. It is a greedy fish and makes short work of any small fish it comes across. And large ones it can damage healthwise with its ability to discharge an electric current. In the natural state current is discharged to stun prey or prevent seized prey struggling free. Among the most suitable foods are raw red meat, slivers of uncooked herring, cod or fresh haddock, earthworms, anglers' maggots and unwanted livebearers. A temperature in the middle to upper seventies (°F) is recommended. A specimen a foot in length is capable of discharging about 250 volts. Clearly, the electric catfish is not a fish to introduce into a community tank.

In an aquarium book published many year's ago, I came across a reference to Duncker's barb. What can you tell me about this species?

Firstly, that it is not seen around much today. Between the two World Wars it used to turn up quite frequently. The general colour is pale to silvery olive flushed with rose-pink on the back. The fins have a hint or more of yellow. A dark bar or lozenge-shaped marking is present below the dorsal fin. The fish reaches about 4½ in. and is native to the Malay Peninsula. It is easy to keep.

Clown Barb

My local dealer has some young clown barbs. Would you recommend this fish for a community tank?

Most emphatically yes. The clown or Everett's barb is neither a molester of other fishes nor an avid eater of the less flimsy higher plants. Moreover, at full size (about 4½ in.) it is a most attractively coloured fish, with lozenge-shaped markings and bars, blue-black in colour, on yellowish olive to greeny gold sides. The fins shade from pink to brick red. The fish divides its time between coming and going in thickets of plants and swimming rapidly to and fro near the front of the glass. It is no problem to feed because it takes anything alive (of a swallowable size), snipped off the joint (excluding fat) or taken in a dry state from a plastic container.

Gymnocorymbus ternetzi (Black Widow)

Is *Gymnocorymbus ternetzi* easy to keep and breed?

G. ternetzi is easy to keep in clear, well-oxygenated water maintained at a temperature in the middle to upper seventies (°F). It likes to shoal with its own species so more than one pair should be present in the aquarium. It is not a very ready breeder but when it does decide to spawn there are few problems and the eggs are scattered in the plants. The female has a taller and fuller body than the male.

My three-foot tank is at present occupied by a single pair of full grown Jack Dempsey cichlids. What other cichlids do you think I could introduce into this aquarium?

Leave the Jack Dempsey fish on their own. The species is pugnacious by nature and would resent and fight intruders. In fact you are fortunate in possessing two large Jack Demsey cichlids that hit it off together. Do bear in mind that *Cichlasoma octofasciatum* (formerly *C. biocellatum*) earned its popular name by being a great fighter.

Would it be all right if I introduced some young frogs out of a pond into my tropical aquarium?

Our native frog would neither settle down nor live for long in any coldwater or tropical aquarium. There are some small frogs from Africa that are said to live well in a tropical tank. Their scientific name escapes me. There are some diminutive species of *Xenopus* (aquatic clawed toads from Africa) that leave small fishes alone. The common clawed toad *Xlaevis*) makes short work of fishes about the size of platies.

COLDWATER QUERIES

by Arthur Boarder

I have two orandas in a large tank, one is three inches and the other two and a half. The larger one has a fine hood but its now shows a white substance between the crevices of the hood and the other fish has some white matter, but not as much. Is this a fungal growth and if so what shall I treat it with?

It is not Fungus disease and I have seen this formation before on Orandas and Lionheads. The white matter is only mucus which has been excreted by the malformed cells of the hood. Healthy fishes have a protective mucus covering and the unnatural formation of the hood means that the cells which secrete the mucus at that point are unable to function properly and so show an excess of the mucus. There is nothing you can do about it and any judge who was conversant with hooded fishes would recognise the matter and not down point a fish so affected.

I have bought a black plastic loft tank in which to keep fancy goldfish. It is in the garden and I would like to know how many fishes I can keep in it. It measures 3 ft. 10 in. × 2 ft. × 2 ft.

The tank could hold about 46 inches of body length of fish but it is not of a very good shape for its purpose. A two foot deep tank may be all right as a stock tank or for rearing young fishes, but as a home for fancy goldfish it will not be very satisfactory. You will only be able to see your fishes when they are near the surface and the lower half of the tank will not be very well oxygenated. The amount of water could hold twice as many fishes if it was half the depth and double the surface area. The water can freeze over thickly during a severe spell and so you will have to watch it during the winter. Do not try to keep any of the fancy goldfish with flowing finnage or abnormal shaped eyes as these kinds are better kept indoors in tanks.

I am proposing to construct a garden pond of an unusual type. I shall use single brick walls with a rendering inside and out, with a cement and sand float. Can you see any snags in this method ?

The obvious snag would be that if the water froze over very thickly, the walls could break. A single brick would not be strong enough to withstand a lot of pressure. I do not see the need for such a method of construction. You could dig a hole the size of pond you require and pile up the excavated soil around the sides. Then line with a strong liner, anchor the edges and fill with water. Such a pond could be stocked right away and you would not have any possible danger from free lime in the cement. I think that with the present prices of bricks, cement and sand these days the liner pond would work out much cheaper and certainly be less work to construct.

I have a weather loach in my tank with some fancy goldfish but I do not see it very often. It hides in its flower pot and does not feed with the other fishes. What is its food please?

The weather fish, *Misgurnus fossilis fossilis* is omnivorous and so will eat any foods as given to the goldfish. It is mainly nocturnal in habit and so feeds mainly at night. This fish is usually peaceful with other fishes and likes to partly bury itself in mulm at the bottom during the day time.

I have recently excavated a pond of about 100,000 gallons of water capacity and have trouble with finding how to stock it. Most books on ponds only deal with small ones which can be emptied fairly easily but little information is forthcoming about the larger pond. Any advice would be appreciated.

The chief requirements of a pond the size of yours are the same as for a smaller pond. The chief difference is in the planting of the pond. In any medium or small sized pond it is a good plan to

plant all subjects in containers where it is possible. This will make it much easier to clean out the pond when necessary. However, in a large pond which could not be cleaned out with ease, the plants can be anchored with a large stone and just dropped into the water where best required. Such plants will soon make roots in the base of the pond. It is assumed that the pond has no liner or concrete base. It may take up to three years for the pond to become properly established, especially is this the case with water lilies and marginal plants. The pond should not be stocked with plants and fishes until the spring. If plants have been removed from the pond before it was cleaned out, these could be replaced as they are not likely to live out of the water especially if allowed to get dry. A pond of the size quoted will be ideal for Golden Orfe and Higoi, as well as the usual carp, tench and rudd.

My concrete-constructed pond has developed a leak. How can I repair it?

If there is a crack in the concrete it can be repaired by emptying the pond to below the crack. Then clean out all loose concrete from the crack and refill with a fresh mixture. Fresh cement will not 'wed' with old, but you can get a substance from a builders' merchant with which you can treat the crack first. Make a mixture of fresh cement and fine, sharp sand at the rate of three of sand to one of cement. Do not make it too sloppy. Force the mixture well into the crack but do not let it spread over the edges. After twenty-four hours the pond can be refilled.

If the concrete has become porous and shows no definite cracks, it will be better to line it with a good liner, such as Butyl. If this is not required then the whole can be painted over with one of the sealers as advertised. This will mean that once the pond is emptied the concrete will have to be thoroughly dried before being treated. It is recommended that a primer should be used first. Then a couple of coats should be painted on. This is a form of rubberised paint and I used it many years ago with good results. However, there is a snag; in warm weather if the level of the water lowers, that paint which is exposed is liable to peel off and then gradually the water level lowers again, leaving untreated concrete exposed.

I have noticed that the water in my coldwater tank has gone milky and I can see thousands of tiny worm-like things twisting about in the water. There are a lot of tiny flies in the hood over the tank. What is happening?

Your tank is infested with the larvae of the tiny flies. They are a type of midge and have laid their eggs on the water and the larvae have hatched out. It is probably that the water had become rather foul and encouraged the formation of plenty of *infusoria* on which the larvae are feeding. You could have introduced the pests from the wild with live foods or water plants. You will have to empty the tank and disinfect everything before you set it up again. If the tank was allowed to dry out completely this would kill off the larvae. Be careful to kill all the flies seen and do not put in the tank anything which has not been disinfected.

I have four red-cap orandas in a good sized tank and have noticed that one of them appears to be losing the red from the hood and it is turning white. Another seems to be going the same way. Why is this please and can I do anything about it?

I do not think that there is anything you can do about it. It seems that there is a colour pigment change taking place. It is the same sort of thing which often happens with ordinary goldfish. The silver on the rest of the body spreads to the gold or red part. I think that it is very unlikely that the hood will ever turn red again as I have found that in ordinary goldfish which have developed silver markings on them, this never changes back to red or gold, but tends to increase in size each year.

I would like to keep a collection of fresh water fishes. Which are suitable for tanks?

There are certain factors which must be realised. Firstly there are the carnivorous ones which must not be kept with smaller fishes. These are the Pike, Perch and Eel. Unfortunately the first two fishes are the handsomest and most colourful of the British coarse fishes. They are best kept in largish tanks with no other species. The Eel is unsuitable for a tank as this fish feeds mostly at night and likes to remain partially hidden during the day. A tendency to escape from a tank is also a disadvantage.

Of the other fishes for a tank there are two distinct types. Those which favour a river with clear running water and those usually found in ponds or lakes. The former type are usually much more difficult to keep in a tank as the provision of well oxygenated water is not easy to satisfy such species. Among this group are:—Dace, (*Leuciscus leuciscus*); Bleak, (*Alburnus lucidus*); Chub (*Leuciscus cephlus*); barbel, (*Barbus barbus* or *fluviatilis*); Minnow, (*Phoxinus phoxinus* or *levis*); Gudgeon, (*Gobio gobio*) and Miller'thumb, (*Cottus gobio*).

The group of fishes which usually inhabit ponds and lakes may sometimes be found in slow flowing rivers, but these are not as difficult to keep in tanks as the usual river fishes. This group contains:—Tench, (*Tinca tinca*); Roach, (*Rutilus rutilus*); Rudd, (*Scardinius erythrophthalmus*); Carp, (*Cyprinus carpio*); Bream, (*Albramis brama*) and the carnivorous types such as:—Pike, (*Esoxe sox*), Perch, (*Perca fluviatilis*) and the Eel, (*Anguilla vulgaris*). The last three named are equally at home in lakes, ponds or rivers.

From a Naturalist's Notebook

by Eric Hardy

Of all the effects pesticides have been found to cause waterlife, one of the more pointless, shown recently by a research at New Jersey's Rutgers' University, is the effect of DDT upon the regeneration of tadpole-tails. One wonders how much stimulus to inflation has come from the flood of grants for often aimless research, telling us what we already know in a language we cannot understand, just to provide a thesis to occupy a student. DDT is now largely withdrawn.

Among some I read recently were the monumental discoveries that food-abundance influences the size of a lizard's territory and that an eclipse of the sun influences the vocal efforts of amphibians. More interesting has been recent work at McGill University on the use of odour-recognition by salamanders of the same sex, varying with the season and proximity of their dens, and sonograms produced by Davis and Brattstrom at California's State University for three types of sound produced by newts. Another interesting observation was that a newly-metamorphosed frog can produce its distress-call. Researchers spent a lot of time making the obvious discovery that the activity range and movements of lizards are related to those of their ant prey. The "discovery" of barnacles and algae growing on seagoing turtles must have amused many an old salt who sees these on most marine life, from whales to even cod. More interesting is a Florida marine laboratory tracking green turtles with fluorescent dye and Canadian observations on multiple insemination of snakes. Oue common *Natrix* grass-snake is no menace to fish-hatcheries here, though it swims well if it decides to pursue fish or frog. Not so with its relative *sipedon* in the southern U.S., where a goldfish-hatchery was used to study its economical effect, feeding and population-structure. The continued increase of mink in Lakeland and other waterways in England may bring similar predation.

Are conservationists giving sufficient help to endangered wetland plants? Recent droughts accentuated the loss of species. In preparing a forthcoming *Flora of West Lancashire* (the recording vice-county or northern division between the Ribble and Cumbria) E. F. Greenwood, botanist at Liverpool Museum, kindly sent me his rarity lists. Among waterplants now considered extinct there is the hair-like pondweed *Potamogeton trichoides* (which grows in the New Forest's Fleet Pond) and the various-leaved *gramineus* (which grows at Grasmere). The flat-leaved *friesii* may have been collected out of its old haunt at Silverdale's little limestone Hawes Water. Another extermination is the water-dock *Rumex aquaticus*, whose last British haunt now seems to be the gravelly east shore of Loch Lomond.

Floating spike-rush *Scirpus fluitans* is no longer known in this vice-county, nor lesser bladderwort which grows "across the sands" at Grassgarth, between Bigland Tarn and Grange, common bladderwort is in Silverdale's Hawes Water. Other losses have been the creeping Baltic rush, of which Lancashire is a classic haunt, great and long-leaved sundews, the very variable tufted sedge, creeping mud-sedge *limosa* (which grows north of here at Kentmere and Woodside Moss) and broad or flat-headed *Blysmus* sedge, *compressus*. Several rarities, like fen and shining pondweeds, royal fern, wood club-rush and bulrush-sedge, tufted sedge on the east side of Leighton Moss bird-reserve and fingered sedge in Middlebarrow Wood at Waterslack, linger on. Blunt-flowered rush, *subnodulosus*, thrives in little Hawes Water, the main haunt of rarer aquatics, though scarce elsewhere. This water, for which £50,000 is being sought to make a reserve, has rich shell-marl deposits and is reached through the woodland path at the end of Red Gate Lane, above Silverdale railway station, and to its opposite edge by a field and woodland path signposted off this lane.

The saga of Southport's last natterjack toads went a step further in November. Keith Corbett, of the British Herpetological Society, turned up on Birkdale dunes with a bulldozer, aided by World Wildlife Fund, and excavated four ponds each 150 ft., for next spring's spawnings by toads now buried in winter hibernation beneath the sands. The problem is whether the shallow pools will dry out before the toad-spawn can reach toadlet stage. With one end shallower for the toads' habit of sitting with head above water as they call, and the other deeper to hold reserve water, they may be an improvement upon former pools. An accusation was made that last last year's excavation on these dunes partly destroyed a colony of the hybrid rush *Juncus balticus* x *inflexus*, which grows also on the nearby Ainsdale nature reserve to the south, and on the Star Dunes reserve at Squires Gate, Lytham St. Annes, on the other

side of the Ribble estuary. Many hoped the Lancashire Naturalists' Trust would have overcome their jealousy, and not raised the dispute again in their autumn news letter. 'Twas ever thus! There is, of course, another North-west breeding colony at Drigg Point, opposite Ravenglass on the Cumbrian coast.

Much dispute exists over fish-disease in British freshwater, and the methods to eradicate it. At a university fisheries symposium I attended some years ago, one Midland official interrupted to protest that after paying high fees for a biological survey, they were still left with their roach-disease. Another angling water engaging professional investigation to explain their paucity of catches, learned that fish were not interested in their baits and lures because the lake was so rich in natural plant and insect-food.

Swimming by back leg strokes with front limbs held to chest a natterjack in an Ainsdale dune pond.

Now I hear that the big flash or mere at Winsford, in mid-Cheshire, known locally as The Ocean, which was formerly ravaged by carp-disease, is now clear. In this past autumn it yielded a 15 lb. mirror-carp. Antibiotic impregnated trout pellets were used to treat its infected fish by distribution from a boat by the water bailiff.

The eyes of fishes may sometimes change colour by a redistribution of the coloured cytoplasm between the cell-walls, particularly in certain blennies, bullheads and globe-fish. A common shallow water sea-fish of the Japan Sea, called *Hexagrammus octogrammus*, has been found to change its cornea from colourless in the dark to a deep red in bright light. This is even more noticeable than the cornea's colour-change mentioned above. It is, of course, distinct from changes in the pigmentation of eyespots and other patterns on the skins of certain fishes.

Over 30 species of Red Sea fish have been recorded colonising the Mediterranean Sea since the cutting of the Suez Canal linked these two waters. Now, Israeli fish-biologists at Haifa University have cast doubt upon this view which had been accepted for generations by teaching biologists. They have produced evidence to show that owing to the absence of seriously scientific systematic collecting of fish in the eastern Mediterranean before 1853, some supposed "newcomers" were previously overlooked. They cite the cyprinodonitid fish *Aphanias dispar*, which was discovered some 30 years ago along the Israeli coast and assumed to be a migrant from the Suez Canal. It is now claimed to have been in the Mediterranean for a much longer time. This small coastal fish also ranges around the Sinai Coast and to Abyssinia and the Indian Ocean. It is established in freshwater pools at the Dead Sea, where I found it common at Ein Feshka pools below Jericho. A flat-headed 27-28 cm. fish it was named *Cyprinodon dispar* in Ben-Tuva's 1953 "Mediterranean Fishes of Israel". The females have dark, vertical bars along their sides, the males have a grey recticulated pattern. Two cross-bars mark the tail and the belly is white. They found the Mediterranean specimens bred freely in aquaria with the Dead Sea variety, although the latter males differ in colour and body shape, differing even more from Red Sea samples. It is argued that the Mediterranean stock came from fish isolated in the Great Bitter lakes of pre-canal days, and were the projenitors of those in Jordan Rift Valley and Dead Sea pools, which were colonised from the Mediterranean. They reject any suggestion that the Pleistocene fish in the Mediterranean could not have survived the cooling of that sea, which is now much cooler than the Red Sea. Another *Aphanias* called *richardsoni*, which Haifa considers a subspecies of this, though it was described earlier as a separate species,

lives in the weedy inshore waters of the Sea of Galilee (Lake Tiberias) in the upper Jordan rift. A third, called *rusfasciatus* found widely distributed along east Mediterranean shores after the canal was cut, may not have come through the canal either for it was abundant in Lake Timsah, 5 km. south of the Mediterranean, long before it was first found on the Israel coast in 1954. Now there will be eager searching of all collections prior to the canal, for much unrecorded material exists, as I found years ago in the late Father Schmidt's collection stored in a convent in Jerusalem and suffering from lack of methylated spirit renewal in the specimen jars.

BRINE SHRIMPS

Written & illustrated by E. Deegan

FOR THE serious breeders of tropical fish, Brine Shrimp (Artemia salina) is an important food for it can make all the difference between the successful rearing of a large spawning of fish or just the rearing of an odd few. These shrimps are an ideal first food for the fry of Cichilds and as a second food for the fry of all egg-layers once they are passed the Infusoria stage.

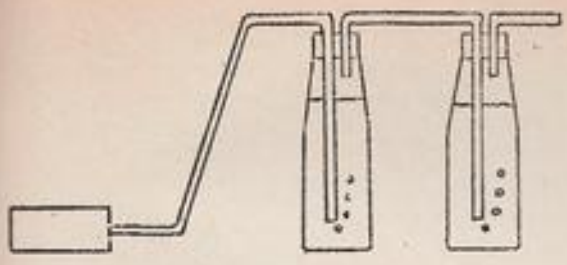
Brine Shrimp eggs are unique in that if they are stored in a cool, dry place, good hatchings can be obtained even after five years, but eggs kept in a warm, damp place deteriorate rapidly within weeks or months. The eggs, which are collected commercially in large quantities from the Great Salt Lake in Utah and San Francisco, are sold to aquarists all over the world.

There are numerous arguments put forward by many aquarists about the merits of using sea-water in preference to salt dissolved in tap-water for increasing the yield of hatching. However, I feel that the supposed increased hatching brought about by sea-water or additions such as borax or sodium carbonate are probably not significant. Certainly until actual counts of percentage hatchings, determined under controlled conditions, are made, the merits of these additions are open to argument.

One factor which is probably not appreciated is that the quality of Brine Shrimp eggs vary considerably. A magnified photograph of a "pinch" of Brine Shrimp eggs is shown in Figure 1 and it can be seen that there is a considerable quantity of egg shells mixed in with the eggs. Clearly, therefore, an "unknown quantity" to most aquarists is the amount of shells in a given quantity of eggs. Bearing this in mind it is obvious that the quality of the Brine Shrimp eggs should be known before attempting to change the composition of the hatching solution in order to increase the hatching yield.

The method of hatching I have employed with reasonable success requires a number of milk bottles with corks and lengths of plastic tubing. The bottles are filled about two-thirds full of tap-water and two teaspoonsful of salt are added. A quantity of Brine Shrimp eggs is then added to the solution. The bottles are then placed in an aquarium with the water at a temperature of 80°F. Two holes are made in

A "pinch" of Brine Shrimp eggs



Brine Shrimp hatchery

each cork, one to accommodate the long tube which is inserted so that it reaches the base of the bottle and the other to accommodate a shorter length of tubing, care being taken to ensure that it does not dip into the solution of this bottle. The long piece of tubing is then connected to an air-pump to aerate the brine solution, whilst the shorter tubing can be used as an inlet to a second bottle. A sketch showing the set-up is appended in Figure 2.

When the larvae hatch after about 24-48 hours the air-supply is switched off. The solution containing the shrimps is then poured into a dish and allowed to settle. A bright light is then held to one side of the dish and it will be seen that the shrimps congregate in an area close to the light. Using a pipette, (nose dropper), the shrimps can then be siphoned off in large quantities. The shrimps are then pipetted into a sieve and are then washed in tap-water to avoid introducing too much salt into the tank containing the fry. A useful sieve material is an old linen handkerchief. A magnified photograph of the newly hatched shrimps is shown in Figure 3.

An interesting experiment to try, although probably not worth the trouble as a routine method of feeding, is to rear the Brine Shrimps to adult size. Broadly, the principles for rearing adult Brine Shrimps are the same as those for rearing fish fry. In nature these creatures feed on plankton organisms and hence one of the simplest ways to rear them is to allow the brine to turn green by standing the container in strong light. Newly hatched shrimps may then be introduced and will grow to adult size without further attention as long as the brine remains green.

Another way is to feed them on very small quantities of baker's yeast. The amount will, of course, depend upon the size of the tank and the number of shrimps, but no more should be added than will make the brine slightly cloudy. When adult, the female shrimps are about 10 mm. and the males about 7 mm. Magnified photographs of the adult female and male shrimps are appended in Figures 4 and 5 respectively.

Newly-hatched Brine Shrimps

Female (left) and male (above) Brine Shrimps

Females are easily distinguished from the male by the presence of the egg sac on the genital segment. Sometimes the culture will be all female, but usually a few males are present. These can be seen to be smaller than the females and have large claspers on the head. They are also much faster swimmers than the females. As the shrimps become larger they will be seen to be swimming on their backs by means of their swimming legs. These legs, as well as a means of locomotion, are also used to catch food.

These crustaceans are also interesting in that the mode of reproduction is by parthenogenesis—that is, eggs are produced and develop into adults without the aid of sexual reproduction. This may be fine for the female, but one cannot help sympathising with the poor redundant male!

A male *Podarcis sicula*, captured in Sorrento, which belongs to the southern subspecies *Campestris*.

TWO WALL LIZARDS FROM ITALY

Written & Illustrated by Chris Mattison

CERTAIN small lively lizards are a characteristic feature of the reptile fauna of Southern Europe. Many of them are brightly marked in green, black, and occasionally blue, and as a group they are popularly known as Wall Lizards. Although they are correctly referred to by the generic name *Podarcis*, many text books still refer to them under the older name of *Lacerta*, a name which is now reserved for a small number of the species which were formerly regarded as one large genus. The Italian peninsular is inhabited by two of the most handsome species, *Podarcis muralis*, and *Podarcis sicula*.

The former is also found in France, parts of Spain, etc., and has a number of sub-species, many of which are restricted to isolated groups of islands. The back is usually a varying shade of green, overmarked with a network of black, which colour also predominates on the head and flanks (see fig. 1). The underparts can be white, pale yellow, or brick-red, often edged along the flanks with a row of blue scales, these being more obvious in males. These lizards are active during the hottest part of the day and are often to be seen basking on walls, piles of logs, and along roadsides, disappearing at incredible speed if approached too closely. Females in my collection laid clutches of four and five eggs during May and June, which took from forty-one to forty-five days to hatch. The young, which measure about two inches in total length compared with the eight to ten inches of the adults lack the green coloration, and feed on the smallest insects, such as aphids, small maggots and grubs, etc.

The other Wall Lizard of Italy, *P. sicula*, is sometimes known as the Ruin Lizard, and if anything it is even more colourful, and more agile. The grass-green back only has black markings along the central strip, and the flanks are barred, rather than mottled, with black (see fig. 2). The blue scales often extend to the bases of the fore-limbs in adult males, particularly in the breeding season. This species is slightly larger than *P. muralis*, males sometimes reaching almost twelve inches in total length, of which about two-thirds is tail, and is more heavily built. Like *P. muralis*, the Ruin Lizard is a sun-lover, and can be seen in enormous numbers in suitable habitats, which include walls, the edges of paths, and old buildings. Anyone who has visited the Roman ruins at Pompeii on a hot

Left: A section of the author's vivarium which contains several wall lizards, geckos and young tortoises. Below: A male *Podarcis muralis*, from Pisa, of the subspecies *brueggmanni* which is common all throughout Tuscany.

summers day can hardly have failed to notice the hundreds of lizards on the ancient walls, and in particular on the tiers of the amphitheatre, and these will have been Ruin Lizards of the sub-species *campestris*, which inhabits Yugoslavia.

Capturing either of these species can be very difficult—I found that a small running noose attached to the end of a thin pole was the most successful although I still only managed to secure a very small percentage of the individuals seen. However, both species are frequently imported, and distributed through the pet trade, and although there is no doubt that they make excellent vivarium exhibits when in good condition, certain factors should be borne in mind when considering their accommodation and subsequent maintenance. Because these lizards are diurnal, and rely on the sun's rays to bring their body temperature up to the required level, facilities for basking in the sun or a suitable substitute are essential. In my experience, a normal light bulb with a reflector is satisfactory provided that it is of sufficient strength. A temperature of 100 degrees F. immediately beneath the bulb should be aimed at, and suitable basking sites in the form of logs, rocks, etc., provided in this area. In order that the lizards can retreat from the heat source once their body temperature is raised sufficiently, it is a good idea to use a rectangular vivarium (a $36 \times 15 \times 12$ aquarium is ideal for a small group), with the light fitting situated near one end in order to give a thermal gradient whereby the lizards can maintain their correct body temperature by shuffling from hot to cool areas at will, as they do in their natural suroundings. Substrate can be sand, gravel, etc., and plenty of hiding places should be provided as they like to have a secure retreat when the light goes out at night.

Food consists of any small insects or grubs, such as grasshoppers, mealworms, maggots, flies, etc., but the keyword is variety. Unless the lizards are exposed to uninterrupted sunlight they will benefit from an occasional supplement of vitamins which can be sprinkled on their food, or, preferably, dropped into their water, which should be renewed daily.

When considering communities of these species it is essential that only one male of each is included as they are strongly territorial, and a second male will quickly be persecuted, and eventually killed if unable to escape, as in the confines of a vivarium. Several

females will, however, live peaceably with one male, although the latter will undoubtedly command the most favourable basking and hiding positions. The males are instantly recognisable as being more colourful, larger, and more robust in appearance, especially in the neck and head region. As a guide to numbers, my own vivarium, measuring 30 × 15 × 12 high, contains four *P. muralis*, two *P. sicula*, including a male of each, a Wall Lizard of another species, three young Geckos, and two hatchling tortoises. A hollow log provides an abundance of hiding places, and succulent plants, in well-hidden pots give a natural appearance to the set-up. During the egg-laying season the females dug into the soil in these pots to deposit their eggs and they were then covered with a polythene bag and removed to a warm room for the eggs to incubate. The soil was lightly watered when necessary, and the polythene bags prevented too much evaporation, as well as confining the young lizards as they hatched and emerged from the soil.

A final word of warning for intending Wall Lizard collectors and keepers—like their British relatives, both of these species part with their tails readily when held by them, and although these can be regenerated the subsequent replacements are but pale imitations of the originals.

Pseudotropheus zebra

Written & illustrated by Jack Hems

THERE are at least 200 different species of cichlid fishes found in Lake Malawi (Nyasa). *Pseudotropheus zebra* is one of the smaller species which occurs naturally there and nowhere else and is becoming increasingly popular as an aquarium inmate. It is widespread in this vast inland lake in a variety of races and colour forms which include white, pinkish, yellow, orange and blue. In some forms the colours of the two sexes are very dissimilar. Therefore it is easy to understand why differences in coloration between males and females of the same species led, and will presumably lead for a time, to some confusion and mixtakes in identification.

Although vertical dark bars adorn the sides of the blue form, in general the other colour forms show only a suspicion, or absence, of vertical markings. They do, however, display some dark irregular blotchings. For all that, the colours of the males are always brighter during courtship and breeding.

The best-known colour form of *P. zebra* is blue: a medium to greyish blue. Adorning this visually pleasing ground are seven or more darker blue bars that extend from the lower part of the long-based dorsal fin to the belly. The anal fin of the male, and

sometimes that of the paler female, is marked near the tip with several orange spots. They bear some resemblance to the orange-tinted eggs laid by a spawning female. It is interesting to note, also, that the dorsal fins of the males of some of the blue forms have a red top edge.

P. zebra, like the rest of its tribe and, indeed, like most mbunas—to give these fishes their local name—is an aggressive species, yet not to be ruled out of sharing a tank with other mbunas of similar size and disposition provided the living space given is spacious enough to allow a male of a species to defend his chosen area of residence or territory—boulder-strewn in the wild—against intrustion by the opposite sex of his own kind (when he feels in a particularly antagonistic mood) and all other inhabitants of the aquarium. Hence shelter-affording pieces of rock dispersed widely in groups on a thickish carpet of well-washed sharp sand or fine grit are an essential part of the furnishings. On no account should a community of mbunas, however small in numbers or body-length, be set up in a tank less than 3ft. from end to end. This sized tank is suitable for two pairs or perhaps a male and two of three females of *P. zebra* with no other fishes present. Because the fish is a leaper, a sheet of glass or a non-toxic hood to cover the aquarium is of great importance.

P. zebra attains a length of 4in. or more and has a life-span of upwards of five years. The water it is used to in the natural state is of crystal transparency not unreasonably hard or even noticeably hard but alkaline and salty. The days are extraordinarily bright and sunny. *P. zebra* is a shore-line fish and the water it inhabits is warm throughout the year—even in the cool season the temperature hovers about the 75°F (24°C) mark. The rock faces are coated with lower vegetable growths: a fact which no doubt accounts for the species being algivorous. With its wide-spread tri-cuspid teeth, *P. zebra* rakes the soft and easily loosened algae from the rocks. This is not to say, however, that it feeds on little else but greenstuff. Small living creatures make their homes in the algae, and the pitted rock surfaces, and *P. zebra* takes great toll of these. In the aquarium, *P. zebra* flourishes well on various small worms, gnat larvae, suitable substitutes for live food such as shredded red meat and other lean flesh, cooked peas straight from the garden or greengrocer's shop, blobs of scalded lettuce or cooked spinach and, of course, the ubiquitous flake foods.

Bearing in mind what has been said above, it is necessary to keep the aquarium temperature well into the seventies. For general maintenance 77°F (25°C) will do raising this to 80°F (27°C) or thereabouts for spawning. The quality of the aquarium water is of no great importance. Clearly, though, scrupulously clean water with a pH of 7·5 to about 7·8 is advised. Then again, it is reasonable to believe that the fish will always appreciate some salt. A level dessert spoonful of pure salt (not processed table salt) to every gallon of water in the aquarium is hardly overdoing it.

Preliminaries to breeding—apart from enhancement of colours—take the form of digging in the sand and giving the rocks a good scouring. Sometimes the rocks are moved about. This feat is accomplished, most possibly involuntarily, by the mere fact of undermining them. Both sexes indulge in digging operations. Every now and then the male spreads his fins and either appears to encourage a friendly atmosphere or explodes into a rage. In short, he often drives the female away with savage force. Be this as it may, the perpetuation of the species now in mind, egg-laying will eventually take place.

On not a few occasions a pair will spawn inside a crevice in the rocks. The exposed bottom of the tank or the open surface of a rock is, however, a favoured place. After the eggs have been deposited, the female takes them into her mouth. Incubation is usually completed inside three weeks. Curiously a female will sometimes eject the eggs after having given them initial protection and then refuse to take them up again. Jettisoned eggs have been hatched out by dedicated aquarists without the aid of the mother mouth-brooding fish. Almost always a mouth-brooding female will lose most, if not all, interest in food.

After the fry have become free-swimming they can be got on to brine shrimps, gnat larvae and minute worms. Growth of the fry is rapid if sufficient food is available. Sometimes it is necessary to adopt various tactics in order to breed *P. zebra*. Some breeders isolate the egg-carrying female from the male. This procedure is necessary anyway if the male bullies her unmercifully. A piece of glass to divide the tank into two unequal-sized compartments will do. If, however, the pair hit it off reasonably well (for the period of incubation, at any rate) then the released fry will hide away among the rocks. Always though the female will end up by being driven away from her offspring. Once the female is driven away the male takes little notice of the growing fry.

The above is merely a rough outline of the general breeding habits of *P. zebra*. There are aberrations in the procedure typical of most cichlids which, indeed, makes them such interesting fishes to observe and study in the home.

THEFT

BETWEEN the hours of 6.00 p.m. on Monday 22 November and 9.00 a.m. on Tuesday 23 November, thieves broke into SeAquariums Waterlife Centre at Longford, Middlesex and stole a 4in. Clown Triggerfish (Balistoides niger). A reward of £30 is offered for information leading to a successful prosecution.

OUT AND ABOUT

New Aquatic Shop for Hertfordshire

BOREHAMWOOD, which during the hey-day of the British Film Industry, was perhaps, best known as the home of M.G.M. Studios, is still a very pleasant little town in spite of all the modernization which has taken place over the past two decades.

One of the most recent changes in the area concerns a certain shop situated in Shenley Road, Boreham-wood's main shopping centre which until a couple of months ago was busily dispensing footwear to the local inhabitants. This establishment has now been completely transformed and currently bears the name of Elstree Aquatics.

The proprietor/manageress of this new object of interest for discerning aquarists is Mrs. Lillian Buckton and those who spotted the advertisement in our October issue incorporating the highly distinctive 'Inky' image may have guessed that the lady in question is none other than the wife of Mr. Brian

A view of the new showroom at Elstree

Buckton, well known proprietor of Hendon Aquatics. As a schoolgirl, Lillian attended Wandsworth Secondary School and it was there that she first met her husband who was at that time, a very young Laboratory Technician in the Biology Department.

Brian has been involved with fish keeping and aquatics virtually all his life and following a term of National Service, renewed his acquaintance with the trade and served with a number of well-known firms before eventually landing the position of manager at Tachbrook Tropicals Ltd. It was during his nine years with this Company that Lillian, having previously tried her hand at catering, followed by a spell with an insurance company, joined Brian in the business and shortly afterwards they were married.

Spurred on by a great deal of help and encouragement from his wife, Brian decided to open his own business and on Christmas Eve 1969 Hendon Aquatics became a reality. The recent launching of a second shop is a measure of their subsequent success. In 1977 they will celebrate twenty years of marriage together with their three children and a recently acquired English sheep dog by the name of Piper. Hendon and Elstree Aquatics are to operate quite separately, the latter providing a brand new service for that particular area. The shop itself is large and well designed with approximately 40 tanks set in tubular steel frames which house all the electrical apparatus. Access to the tanks is obtained by means of sliding magnetic flaps and the overall effect suggests a new concept in aquatic display. Ample free car parking is another useful feature. The business will concentrate mainly on tropical and coldwater fish plus all accessories, but there will be a comprehensive range of other pet lines available as well.

It is understood that Mr. Buckton has also acquired the premises next door to his Hendon shop. In an effort to offset the constantly rising price of fishes, future plans for this additional area include the setting up of an import section which will give yet another dimension to this flourishing and successful business.

Interpet Winners at Pet Index Show

At the Pet Index Show 1976 in Birmingham, Interpet held a draw for several major prizes open to wholesalers and retailers. To qualify, retailers had to place an order to be delivered through their local wholesaler.

The major new item shown for the first time at Pet Index was the new Super Maxamatic Mk II Combined Heater/Thermostat which was designed to comply with the new electrical safety regulations. Tremendous interest was shown in this new product, both from home and overseas customers.

Fifteen winners won between them the following prizes:

Automatic Washing Machine
Portable Television Set
Digital Watch
Teasmade
Power Blender
Food Mixer
Steam Iron
Two Battery Razors
Polaroid Camera
Electric Toaster
Electric Kettle
Coffee Percolator
Hair Rollers
Hair Dryer

Photograph shows Interpet rep, Peter Webb, presenting Mr. D. R. Carless of Franklin Barnes (Trading) Limited with the portable television set which he won.

PRESS RELEASE

Scandinavian Lectures

On the 6th, 7th and 8th November, Graham Cox, Managing Director of Waterlife Research Ltd., delivered a series of three lectures in Scandinavia at the invitation of a consortium of Swedish and Danish aquatic hobbyists and businessmen.

Mr. Cox is, of course, internationally well-known in aquaristic circles as one of the pioneers of tropical marine life culture and, as Director responsible for research and development work within his Company, has been instrumental in producing the highly-successful "SEAQUARIUMS" range of aquatic medications, test-kits, sea-salt, water-testing instruments and additives, which are exported all over the civilized world.

Currently, Waterlife Research Ltd.'s Scandinavian exports account for almost 16 per cent of the Company's overseas sales. During the two years since the appointment of distributive agents in Sweden, Norway and Denmark, the full range of products has become firmly established and virtually displaced German and American competing products from the market.

The subject chosen for the three lectures was "*The Complete Sea Aquarium*". Mr. Cox explained that, in his view, such a biosystem—housing a dynamically-balanced community of coralfishes, invertebrates, algae and planktonic life-forms, is one of the pinnacles of achievement for the marine aquarist, but is the most difficult sea aquarium of all to create and maintain.

Two new domestic problem-solvers from 'Ketlene'

Fospur Limited, the Alfreton based water and effluent treatment specialists and known to the domestic market as 'Ketlene' the kitchen problem-solver, have now launched two new products to the homes and garden market.

Fospur are now bringing their vast experience, of treating water and effluent in Industry, to the small pond or aquarium owner. The two new products entitled 'Ketlene' Aqua-Kleen and 'Ketlene' Aqua-Kristel are a solid flocculant product, attractively shaped in the form of a fish, that simply are suspended in a pond or aquarium to settle out the suspended solids to help keep the water clean and clear.

'Ketlene' Aqua-Kleen is the largest fish in the range and is simply placed in a garden pond, suitable for pools or ponds up to 100 gallons, and can be left to dissolve leaving the water free from suspended wastes. Aqua-Kleen is expected to retail for around 85p.

'Ketlene' Aqua-Kristel is the mino and is supplied complete with cord for suspending in aquariums again to keep the water free from suspended wastes. Aqua-Kristel is expected to retail for around 50p.

Available from the Manufacturers: Fospur Limited, Ketlene Division, Alfreton Industrial Estate, Somercotes, Derby DE55 4LR.

Sri Lanka '77

Sri Lanka is the home of exotic marine fish, most Cryptocorynes and many aquatic plants and a variety of freshwater fish which find their way to the British aquarist.

It is also the home of Suhada Limited, who are now planning a trip for those aquarists interested in seeing all these in their natural habitat. In addition to this the aquarist will get the opportunity of exploring this beautiful island and visiting many of the spectacular ancient cities, as well as seeing the wealth of wild-life.

During previous expeditions carried out by the Suhada directors, several new species of aquatic plants were discovered, and these are now being propagated in order to be made available to the aquarist.

The trip is planned for the second week in April, and will be of two weeks' duration. Will anyone interested please apply for details to: W. V. De Thabrew, 4 Somerset Road, Cinderford, Gloucestershire.

Answer to Shared Living
COMMUNITY TANK

The *Shusui* Koi with which Mr. G. Atkins won the Gosford Trophy for Best Fish in Show at the Midland Koi Association's Open Show in September, 1976

Photo: Ray Hanson

News from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarists societies for inclnsion on this page should reach the Editor by 5th of the month preceding the month of publication.

RECENTLY the **Hounslow & District A.S.** had a very successful weekend in competition with other societies at the Aquarium Show. Mr. Parrish is to be congratulated on winning the main event the "Supreme Champion" with a large labyrinth fish. The society took first place in the awards for the Furnished Aquarium class and their tableau was also well presented and highly praised.

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IN October the **Atlantis Fishkeeping Society** heard a very interesting talk from Mr. C. Norton on "General Fishkeeping." There was an attendence of thirty three members. The headquarters of the Socity have been changed to Aintree Methodist Church Hall, Black Bull, Liverpool and they are now a member of the F.N.A.S. The Secretary is G. Harvey, 50 Armley Road, Anfield, Liverpool L4 2UN.

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SHOWS have featured mainly in the programme of the **Port Talbot and District A.S.** and October proved to be no exception. Early in the month the members travelled to the Rhondda for a friendly and gained a comfortable win by 25pts. to 17pts. Also in October the club held its second annual mini-show which was confined to club members. The activities concluded with the annual visit to Belle Vue for the British Aquarists Festival, a trip enjoyed by all who travelled.

Mini-Show results: Class B: 1, Mr. and Mrs. Cotton, 2, Mrs. Jones, 3, J. Arnold; 4, Mrs. Perkins. Class C: 1 and 2, J. Dunne; 3, Mr. and Mrs. Cotton; 4, Mrs. Perkins. Class D: 1 and 2, J. Egan; 3, J. Dunne; 4, J. Arnold. Class E: 1, Mr. and Mrs. Cotton; 2, J. Dunne; 3, B. Fouracre; 4, J. Egan. Class J: 1, B. Fouracre; 2, J. Egan. Class O: 1, D. Westacott; 2, R. Perkins; 3, J. Egan; 4, B. Fouracre. Class Q: 1, R. Perkins; 2, Mr. and Mrs. Davies. Class R: 1 and 3, B. Fouracre; 2, D. Westacott; 4, Mrs. Fouracre. Class S: 1 and 2, C. Morrison; 3, B. Fouracre; 4, Mrs. Jones. Class W: 1, Miss Rupert; 2 and 3, Mrs. Jones; 4, C. Morrison. A.O.V. Tropical: 1 and 2, J. Egan; 3, B. Fouracre; 4, R. Perkins.

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THE newly formed **Caerphilly and District A.S.** fourth meeting held recently was attended by thirty members. A lecture on showing fish was given by the judge, Mr. Gorden Best (F.B.A.S.) and was much appreciated by all present. A table show was held with an entry of over thirty fish and the results were: Cichlids: 1, 2, 3 and 4, P. and Y. Watts. K.O.: 1 and 3, M. Davies; 2 and 4, P. and Y. Watts.

The Society meets fortnightly on a Monday at the British Legion Club, Trethomas. For further information ring Machen 763 during the day. Any new member attending the meeting can be sure of a warm welcome and an enjoyable evening.

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OFFICERS elected at **East London A.S.** annual general meeting for the ensuing year were as follow: President, P. Campkin; Vice-Presidents, Messrs. Arnold, Bryden, Field, Petto, Taylor; Chairman, J. Boss; Vice-Chairman, D. Flack; Secretary, Mrs. P. Harris; Treasurer, A. Harris; Programme Secretary, W. Carter; Editor, P. Barrett; Show Secretary, T. Waller; Show Organiser, L. Baker; Social Secretary, Mrs. Boss; Librarian, B. Line; Press Officer, K. Wrightson, 78 Stanley Road, Hornchurch, Essex; Equipment Officer, K. Palmer; Lay Committee Members, K. Baker, F. Simmonds. The meetings are held every first and third Friday in each month and new members are assured of a warm welcome.

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OPEN Show results of the **Doncaster and District A.S.** were as follow: Livebearers: Guppies: 1, Mr. and Mrs. Kirk (South Humberside); 2, Mr. and Mrs. Richmond (Retford); 3, Mr. and Mrs. Bond (Southport). Platies: 1, Mr. and Mrs. Houghton (Southport); 2, Mr. and Mrs. Golding (Immingham); 3, T. Busfield (Barnsley). Mollies: 1, Mr. and Mrs. Newsome (South Humberside); 2, Mr. and Mrs. Lake (South Humberside); 3, Mr. and Mrs. Chamberlain (Leamington). Swordtails: 1, Mr. and Mrs. Kirk (South Humberside); 2, D. and P. Birdsall (Swillington); 3, Mr. and Mrs. Fletcher (Doncaster). A.O.V. Livebearer: 1, C. McClurg (Stockton-on-Tees); 2, A. Waddington (Barnsley); 3, B. Jackson (Doncaster). Aphsemion: 1, Master Young (Hull); 2, J. Banks (Mexboro); 3, Mr. Marshallsea (B.K.A.). A.O.V. Toothcarps: 1, A. Young (Hull); 2, Mr. and Mrs. Blades (Bassetlaw); 3, B. Sleight (Mexboro). Dwarf Cichlids: 1, C. Bradbrook (Castleford); 2, Mr. and Mrs. Riley (Castleford); 3, Mr. and Mrs. Newsome (South Humberside). Angels: 1, Mr. and Mrs. Richmond (Retford); 2, Mr. and Mrs. Muckle (Southport); 3, G. Hoyland (Don Valley). A.O.V. Cichlids: 1, Mr. and Mrs. Taylor (Atlantis); 2, A. Cook (Retford); 3, Mr. and Mrs. Howell (Doncaster). Malawi Cichlids: 1, Mr. and Mrs. Berry (Scunthorpe and District); 2, Mr. and Mrs. Fletcher (Doncaster); 3, A. Frisby (Hull). Small Barbs: 1, Mr. and Mrs. Lake (South Humberside); 2, Mr. and Mrs. Blades (Bassetlaw); 3, Mr. and Mrs. Fletcher (Doncaster). Large Barbs: 1 and 3, A. Cook (Retford); 2, Mrs. Berry (Scunthorpe and District). Goldfish and Comets: 1, W. F. Holmes (Ind.); 2 and 3, K. Chapman (Mexboro). A.O.V. Coldwater: 1, Mr. and Mrs. Harvey (Atlantis); 2, K. M. Wood (York); 3, Mr. and Mrs. Riley (Castleford). Shubunkins and Fancy Goldfish: 1, J. S. Greenwood (Swillington); 2 and 3, Mr. Sykes (Leicester). Novice Livebearer: 1, J. Balderson (Grimsby and Cleethorpes); 2, Master R. Smith (York). Novice Egglayers: 1, Master G. Sanderson (Thorne); 2, Master Turner (Thorne); 3, Master R. Smith (York). Junior Livebearer: 1, C. Calow (Coral Reef); 2, Master Young (Hull); 3, Miss L. Petty (Castleford). Junior Egglayers: 1, C. Callow (Coral Reef); 2, Master J. Emmerson (Castleford); 3, K. Chapman Jnr (Mexboro). A.O.V. Tropical: 1, Mr. and Mrs. Chamberlain (Leamington); 2, A. Frisby (Hull); 3, T. Busfield (Barnsley). Corydoras: 1, Mr. and Mrs. Emmerson (Castleford); 2, W. Blundell (Doncaster); 3, Mr. and Mrs. Harvey (Atlantis). A.O.V. Cats: 1, C. Carrick (Castleford); 2, A. Waddington (Barnsley); 3, T. Sanderson (Thorne). Loaches: 1, T. Sanderson (Thorne); 2, Mr. and Mrs. Muckle (Southport); 3, Binns and Caldow (Scunthorpe). Breeders Livebearers (1-10): 1 and 2, Mr. and Mrs. Richardson (Scarborough); 3, A. Waddington (Barnsley). Breeders Livebearers (11-20): 1, Mrs. Moses (Doncaster); 2, Mr. and Mrs. Hopkinson (Darfield). Breeders (Egglayers 1-10): 1, B. Jackson (Doncaster); 2, D. and P. Birdsall (Swillington); 3, W. F. Holmes (Ind.). Breeders (Egglayers 11-20): 1, Mr. and Mrs. Blades (Bassetlaw); 2, Master S. White (Retford); 3, Mr. and Mrs. Bradshaw (Sheaf Valley). Ladies (Livebearers): 1, Mrs. Petty (Castleford); 2, Mrs. Blades (Bassetlaw); 3, Mrs. Muckle (Southport). Ladies (Egglayers): 1, Mrs. Taylor (Atlantis); 2, Mrs. Blades (Bassetlaw); 3, Mrs. Snowdon (York). Fighters (True Colour): 1, Mr. and Mrs. Moore (Sheaf Valley); 2, Master C. Mangles (Retford); 3, Mr. and Mrs. Riley (Castleford). Fighters (Multi-Colour): 1, Mr. and Mrs. Riley (Castleford); 2, Mr. and Mrs. Berry (Scunthorpe and District); 3, Mr. and Mrs. Hooley (Bassetlaw). Small Anabantids: 1, Master N. M. Rinner (Sandgrounders); 2, T. Tidswell (Grimsby and Cleethorpes); 3, C. Carrick (Castleford). Large Anabantids: 1, Mr. and Mrs. Petty (Castleford); 2, Mr. and Mrs. Chamberlain (Leamington); 3, J. Banks (Mexboro). Pairs (Livebearers): 1, M. Price (Castleford); 2, W. Blundell (Doncaster); 3, A. Waddington (Barnsley). Pairs (Egglayers): 1, Mr. and Mrs. Richardson (Scarborough); 2, Mr. and Mrs. Lake (South Humberside); 3, Master Lake (South Humberside). Plants: 1, T. Kilvington (Doncaster); 2, Mr. and Mrs. Feasey (Doncaster); 3, Mr. and Mrs. Roberts (Doncaster). Furnished Jars: 1, A. Taylor (Mexboro); 2, A. Cook (Retford); 3, Mr. and Mrs. Agar (Aireborough). Small Characins: 1, Mr. and Mrs. Caldow (Scunthorpe Museum); 2, D. Jackson (Ind.); 3, Mr. and Mrs. Chamberlain (Leamington). Large Characins: 1, T. Tinsley (Rotherham); 2, B. Honnor (Doncaster); 3, Mr. and Mrs. Baldwin (Sandgrounders). Sharks and Foxes: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, Mr. and Mrs. Beaumont (Pontefract); 3, Mr. and Mrs. Holmes (Castleford). Rasboras: 1, A. Piggot (Grimsby and Cleethorpes); 2, Mr. and Mrs. Chamberlain (Leamington); 3, Mr. and Mrs. Copley (Doncaster). Minnows: 1, Master White (Retford); 2, D. Harris (Mexboro); 3, Mr. and Mrs. Blades (Bassetlaw). Danios: 1, I. Duncan (Hull); 2, Mr. and Mrs. Lake (South Humberside); 3, Master S. White (Retfoed).

There were 823 entries and the society with the most points was Castleford with 30pts. Thirty eight societies competed and the Best Fish in Show entry was from C. Carrick (Castleford).

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A friendly competition was held in October when **Whitby and District A.S.** challenged York A.S. Place cards were given for the first four places. Whitby won by 40 points. The Whitby members are very keen on competing against any club just to see the class of fish being kept by members of other societies. They also enjoy the social aspect and being new hope to learn something from these meetings. Any society that is interested in a friendly contest please write to Mrs. E. Lofthouse, 41 Derwent Road, Whitby, or ring Whitby 4299.

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THE First National Koi Show of the **B.K.K.S.** was held in September and there were over 300 fish on display. The results were as follow: Size Winners: Size 1 (under 7in.): 1, V. Devis; 2, R. Johnson; 3, G. Claxton. Size 2 (7-10in.): 1, P. Gaule; 2, F. Ahrens; 3, G. Claxton. Size 3 (10-14in.): 1, P. Reynolds; 2, F. Ahrens; 3, D. and R. Davis. Size 4 (14-18in.): 1 and 2, P. Reynolds; 3, R. Hanson. Size 5 (over 18in.): 1, R. Hanson; 2, P. Reynolds; 3, C. Roe. Variety Winners: Kohaku: 1, R. Hanson; 2, G. Claxton; 3, R. Johnson. Tancho: 1, V. Devis; 2, R. Hodgson; 3, B. Baylis. Taisho-Sanke: 1 and 3, R. Hanson; 2, P. Reynolds. Showa-Sanke: 1, F. Ahrens; 2, A. Bailey; 3, B. Baylis. Utsuri: 1, R. G. Woodward; 2, A. Danks; 3, R. Hodgson. Bekko: 1, P. Waddington; 2, A. Danks; 3, P. Reynolds. Asagi/Shusui: 1, C.

Roe; 2, D. and R. Davis; 3, G. Atkins. Hariwake: 1, C. Roe; 2, G. Claxton; 3, P. Gaule. Ohgon: 1, P. Reynolds; 2, P. Gaule; 3, G. Atkins. Gin-Rin: 1, P. Reynolds; 2, V. Devis; 3, G. Claxton. Kawari-Mono: 1, R. G. Woodward; 2, T. G. Miller; 3, G. Claxton. Hikari-Mono: 1, P. Waddington; 2, C. Roe; 3, F. Ahrens. Breeders Class: 1 and 3, T. Thompson; 2, M. Waumsley. Best in Show: R. Hanson.

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IN November **Kingsclere and District A.S.** stepped into the breach to fulfil the gap left by another society's cancellation of a Table Show Match against the Newbury A.S. From the seven classes chosen, Kingsclere were winners in four, with J. Miles doing particularly well, and being ably supported by M. Cook, R. Codd, M. Shore, W. Cornick, D. Hutchins and E. Mousley. The overall result was a narrow win for Newbury by 36pts. to 34pts. All present had a most enjoyable evening, which was rounded off by Newbury taking the first three places in the overspill class with an entry of thirty-one fish.

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IN their first two matches of the C.N.A.A. League, **Merthyr A.S.** beat Dow Corning by 28pts. to 14pts. and Rhondda by 31pts to 11pts. The members of Merthyr A.S. would like to thank both societies for providing such a good turnout.

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PROBABLY the finest collection of Ranchu (Lionhead of Japanese strain) ever seen together in this country were on view when 41 were benched at the **Ichiban Ranchu Society's** first table show held at the home of their President Mr. J. Davidson. They included Tozai (fish up to 7 months) second year fish, adults and Edonishiki (Nacreous Lionhead). Competition was very keen and beautiful trophies were presented to class winners. Runners-up received polished wood plaques. Best in Show was a 4 year old Sarrassa owned by Mrs. Davidson. A very congenial evening followed and films of visits to Japan made by Mr. J. Davidson and Mr. A. Lawman were shown.

The Ichiban Ranchu Society are proud to announce that they now have the honour to be associated to the Deko Kai, Japan by kind permission of the President Mr. Ginzaburu Naoi. Mr. Naoi has also consented to become an Honorary Member of the Society. The Secretary is Mrs. E. Davidson, 14 Garnetts, Takeley, Herts. CM22 6RJ.

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THE officers elected at the **Swillington A.S.** annual general meeting were: Chairman, A. Tiffany; Secretary, P. Campling, 4 Edinburgh Place, Garforth, Nr. Leeds; Treasurer, R. Hislop, and Mr. and Mrs. Birdsall as Joint Show Secretaries.

The society would like to extend the invitation to prospective members to be guests at the first meeting in 1977, this being 18th January when E. Hemingway will be giving a talk on Characins. The Open Show will be held on Sunday 19th June and a Mini-Show will be held on 15th March. Schedules will be posted in the new year. Details regarding the activities of the Society can be obtained from the Secretary at 4 Edinburgh Place, Garforth. Telephone: 88605.

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GUESTS at the November meeting of the **Bristol A.S.** were the Avon Preservation and Restocking Society and by using slides and film members were shown the methods by which fish were netted and transported to a new environment. The nature of the new environment and the absence of infection among the fish to be moved were among the points emphasised by the speakers.

The B.A.S. meet on the second Monday of each month at the Bishopston Parish Hall, Gloucester Road at 7.30 p.m.

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THERE was a good attendence at the November meeting of the **New Forest A.S.**, and four visitors who wished to apply for membership.

Two teams were formed and the game of "Twenty Questions," was run by Messrs G. Idwards and R. Travers, with quite a hilarious conclusion by the end of the evening. During the interval the junior members ran a raffle to assist club funds, here was also an auction of second hand fishkeeping equipment, and several goldfish. Owing to the Christmas Social being held on the December club evening, several table show species were held over until the January meeting.

Table Show results: Platys: 1, P. Wheeler; 2 and 3, P. Noeup; 4, B. Down. Fighters: 1, P. Wheeler; 2, T. Jefferies. Barbs: 1 and 3, M. Aust; 2, T. Jefferies; 4, C. Head. Meetings are held on the third Monday of every month in the Community Centre, Lymington, Hants., and prospective new members are always welcome.

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ANNUAL general meeting appointments made by the **Northwich and District A.S.** were as follow: President, P. Hyland; Chairman, B. Connelly; Secretary, S. Shove; Assistant Secretary, B. McCarthy; Treasurer, G. Cross; Open Show Secretary, D. Valentine; Librarian, A. Myers. The following members of the committee were not due for election until 1977: B.A.F. Organiser, L. Thorne; Social Secretary, B. Connelly; P.R.O., H. Buckley.

The prize cards from the British Aquarist Festival were presented by Mr. P. Hyland to the following members: 1st Club Tropical Furnished Aquarium, L. Thorne; 3rd Club Coldwater Furnished Aquarium, Mrs. D. Thorne; 3rd Individual Coldwater Furnished Aquarium, L. Bradley; 1st Anabantids, L. Thorne (F.N.A.S Trophy Winner); 1st Fighters, H. Buckley (East Lancashire Society Trustees Challenge Trophy Winner); 2nd Pairs Gouramis, R. Mathers; 3rd Characins, P. Smith; 2nd Pairs of Rasboras, L. Thorne; 2nd Angel Fish, C. and K. Davies.

Fish of the year table show winners: 1, P. Smith, Mottershead Shield Winner; 2, L. Thorne; 3, C. and K. Davies.

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THE quarterly members show of the **Swillington A.S.** held in November was well attended and the results were as follow: Pairs Livebearers: 1, D. and P. Birdsall; 2, G. Cox; 3, C. Goulthorpe. Pairs Egglayers: 1, C. Goulthorpe; 2, Pollard; 3, D. and P. Birdsall. Furnished Jars: 1, M. Walker; 2, G. Cox; 3, Mrs. Greenwood. Rasboras, Dan., Minn.: 1 and 3, C. Goulthorpe; 2, G. Cox. A.O.V.: 1, G. Cox; 2, Miss Birdsall; 3, M. Walker. Member with the most points was C. Goulthorpe.

Anyone wishing to join the society please contact the Show Secretaries, D. and P. Birdsall, 6 Burley Wood Lane, Leeds 4.

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RESULTS of the **Bradford and District A.S.** Open Show were: Guppies: 1, Mr. and Mrs. Bond (Southport); 2 and 3, Mr. and Mrs. Richmond (Retford). Swordtails: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, Mrs.Stillwell (Sandgrounders); 3, Mr. and Mrs. Riley (Castleford). Platies: 1, Miss A. and L. Petty (Castleford); 2, J. Shackleton (Halifax); 3, Mr. and Mrs. Riley (Castleford). Mollies: 1, Mr. and Mrs. Petty (Castleford); 2 and 3, Mr. and Mrs. Tinsley (Sandgrounders). A.O.V. Livebearer: 1, A. Howgate (Stanley); 2, J. Shackleton (Halifax); 3, M. Price (Castleford). Small Barbs: 1, Mr. and Mrs. Holmes (Castleford); 2, B. Wilson (Sandgrounders); 3, M. and N. Rimmer (Sandgrounders). Barbs: 1, Mr. and Mrs. Holmes (Castleford); 2 and 3, A. Cook (Retford). Small Characins: 1, Mr. and Mrs. Muckle (Southport); 2, M. Stevenson (Ouram); 3, Mr. and Mrs. Chester (Retford). Large Characins: 1, Mr. and Mrs. Chester (Retford); 2, K. Watson (Ind.); 3, A. Firth (Bradford). Rasboras, Danio, Minnows: 1, I. Duncan (Hull); 2, Miss S. Scaife (Morley); 3, K. Watson (Ind). Sharks and Flying Foxes: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, Mr. and Mrs. Dugdale (Blackburn); 3, B. Dawson (Heywood). Fighters: 1, Mr. and Mrs. Richmond (Retford); 2, Mr. and Mrs. Moore (Sheaf Valley); 3, L. Gatenby (Bradford). Anabantids: 1, Mrs. K. McBride (Aireborough); 2, B. Wilson (Sandgrounders); 3, Mr. and Mrs. Holmes (Castleford). Large Anabantids: 1, Mr. and Mrs. Riley (Castleford); 2, Mr. and Mrs. Muckle (Southport); 3, Mr. and Mrs. Lowes (Halifax). Dwarf Cichlids: 1, A. Howgate (Stanley); 2, J. Irwin (Stanley); 3, M. Price (Castleford). Large Cichlids: 1, Mr. and Mrs. Taylor (Atlantis); 2, Mr. and Mrs. Howell (Doncaster); 3, Mr. and Mrs. Hopkinson (Darfield). Angel Fish: 1, J. Irwin (Stanley); 2, Mr. and Mrs. K. Welsh (York and District); 3, Mr. and Mrs. Richmond (Retford). Corydoras and Brochis: 1, Mr. and Mrs. Chester (Retford); 2, Mr. and Mrs. Holmes (Castleford); 3, C. Carrick (Castleford). Loaches and Botia: 1, Mr. and Mrs. Muckle (Southport); 2, A. Shepherd (Bradford); 3, J. Coenfoeth (Bradford). A.O.V. Catfish: 1, B. Sleight (Mexborough); 2, K. Watson (Ind.); 3, O. Harris (Mexborough). A.O.V. Tropical: 1, A. Frisby (Hull); 2, Mr. and Mrs. Holmes (Castleford); 3, Mr. and Mrs. Petty (Castleford). Breeders Livebearers (1-10): 1, D. Sugden (Bradford); 2, A. Howgate (Stanley); 3, Mr. and Mrs. Hopkinson (Darfield). Breeders Livebearers (11-20): 1, B. Jackson (Doncaster); 2, Mr. and Mrs. Hopkinson (Darfield). Breeders (Egglayers (1-10): 1, W. Holmes (Ind.); 2, Mr. and Mrs. Chester (Retford). Breeder Egglayers (11-20): 1, Mr. and Mrs. Taylor (Atlantis); 2, M. Hay (Oldham); 3, E. J. Brown (Blakeborough). Pairs Livebearers: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, Mr. and Mrs. Muckle (Southport); 3, B. Jackson (Doncaster). Pairs Egglayers: 1, B. Wilson (Sandgrounders); 2, P. Scaife (Morley); 3, M. Hay (Oldham). Common Goldfish: 1, W. Holmes (Ind.); 2, B. Dawson (Heywood); 3, K. Chapman (Meaborough). Fancy Goldfish: 1, J. and S. Greenwood (Swillington); 2, T. Redfern (Heywood); 3, Miss McBride (Aireborough). A.O.V. Coldwater: 1, C. Carrick (Castleford); 2, Mr. and Mrs. Harvey (Atlantis); 3, K. and M. Wood (York). Best in Show: Mr. and Mrs. Taylor (Atlantis) 76 pts. Liverpool with a Cichasoma Citrenella (Red Devil). There were 499 entries and it was a very pleasant and successful show.

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OVER sixty members of the **King's Lynn A.S.** enjoyed a slide film at this month's meeting entitled "Beginners Guide." This was followed by a question time and a fish auction. There was also a bench show for livebearers and the placings were as follows: 1, A. Freeman; 2, R. Warner; 3, C. Siniper; 4, R. Warner.

This was the last meeting before the annual general meeting. The Club has been in existence for a year and are very pleased at its popularity. Membership is still growing and the society meet on the second Thursday each month at the Victoria Noke Road, King's Lynn.

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AT the recent Annual General Meeting of **Bracknell A.S.** A. Sharp was elected Chairman, Mrs. Pat Sharp treasurer and A. Cockett, Secretary. Meetings would commence prompt at 8 p.m. and Specialist and A.O.V. fish classes would be held at every meeting on the second and fourth Monday in the month at the Red Lion P.H., Old High Street, Bracknell.

A full programme for the year is being arranged, and a breeders project would be started as soon as possible. To encourage more new members a points scheme would be introduced to determine the Aquarist of the Year Trophy and members participation in Three Counties events. Membership would be abolished and a 20p per night fee would be imposed to help pay for the hire of the clubroom and enable members to pick and choose meetings. The home furnished aquaria competition would be reintroduced as well as a Champion of Champions class.

The club had suffered from a lack of active members over the past year and from the loss of one of its most beloved members in Les Jordan. However a full advertising had been embarked upon and the Society had decided to purchase a shield for the Cichlid class in

memory of Les. New members both adult and junior are welcome and full details are available from T. Cockett, 15, The Larches, Warfield Park, Bracknell. Tel: Winkfield Row 4596.

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IN August, about 35 members of the **Ilford and District Aquarist's and Pondkeeper's Society** listened to a talk on the cultivation and showing of aquarium plants, given by Ron Forder. A great deal of discussion on the current show rules was stimulated and the proposals for their alteration were aired by Mr. Forder, who also judged the plant table show.

At the September meeting Dr. David Ford of the British Aquarist's Study Society showed a delighted audience of members and friends the colour slides taken on his world tour of public and private aquaria. The commentary as well as the slides was superb and Dr. Ford was warmly thanked for taking the trouble to journey South.

In October Mr. D. Seaman of Ilford presented a talk on genetics which explained in simple terms the mysteries of inheritance and line breeding. Cleverly illustrated with models and photographs the talk was warmly received by an audience of over forty. At the November meeting members held an informal colour slide competition covering a wide range of aquatic and general topics, judged by a member of the local photographic Society.

The Society meets monthly usually on the second Monday, at the Churchill Rooms, The Wanstead Library, Spratt Hall Road, Wanstead, London E.11. Further details may be obtained from the Secretary, Michael Shadrock, 61 St. Barnabas Road, Woodford Green, Essex.

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RECENTLY the **Llantwit Major A.S.** were hosts to Blaenau Gwent in an inter-club competition. The result was a win for the host society and the details were: Livebearers: 1, Mr. and Mrs. Guthrie (L.M.A.S.); 2, H. Pearce (Blaenau Gwent); 3, E. A. Hillman (L.M.A.S.); 4 and 5, J. Edwards (L.M.A.S.). Egglayers: 1, E. Brown (Blaenau Gwent); 2, Mr. and Mrs. Guthrie (L.M.A.S.); 3 and 4, H. Chick (L.M.A.S.). 5, H. Pearce (Blaenau Gwent). L.M.A.S. 27 points, Blaenau Gwent 9 points. Result: L.M.A.S. 27 points, Blaenau Gwent 15 points. K.O. Livebearers: 1 and 2, Mr. and Mrs. Guthrie (L.M.A.S.); 3, E. Brown (Blaenau Gwent); 4, H. Pearce (Blaenau Gwent). Egglayers: 1, J. Edwards (L.M.A.S.); 2, Mr. and Mrs. Guthrie (L.M.A.S.); 3, Miss D. Livis (L.M.A.S.). During the judging there was a Celebrity Squares game, which proved both entertaining and informative.

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AT the November meeting of the **Clwyd A.S.**, a very interesting and informative slide show and talk was given by F.N.A.S. judge Mr. C. Pritchard of Wrexham, on general fishkeeping topics. A vote of thanks was given by Mr. E. Lloyd Jones and an entertaining evening was had by all. The Society meets at 8 p.m. on the second Monday of every month, at St. Paul's Church Institute, Rhiw Road, Colwyn Bay. New members are always welcome.

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THE **British Koi Keepers' Society** had its most successful year to date in 1976, ending up with over five hundred members in the United Kingdom and abroad, not including affiliated societies, by the end of the year.

The Society also held its first-year National Koi Show in the Midlands which was an enormous success and surely the start of an annual "Mecca" for Koi-keepers.

Sections have been mushrooming all over the country so that members are helping each other more and more and organising local events as well as national ones.

If any reader of this magazine would like to join the B.K.K.S. and receive details of their local sections and activities, they can contact the Society's Membership Secretary, Mr. Malcolm Waumsley, at 165 Woodside Road, Amersham, Bucks. HP6 6NR.

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A contest between S.P.A.S.S. and the **Isle of Wight A.S.** was held in November with three classes U, V and W and three fish from each club being entered in each class. Results: Common Goldfish: 1, Mrs. E. Ford, I.W.A.S.; 2 and 3, B. McHugh, I.W.A.S.; 4, J. Herring, S.P.A.S.S. Fancy Goldfish: 1 and 4, J. Herring, S.P.A.S.S.; 2, Mrs. M. Dudley, S.P.A.S.S.; 3, S. Stevens, I.W.A.S. Native and Foreign Coldwater: 1 and 2, B. McHugh, I.W.A.S.; 3, Mrs. M. Dudley, S.P.A.S.S.; 4, D. Herman, S.P.A.S.S. The final result was a win for S.P.A.S.S. by a narrow margin.

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OFFICERS elected at the **Lincoln and District A.S.** annual general meeting, held in November were: President: R. Towse, Chairman: J. Woodliffe, Treasurer: H. Stanham, Secretary: L. Osborne, 75 Yarborough Road, Lincoln LN1 1HS. Telephone: Lincoln 28561.

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AT the last meeting of the **Atlantis Fishkeeping Society**, unforeseen circumstances prevented Mr. Barry Booker from giving a talk but the Chairman, J. Taylor and G. Harvey, Secretary, filled the gap in answering questions put forward by the members. In December there was a Quiz against Sandgrounders.

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IN November members and guests of the **Hounslow and District A.S.** sat down to dinner, the occasion being the Society's annual dinner and dance. At this very popular event, the trophies and plaques were presented to the winners of the final competition of the year. Following the dinner the chairman, Mr. R. Welhams, made a short speech thanking all those who had helped on many occasions when displays had been put on for the public. He also thanked the committee for their co-operation and all the work they had done throughout the year.

First place winners over the year were: Class B: F. Hoppenbrouwers. Class C: D. Thomas. Class D: R. S. Hart. Class E: Mrs. P. Hampton. Class F: R. S. Hart. Class G, L: A. P. Constantine. Class H: A. P. Constantine. Class J, K: R. S. Hart. Class M: T. Hart. Class N: Mrs. D. Lewis. Class O, P, S, T: A. E. Cully. Class Q, R: A. P. Constantine. Class U, V, W: R. S. Hart. Class X, B-M: P. Rogers. Class X O-T: A. P. Constantine. Hyphessobrycon Trophy: R. S. Hart. Fighter Trophy: Mrs. P. Hampton. Best Fish of Year: D. Thomas. Home Furnished Aquarium: P. Rogers. Junior Furnished Aquarium: P. Rogers. Furnished Jars: R. S. Hart. Plants: R. Nelhams. Open Show Trophy: R. S. Hart. Breeder of Year Trophy: R. S. Hart. Highest Points Trophy: Mrs. P. Hampton. Junior Points Trophy: P. Rogers.

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IN November the annual general meeting of the **Hemel Hempstead A.S.** was held when the following officers were elected: Chairman: S. Collins, Secretary: Sheila Moore, Treasurer: Kate Yearsdon, Social Secretary: D. Church, Librarian: A. Flowers, Junior Representative: D. James, Public Relations: K. Puleston. The club meets every second Thursday and new members and visitors are very welcome. In the first instance they should contact the Secretary, Sheila Moore, 4 Cowper Road, Bennoor, Hemel Hempstead, Hertfordshire, telephone: Linnet 7985.

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THE **Bethnal Green A.S.** commenced their new year in September with visits from several F.B.A.S. guest speakers which included R. D. Esson, filtration, tableaux; R. C. Mills, Devil fish, Agels; C. A. T. Brown, Killiefish; C. Harrison, Aquarium maintenance; J. Nethersell, Candid-camera shots. All gave excellent talks illustrated with slides.

A full and varied programme, including table shows and outside visits has been arranged for this year and anyone interested to visit or maybe joining the Society would be made most welcome. The meetings are held at the Bethnal Green Institute, 229 Bethnal Green Road, E.2. every Tuesday at 8 p.m. The Secretary is Mrs. Linda Short, 51 Egham Road, Plaistow E.13. Phone: 01-474 0447. The society is holding the annual dinner and dance on Saturday, 19th February, and tickets £4·50 each are available from Sybil Hedges, "Koi Kornor," 150 Ashburton Avenue, Seven Kings, Ilford, Essex IG3 9EL. Phone: 01-590 3239 or Mr. J. Connolly 01-530 3946.

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DETAILS of the annual Inter-Club contest between Mid-Sussex, Tonbridge, Brighton & Southern, Horsham, Hastings, Crawley, and Littlehampton Aquarist Societies were as follow: Loaches: 1 and 2, A. Feast (Tonbridge); 3 and 4, K. Groves (Horsham). Labyrinths: 1, T. Ramshaw (Brighton); 2, K. Bevan (Hastings); 3, S. Frost (Mid-Sussex); 4, Mr. and Mrs. Pannells (Hastings). Characins: 1, B. Sayers (Brighton); 2, A. Holmes (Crawley); 3, L. Rossi (Horsham); 4, T. Ramshaw (Brighton). Rasboras: 1 and 2, B. Slade (Mid-Sussex); 3 and 4, L. Rossi (Horsham). Danios: 1, A. Feast (Tonbridge); 2, T. Ramshaw (Brighton); 3, S. Testes (Mid-Sussex); 4, P. Owles (Horsham). Barbs: 1, J. Bellingham (Tonbridge); 2, C. Roffe (Littlehampton); 3 and 4, B. Sayers (Brighton).

The result was that Tonbridge and Brighton both had 15 points, but Tonbridge had more first cards and were therefore winners.

Tickets at £2 each for the Super-Natural Night Dance and presentation, on the 18th February, 1977, are now available.

Further details from the Secretary, B. Slade, "Sundown," Bolney Road, Anstye. (H. Heath 53747).

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OFFICER changes in **Stroud and District A.S.** are as follow: Chairman: C. F. Whittaker; Vice-Chairman: R. Amor; Secretary: G. King, Hawthorn Rise, Westrip, Stroud, Glos.; Joint Show Secretaries: Mr. and Mrs. J. Cole, 13 The Hill, Randwick, Stroud, Glos. Stroud 4504.; Treasurer: T. Artus; Committee: R. McTaggart, P. Davis, C. Hodges, Junior, Miss S. Cole.

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DUE to the water shortage, the Committee of the **GOLDFISH SOCIETY OF GREAT BRITAIN** decided to cancel their Open Show last September and to make the table show at the November meeting for current year's breeders. As over eighty members attended this meeting, the decision proved to be a popular one. Forty entries were put up for competition and the Chairman then introduced Mr. J. Linale who told of his method of producing a Nacreous Celestial. He explained the experiments he had made during the past years and of the crossings he had made using the Floral Phoenix fish. He brought along several fine examples of the Nacreous Celestial which were auctioned to the members with Mr. Linale kindly giving the proceeds to the Society.

Mr. W. Ramsden and Mr. B. Rothwell, both from the Northern Federation, told the members the progress the Association of Goldfish Societies was making. They also submitted the views and ideas of the people they represent. After tea, Mr. A. Lawman projected over 150 coloured slides taken over the past 12 months, showing how he built his brick fish house and six ponds, each 6 ft. square. He explained how and why he built them, showing the method of construction used to suit his ideas. Also shown were the methods that he uses to raise Orandas and Lionheads, and the type of foods used to feed the young fish. It was interesting to note that all fish over two weeks old are raised in the outside ponds where they receive large amounts of live foods, frequent water changes and most important, space, fresh air and sunshine.

The results of the table show for breeders were: Bristol Type Shubunkin: 1 and 3, W. Cook; 2, R. Whittington; 4, B. Cook. Veiltail: 1, J. Linale; 2, W. Cook; 3, D. Mills; 4, A. Dibley. Pearlscale: 1 and 2, A. Lesurf;

3, T. Longstaff; 4, M. Cluse. Bramblehead (Lionhead): 1, T. Longstaff; 2, A. Lawman; 3, R. Hyatt. Celestial: 1, E. Metcalf; 2, J. Linale. Pompom: 1, 2 and 3, G. King. Bubble-Eye: 1, K. Speaks, 2, Miss D. Morris. Oranda: 1, A. Lawman; 2, R. Hyatt. Fantail: 1 and 3, J. Kingsland; 2 and 4, A. Green. London Shubunkin: 1, 2 and 3, Mrs. P. Whittington, 4, A. Dibley. Common Goldfish: 1, R. Whittington. Broadtail Moor: 1, Mrs. M. Dudley.

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BURY AND DISTRICT A.S. CONVENTION

TO celebrate their 25th Anniversary **Bury and District A.S.** held a convention in November. After his welcoming remarks Mr. I. Wood the M.C., together with Mr. H. Cooper the Chairman, showed some of the society's many slides of spawning sequences. This was followed by a lecture by Dr. S. Chubb of Liverpool University speaking about his work on Fish Parasites. Dr. Chubb has worked for seventeen years mainly in North Wales particularly Lake Bala; and the popularity of his lecture was widened by the queue of aquarists waiting to question him after his lecture finished.

After the lunch break Mr. F. Campbell, the longest serving member of the society presented each of the speakers with a specially commissioned plaque depicting an aquatic plant. The third lecturer of the day was Mr. I. Sellick, a research student at Bristol University. After a short dissertation on Fish Coloration, he continued with a very interesting lecture on Fish Communication. Next Dr. David Ford of Aquarian Foods told of the start of the food and all the research that went into its make-up.

The convention finished with a slide lecture by Mr. G. Holmes of K.B. who told the assembly about his recent expedition "Up the Amazon". The audience was enthralled by the lecture even the more gruesome details being absorbed with delight.

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IMPORTANT NOTICE

All correspondence for the British Cichlid Association Secretary must be sent to the following address: Ian C. Sellick, Department of Zoology, University of Bristol, Woodland Road, Bristol BS8 1UG. Any urgent business may be communicated by telephone only where absolutely necessary on Bristol (0272) 24161, ext. 800 during normal business hours.

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VENUE CHANGE

THE **Ilford and District Aquarists' and Pondkeepers' Society** now meets at the Churchill Rooms, The Wanstead Library, Spratt Hall Road, Wanstead, London E.11.

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NEW SOCIETY

A GROUP of enthusiastic fishkeepers in Longridge, near Preston, have formed the **Longridge and District A.S.** After meeting in members' homes initially the Society has now found a permanent base at the St. Wilfrids Club, off Derby Road in Longridge. Meetings are held on the first Wednesday in every month at 8 p.m. The secretary is Mr. Barry Durham, 12 Birchfield Drive, Longridge, Preston PR3 3HP.

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SECRETARY CHANGES

Bury and District A.S. Mrs. B. Brown, 173 Parr Lane, Unsworth, Bury, Lancs BL9 8JN. Meetings are held on the first Tuesday of every month at the Royal Hotel, Silver Street, Bury.

Boston A.S. Mrs. M. Sands, 20 Argyle Street, Boston, Lincs. PE21 8PH.

Newbury and District A.S. C. Howe, 11 Chandos Road, Newbury, Berks RG14 7EP. Tel.: Newbury 42482.

Stroud and District A.S. G. King, 10 Hawthorn Rise, Stroud, Glos. GL5 4QW.

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AQUARIST CALENDAR 1977

22nd January: Goldfish Society of Great Britain General Meeting, 2 p.m., Small Hall, Conway Hall, Red Lion Square, Holborn, London WC2.

13th February: Sheaf Valley A.S. Open Show will be held in the Dormer Twist Drill Ltd. Canteen, Cemetery Road, Sheffield. Benching 12.00 noon till 2.00 p.m. Details from Show Sec.: Mr. B. Moore, 57 Nicholson Road, Sheffield 8 or Tel.: 662382.

3rd March: Goldfish Society of Great Britain, Annual General Meeting, 2 p.m., Small Hall, Conway Hall, Red Lion Square, Holborn, London WC2.

26th 27th March: Scottish Aquarists' Festival, Civic Centre, Motherwell. Details and Schedules from—D. Fotheringham, Esq., 23 Royal Park, Terrace, Edinburgh EH8.

27th March: Heywood and District A.S. Open Show at the Civic Hall, Heywood, Lancashire. Schedules available from J. W. Ridley, Show Secretary, 53 Miller Street, Heywood, Lancs.

27th March: Reading and District A.S. Open Show at St. Mary Magdalene Church Hall, Rodway Road, Tilehurst, Reading (just off main Oxford Road). Further details and schedules from Show Secretary, P. Rushbrooke, 34 Melrose Gardens, Arborfield Cross, Berks. Tel: Arborfield Cross 760303.

2-3rd April: Aberdeen A.S. Open Show, Music Hall, Union Street, Aberdeen. Full details and Entry form from J. Gibson, 35 Redmoss Road, Aberdeen.

3rd April: Scunthorpe Museum Society Open Show at Charter Hall, Corpoeation Road, Scunthorpe. Schedules available from Show Secretary, D. Caldow, 5 St. Martins Road, Scawby, Brigg, South Humberside DN20 9BG.

10th April: Stockton-on-Tees A.S. are staging their Annual Open Show at Kloro Hall Community Centre, Stockton-on-Tees. Schedules can be obtained from R. Wood, 67 Victor Way, Thornaby-on-Tees, Cleveland. Tel: Stockton 615394.

17th April: Nelson A.S. Annual Open Show at the Civic Centre, Stanley Street, Nelson. Details from R. McKenna, 52 Bath Street, Nelson, Lancs BB9 0NP.

24th April: Blakeborough A.S. Open Show: Further details later.

24th April: York and District A.S. Open Show at Livestock Centre, Minston, York. Benching 12 noon to 2 p.m. Details from Show Secretary, A. Sykes, 59 London Street, Pocklington, York YO4 2JW.

24th April: The Yeovil and District A.S. will hold their annual open show at the Village Hall, Marnock, Somerset.

8th May: Bolton Gunners A.S. First Annual Open Show.

14th May: Southend, Leigh and District A.S. Open Show at St. Clement's Hall, Leigh-on-Sea, Essex. Further details will be available in due course from A. Smith, 39 Willow Walk, Hadleigh, Essex. Tel: Southenend 555540.

15th May: Goole and District A.S. Annual Open Show. Details from Miss M. Coates, 8 Hull Road, Howden, Goole, N. Humberside DN14 7AH.

15th May: Gloucester A.S. Open Show will be held at the Chequers Bridge Leisure Centre, Barton Street, Gloucester. There will be 32 classes in all. Trophies for 1st and 2nd, prizes for 3rd and 4th, plus award cards. Schedules will be available from March onwards from Mr. D. Parry, Secretary, 49, Oxstalls Way, Longlevens, Gloucester.

29th May: Middleton and District A.S. 6th Open Show. Two shows in one! Tropical Section: 34 Classes. Coldwater Section 11 Classes. At the Civic Hall, Middleton (M.62—Exit 19).

12th June: Salisbury and District A.S. Annual Open Show. Further details and show schedules from R. F. Adams, 26 Empire Road, Salisbury, Wilts.

19th June: Swillington A.S. Open Show. Schedules available from P. Campling, 4 Edinburgh Place, Garforth, nr. Leeds. Tel: 88605. Mini-Show on the 15th March.

26th June: Alfreton and District A.S. Annual Open Show at Alfreton Hall. Details and Show Schedules available later. P. W. Bonsor, 10 George Street, Riddings, Derbyshire DE5 4GF.

16th July: Goldfish Society of Great Britain General Meeting, 2 p.m., Small Hall, Conway Hall, Red Lion Square, Holborn, London WC2.

21st August: Stroud and District A.S. Annual Open Show at the Subscription Rooms, Stroud. Full tropical classes plus twelve classes for Coldwater. Schedules later from Mr. J. Cole, 13, The Hill, Randwick, Stroud, Glos. 4504.

27th-29th August: Tyne Tees Association of Aquarist Societies second exhibition of fishkeeping at Lambton Pleasure Park, Chester-le-Street. The Three Rivers Championship will be included in the preogramme. Further details available at an early date.

1st September: Goldfish Society of Great Britain, General Meeting, 2 p.m., Small Hall, Conway Hall, Red Lion Square, Holborn, WC2.

11th September: Longridge and District A.S. first Open Show at Longridge Civic Hall, Willows Park Lane, Longridge, Preston, Lancs. (15 minutes from the M6). Details available later.

3rd November: Goldfish Society of Great Britain, General Meeting, 2 p.m., Small Hall, Conway Hall, Red Lion Square, Holborn, London, WC2.