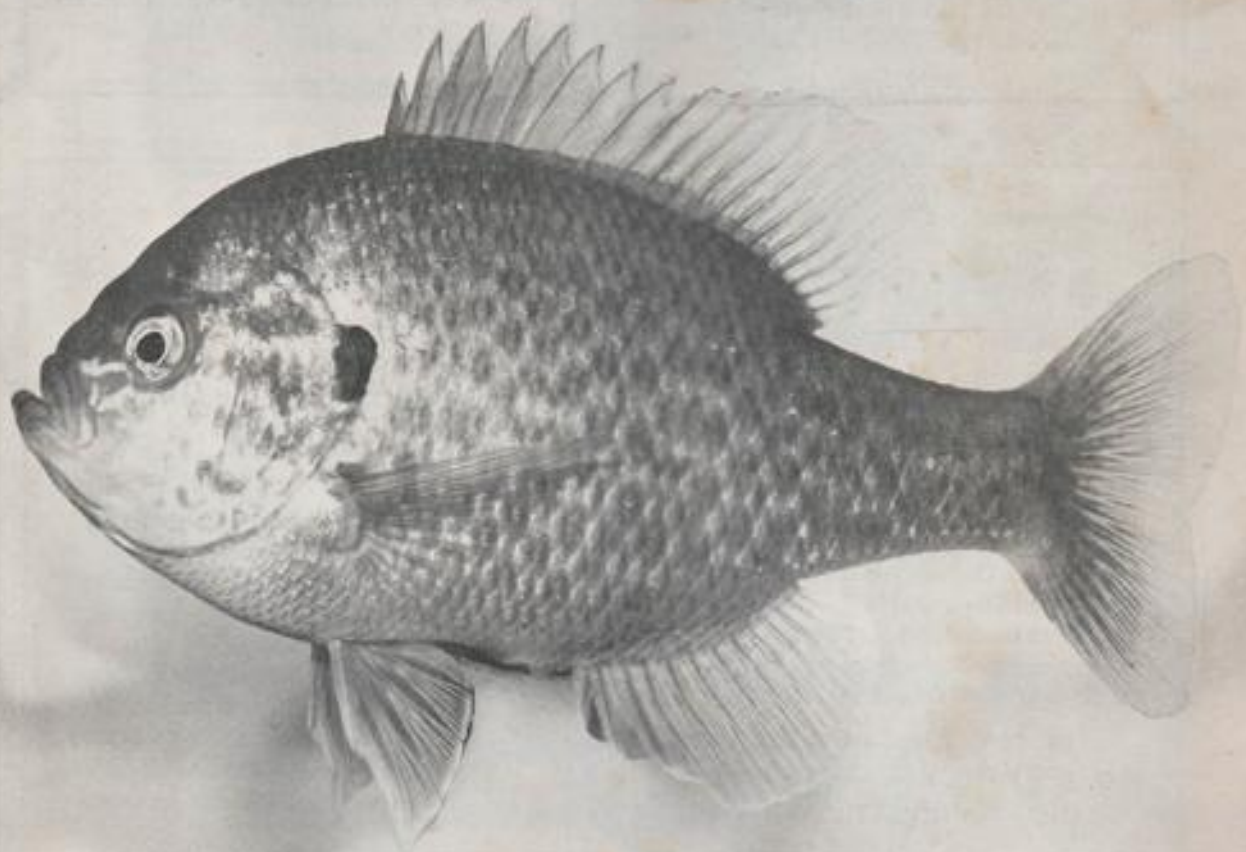


December
1970

the

3/-
monthly

Aquarist
and Pondkeeper



the Aquarist

and Pondkeeper

Printed by

Buckley Press
THE BUTTS . HALF ACRE
BRENTFORD . MIDDLESEX.
Telephone: 01-568 8441.

Subscription Rates

The Aquarist will be sent post free
for one year to any address for
£2 1s. 0d. Half-yearly £1 0s. 6d.

MSS. or prints unaccompanied by a
stamped addressed envelope cannot be returned and no re-
sponsibility is accepted for contributions submitted.



Founded 1924
as 'The Amateur Aquarist'
Vol. XXXV No. 9, 1970

Contents

OUR COVER

Winner of the Champion
of Champions Contest —
see colour supplement.

	PAGE
The Bitterling	294
A Naturalist's Notebook	295
Elodea Densa	296
Find the Fish	296
What is your Opinion?	297
Jottings	302
Keeping Terrapins	303
Our Experts' Answers	304
Breeding Goldfish	309
Our Readers Write	312
Colour Supplement	313
Champion of Champions	317
The World of the Cichlid	319
Modern Techniques for the Marine Aquarium	323
Product Reviews	325
Kuhli Loaches	328
Book Reviews	329
News from Aquarists' Societies	331

The Editor accepts no responsibility for views expressed by
contributors.

Editor: Laurence E. Perkins

THE BITTERLING

by A. Boarder



THE BITTERLING, (*Rhodeus sericeus*), is a small fish of the Carp family which inhabits the waters of Central and Eastern Europe, Asia Minor, and can now be found in some waters in England. It is thought that those found in this country were introduced by aquarists, and I have heard of waters in central and northern districts where many Bitterling have been taken. It may be that these fish are found over here in waters where warm water is run in from factories but it is to be hoped that this little fish will gradually spread to other waters in this country.

This fish makes a very good aquarium occupant as it is rarely that it exceeds three and a half inches in length. This is an excellent recommendation for the smaller tank and the fish will never grow too large

Pair of Bitterling (female on right) inspecting muscle prior to spawning.

for its tank. Although it is not brilliantly coloured for most of the year, during spawning time it can become most attractive. Also if it can be bred the spawning procedure is very interesting and most unusual. The fish takes the general shape of the Carp family and has a small mouth pointing forward. During normal times the sexes are rather similar in colouring, being a grey-green on the back and silver on the sides and belly.

At spawning time the male becomes quite brilliant with many rainbow-like colours on its sides and the fins, apart from dorsal, become reddish-yellow. The female does not show these colours but becomes more

yellow and shows an extended ovipositor which is used for egg laying. The fish prefer a rather warm tank temperature and one about 70°F., is suitable for the spawning tank, but a cooler water during the winter appears to condition the fish for spawning. The breeding tank must have a good layer of mulm on the bottom so that two or three Swan mussels may be kept. It is in this mussel that the female lays her eggs.

The female indicates by the extended ovipositor that she is ready for spawning and she will then rub against and lightly knock the mussel. When the mussel opens its shell the fish inserts the ovipositor and lays some eggs. The male is in attendance and ejects his sperms into the mussel. The eggs remain inside the bivalve for about five weeks when the fry emerge. The rearing of them can be carried out as for the fry of goldfish. Very fine food in the form of infusoria can be used. This is best produced with the aid of Liquifry, as this

is also a fine food which if not eaten will encourage the formation of infusoria in the tank.

Bitterling are omnivorous and so require a small type of live food as well as some soft vegetation. White worms are an excellent food and if one can be certain of the clean source of *Daphnia*, then these are taken readily. Small garden worms can be given if broken; but care must be used when feeding with *Tubifex* to make sure that they are clean and not likely to bring in diseases or pests.

Some aeration may be necessary for the Bitterling tank during the summer and as the bottom should be mostly mulm it may be that a filter will have to be used to keep the water clear. If care is taken to ensure a fairly pure water there is no reason why the Bitterling should not be kept more often by coldwater fish-keepers as even if it is not intended to breed them, they will be very lively occupants of the tank and never grow too large.

A NATURALISTS NOTEBOOK

by ERIC HARDY

IT IS INTERESTING that the Red Sea fish *Anthias squamipinnis*, one of the sea-perches, not only changes its sex from female to male, as many other fish have been found to do, but that it has some link with population-control. The change apparently stops on sight of the male and it can be stimulated in 90 per cent of the females by removing males from a tank of females. This phenomena of sex change in fishes was raised in a question to me this past summer, during a lecture to the Ellesmere Port Tropical Fish Society, in Cheshire. As in birds, it is more often a case of female turning male than *vice versa*.

Fish have many interesting phenomena. At least 70 kinds produce vocal sounds for one reason or another. Freshwater fish range in size up to the largest, the Amazonian picarucu which weighs up to 600 lb., and down to the smallest of vertebrates, a 7 mm transparent goby, from the shores of the island of Luzen.

When recently reviewing the new Penguin Original, *Population Control* in a daily paper, I expressed disappointment that although it had well-informed chapters on the natural laws controlling plants and protozoa, mammals and birds, it had nothing about fish-populations where this study was pioneered. These may be controlled by climatic conditions as well as fishing effort and predators, and of course by changes in the food-chain. It repeats the claim that Canadian pondweed, *Elodea canadensis* was "first

detected in Great Britain in 1847" (the recorded Cambridge introduction rather than detection), whereas it was first found in Ireland in 1836. The second record was 1842 in the Grand Union Canal arm at Market Harborough, in England.

The warmth of 1970 made some of our snakes more evident. A Cheshire farmer sent me a grass-snake which had been run over on a road near Malpas. Up to three in a day were seen in a part of Delamere Forest. Others linger around Oakmere and share Wybunbury Moss near Nantwich with adders. Most of those found in the Wirral peninsula are escaped continental pets.

More precarious is the position of the sand-lizard in Lancashire. A friend, who found them basking regularly in his sandy garden in a quieter part of Ainsdale Shore Road up to two years ago, has failed to find any lately. The warden of the National Trust's reserve on Formby dunes assured me in September that he found youths boasting that they had killed five or six where he had seen specimens this year behind their Victoria Road car-park. The furthest south where one was seen was an old haunt marked by a piece of old iron and brickwork on Hightown dunes, behind the now destroyed battery site. Mr. Keith Corbett, a London University expert on this lizard, kindly called on me when he visited our dunes this autumn, in the hopes of either raising local funds to purchase a reserve for them among the Birkdale dunes,

or collecting sufficient survivors to put them into suitably selected sites, in sufficient numbers to breed again.

Their population seems to have had a serious crash. There aren't so many on Hesketh Golf Course this year, as formerly, and Pontin's holiday camp at Ainsdale was built on their major haunt. Collecting by school-children, whose teachers still live in a Victorian tradition of specimen-hunting, and by pet-dealers, still cause us much concern. If the Act of Parliament of 15 Geo II in 1742 could have a person whipped and given a year's imprisonment on conviction of destroying or taking marram-grass from these same sandhills, then the Nature Conservancy should find the means of a similar Act or Order to protect the sand-lizard. Otherwise it may follow the former occupants of the Cheshire and North Wales dunes into extinction.

The number of species of lizard living in any area is a matter of the intermixing of habitats. For example, many more species exist in Australian than in American deserts owing to the more intimate mixing of habitats. Either temperature or rainfall differentiate the requirements of our sand-lizard from the common lizard. They all seem to be heat-seeking animals. Small beetles and hymenopterous insects (ants, etc.) figure largely in their diet. Competition between many is avoided by seeking different sizes of food. Large lizards spend more time in the shade than do small ones, as they maintain higher body temperatures. A slight variation in the number of eggs sand-lizards lay, as much as one per clutch, seems to be related to the abundance of insects available.

The dry spell this summer greatly curtailed the breeding success of the natterjack toads from Hightown to Southport, and especially where efforts are being made to resuscitate the largest British colony, where the holiday camp was built on Ainsdale dunes.

At a big Cheshire nursery recently, I rather upset the owner by pointing out that his weeping willow, gracefully hanging its long, drooping branches, was not a true *Salix babylonica* because it could not "touch its toes" as it were. Many owners of fish-pools plant this Chinese tree which had nothing to do with the banks of the Euphrates, where it does not grow. All true specimens are female. Any producing seeds or failing to weep right down to the ground are hybrids, usually with *S. alba* or *S. fragilis*. Like all willows, it hybridises only too freely. Fine Cheshire specimens of *S. babylonica* grow by the lily-pools at Raby Nurseries in Wirral and the University Botanic Garden at Ness; but the latter has reached its life's limit and probably hasn't many more years to go. These waterside trees, of course, extract great quantities of water from a pool. A small fish-pool in a small garden would probably find a silvery cotton-lavender shrub, *Santolina*, more suitable on its bank.

Elodea densa

by B. Fry

Elodea or *Egeria* (take your pick) *densa* is a water plant of the New World. It ranges in the natural state from Argentina in the south to Florida in the north. It has no generally accepted popular name but is occasionally referred to as giant anacharis. Some cultivated forms are more deserving of the epithet giant than others.

The silky green leaves are arranged in whorls of three or more every inch or so on a branching stem. In a spacious aquarium a well-grown stem will attain a length of several feet. Cut stems weighted to the bottom or left to float free at the surface never fail to throw out smooth white roots in less than about nine days. *E. densa* does not demand anything richer than sand to root in, but it does demand a good light.

Although essentially a room temperature plant it can be acclimatised to the warmer water of a heated aquarium in next to no time. But it is not good sense to make the change from cold to tropical too abruptly.

E. densa is one of the most useful plants for the novice fishkeeper to introduce into his aquarium; for not only does it grow so astonishingly fast that it inhibits the proliferation of microscopic vegetable organisms that cloud the water in a green fog, but it is one of the best of oxygenators. In fact the beginner who starts off with a dozen stems is assured of an aesthetically pleasing tank in the shortest possible time, that is provided he does not overstock his tank with fishes and feeds them correctly. Later, as the lengthening stems encroach too much on the fishes' swimming space, some uprooting can be carried out and more expensive and slower-growing plants set in their place.

FIND THE FISH

by Doreen Thiel

The first is in BACON but not in EGG;
The second is in ANKLE and also in LEG;
The third is in EASY and also in HARD;
The fourth is in INCH but not found in YARD;
The fifth is in MARK but not in STAIN;
The sixth is in SEWER but not in DRAIN;
The seventh is in HOUSE and also in HOME;
The eighth is in PARIS but not in ROME;
The ninth is in BRAG but not in BOAST;
The last is in BAKE but not in ROAST.

Answer on page 330.

WHAT IS YOUR OPINION?

by B. Whiteside



OUR FIRST LETTER this month comes from Mr. G. F. Riley, who lives at Hagley Road West, in Birmingham. I quote Mr. Riley's letter verbatim. He begins: "I agree with Mr. Nash in his suggestion for more space in *The Aquarist* to be devoted to plant topics, but I am doubtful about the value of 'pretty' photographs of furnished aquaria, when they are not accompanied by a text explaining how they were set up, stage by stage. I am in constant fear of *The Aquarist* becoming too much like some leading American fish-keeping magazines, which may suit the native inhabitants admirably, but which I have found objectionable even when readable."

Mr. Riley goes on: "I think that an unqualified vote of confidence in the present editorial policy of *The Aquarist* should be included in W.I.Y.O.?, and let us all hope that this magazine never finds itself closely associated with any leading fish-keeping industry, so that we may enjoy its unbiased articles and forward-

B. Whiteside sorts out some of his guppies. Photographed in daylight, with two 60 watt bulbs over 30in. x 15in. x 15in. Aquarium using HP4.

PHOTO: B. WHITESIDE

looking attitude for many years to come." (Would you agree? I certainly would!)

Following Mr. Riley's letter comes one from Mr. M. Furniss, of Purley, in Surrey, and he begins by handing me out a criticism. (I'm always pleased to get positive criticisms, but will always try to offer my answers or reasons as to why I do what I do). Mr. Furniss begins by saying: "I will start, if I may, with a criticism of the way you review products in *The Aquarist*, taking, for an instance, freeze-dried tubifex worms. You have recently reviewed about half-a-dozen makes in separate articles. Surely it would be more constructive to review them all at the same time, with comparison of prices and contents. I'm sure many

people would welcome a series of 'value for money' tables for all the various types of dried foods on the market." I don't know how many F.D. worms I have recently reviewed, but there are several problems which prevent me from doing a series on them at one go. One does not know when a new brand is coming on sale—in fact, one does not know of a new brand until one receives samples of it through the post or sees it advertised. If I receive a new food for review, I review it when I receive it. The review may not appear in print for some time after I have written it. Mr. Furniss's suggestion, useful thought it would be, would mean that I would have to collect and store new foods in the hope that other similar ones might arrive sometime in the future. This might or might not happen as I don't know when firms will decide to produce and market a new food or product. If I were to withhold reviews of new foods for some time, the foods would no longer be new when the review was read, and it would probably be history rather than news. Another point is that some manufacturers who send me samples of new foods, which have not yet been put on the market, do not include the price of the foods, and some of the containers do not even show the weight of the contents. Others may not give an analysis of the food. Thus it is impossible to give value-for-money tables when I do not know either the price the weight or the analysis, or all three in some cases.



Indian Fern, Cabomba, Dwarf Amazon Sword, Hairgrass and Pennywort. Photographed under a photoflood using HP4. Tank size 18in. x 10in. x 10in.

PHOTO: B. WHITESIDE

I recently mentioned this fact in *The Aquarist* in the hope that manufacturers would give more details when they send new products for review. However, having no connection with any firms, I do try to be objective in my reviews. In retrospect, it would be possible to give value for money tables once one sees prices etc. from advertisements. I'll keep this in mind!

Regarding the best piece of new equipment for the aquarist introduced in the past twelve months, Mr. Furniss nominates the Inter-Pet "Powerstream Conversion Unit" for filters. (I think that I would agree!) A pond plant which he would recommend for beginners is *Calla palustris*—Bog Arum. He has two specimens and is very pleased with their growth during the month in which he has had them, and both have flowered. He has not experienced any "nervousness" in home-bred guppies. As regards his experiences with expensive fishes, he says that it is difficult to classify the word "expensive". He has never purchased any 7-coloured discus, or red oscars, but he has some *Plecostomus* in the £2 range, in each of his tanks. He finds these "cute" fish are the best algae-eaters ever, will not (in his experience) harm fry, and will live at ease with his electric catfish and oscars. His electric catfish is another of his high-priced fish and he finds it to be very interesting. He has had it for about two years but, until a few months ago, it was kept in a very restricted tank. Since its removal, it has grown, and developed a pink hue under "Gro-Lux". The fish enjoys coming to his fingers for "TetraMin" large flakes, and garden worms. He doesn't dare stroke this fish, as he does his oscars, which are his favourite fish. The catfish and oscars share a quality which he calls "personality", and are just as much pets to him as are cats and dogs. As to the appeal of marine aquaria, Mr. Furniss thinks that to anyone with an adventurous spirit, the rather risky prospect involved in buying these expensive fish and their equipment is probably alluring. Their high colour, accentuated by "Gro-Lux", is another attraction. As Mr. Furniss prefers large fish, and is not attracted much by the bright colours, whenever he sees a marine tank with its antiseptic white gravel and coral, he is struck by a sense of artificiality, everything being so harsh with none of the relieving green afforded by plants. (Do marine enthusiasts agree?). He has not raised any plants from seeds. Regarding my question about having found the newer light bulbs to have a short life in my aquaria, Mr. Furniss states that all his tanks are lit by fluorescent lights and he has only had to replace one tube in two years. However, he has found that light bulbs around the house have been going rather rapidly recently, and he has the theory that it might have something to do with the step-up in voltage in his area (240-250 volts). He thinks that it would be interesting to set up a tank-hood with two bulbs in it—one in a normal lamp-holder and the other in a "K.B." waterproof holder, to see which one lasts the longer. He ends by saying that he finds this to be a very interesting column.

I've just received a copy of the "Coventry Pool and Aquarium Society's Newsletter". This is an attractive little publication which runs to eight pages and it includes plenty of local information about the aquatic

scene in the Coventry area. I liked the simple but effective cover, showing a single fighting fish, and the first article in a series about building a fish house, at a cost of under £25. The editor is Mr. E. Wilkins, 51 The Scotchill, Coventry.

In the August issue I asked for examples of aquarium photography from readers. I also asked for opinions from fellow Ulstermen. I received both from Mr. J. Dunbar, of Greenore Street, Belfast. Mr. Dunbar has been keeping fish for the past fifteen months but has had an interest in photography for a longer period, so he couldn't resist trying his hand at photographing his fishes and tanks. I must congratulate Mr. Dunbar on his excellent results. His black and white photographs, and especially his coloured slides, were very good indeed—so good that it was decided that they merited being used as an article on their own. I hope to visit Mr. Dunbar and see him at work with his camera. No doubt I will mention this later on.

Mr. Dunbar has a 3 ft. community tank which mainly houses dwarf cichlids, three 18 in. breeding tanks and a 30 in. tank which he uses for bringing on young fry. Three months ago he bought an Airstream Power Filter and he finds it to be very good. The filter wool is changed every week as the box is smaller than most power filters. He bought the Airstream Slimline because it fits exactly into the narrow space between a wall and the end of his tank. His rocks he



Indian fern *Cabomba*, Dwarf Amazon Swords and *Cryptocaryne Nevilli*. Photographed using a photoflood lamp and HP4 film.

PHOTO: B. WHITESIDE

obtains from the Shimna river, in the Mountains of Mourne, Co. Down. If the stones are too round, he breaks them up by smashing them on other rocks. He likes his rocks to look really ragged, although he takes the sharp edges off them. Well done, Mr. Dunbar, for your fine photographs! (An interesting point which I've noted is that quite a few people, who first wrote to this column, go on at a later date to have their

own articles published in *The Aquarist*. This pleases me as it's rewarding to encourage new writers!)

Camberley, Surrey, is the home town of Mrs. Una Hughes and she wrote to tell of the exploits of a pair of black mollies. She purchased these last December and they were the first fish which she ever bought, having just set up a tank. She became attached to the mollies because they were so friendly and tame but, although the fish seemed happy and produced a brood of young each month, she was constantly treating the tank as they were hardly ever without fungus. Her local pet shop informed her that salt was needed in the water but, as she had several types of fish in the aquarium, she was reluctant to take the advice offered as she was unsure as to how the salt would affect the other fish and the plants. Being distressed towards the end of May, she placed the mollies in a plastic bucket, half buried in soil, out in her garden. The mollies remained there until August and she only changed the water when it began to look "thick". She used either water siphoned from her aquarium, or water which had been left to stand for a few days. At night the bucket was covered with a piece of hardboard, with a brick on top. Towards the end of August, during a cold spell, she brought the mollies indoors and placed them in a Pyrex vegetable dish, with the lid inverted to allow air in. To their water she added "vitalised" salt, one teaspoon to a gallon of water. The fish are very fit, have no signs of fungus, and look as though they have benefited from their holiday. She soon hopes to move them to a tank, for the winter, and then she will see if they start to breed again. (An interesting story. Have any other readers tried keeping so-called "tropical" fish outdoors? If you have, please let us hear of your experiences).

Mr. C. Baker, of Wellington, nr. Derby, finds this column of great interest. He would be interested to see the results of the contents of his letter. Mr. Baker begins his letter: "Many times, in readers' queries published, I have been alarmed by the frequency with which a letter of the type:— 'I have bought a so-and-so. How should I feed it, will it mix with my other fish, and what conditions does it need?' All too-often the answer turns out to be that the fish will only eat some food which is difficult to obtain, is highly aggressive, and will soon outgrow the average aquarium!" Mr. Baker asks: "Are there really so many people lacking in foresight? I myself have never bought any animal or plant without first finding out what its requirements are. To do otherwise is irresponsible and frequently expensive. There is little excuse for not taking the trouble to find out about an animal's requirements—after all, there is plenty of information available today, and much of it is so simple and concisely given that one doesn't need scientific knowledge to understand it." He goes on: "If the sort of query which I have mentioned arises because of

impulse-buying, then I would submit that such people are not fit to have fish of any kind if they don't trouble to find out first whether or not they can look after them properly. Where animals are concerned, impulse-buying has no place; the result is all too often hardship or, at worst, starvation, misery and a lingering and painful death. I don't mean to suggest that everyone who sends in these sort of queries is lacking concern for the welfare of the fish they buy, but I'm sure that a good number must be or they wouldn't do such things. Again, I must say it: I think that those who habitually buy fish without knowing how to look after them properly, aren't fit to have any at all. The hobby would be better off without them." Mr. Baker goes on to say that he hopes that he hasn't made himself sound "holier than thou", because he is not, and doesn't presume to be. He says that he is quite an ordinary biology teacher who has seen not a few wretched animals made miserable because their owners didn't have any idea about looking after them. As another teacher, who includes biology amongst his subjects, I would agree with some of Mr. Baker's points—but not all of them. If, as in my own case, I have to travel some considerable distance to a large city, to purchase fish, and I see something new which takes my fancy, I may well be tempted to make a purchase as the new fish may not be available when I am next able to make the journey to the dealer's shop. There must be thousands of fish about which I know little or nothing. If I buy such a fish what can I do to find out about keeping it? One can consult the dealer when making the purchase, ask other aquarists who may know about the fish, consult text-books or aquarium magazines, or write to *The Aquarist's* experts, Mr. Boarder or Mr. Hems, to find out about the fish in question. The ideal, for those who live near an aquarium shop, is to note the new fish, find out about how to keep it, and then return to make a purchase, but, as I said, not everyone lives close enough to a dealer's to be able to do the ideal thing. Another point is that not all dealers know all about new types of fish which they receive. A number of years ago I asked a dealer about some pink, convict cichlids which I fancied for a school aquarium. I was told that they would be ideal fish for a community aquarium. The fish were bought and grew considerably in size, at about the same rate as they killed off and ate the other occupants of their tank. Was the fault mine, or that of the dealer? The problem was only solved when the convicts were consigned to the school's pond. The obvious answer would be to mistrust that particular dealer, and to refrain from buying any more fish from him—acceptable if there are plenty of other dealers from whom to buy fish. In N. Ireland this is not the case. I would thus suggest that there are some occasions when one must buy new species before one knows all about them. One then sets out to find out all one can from other

sources. One could also consider the case of those hunters who discover new species of fish in the wild, and have to "play it by ear" until they find out the habits of, and the ideal conditions for, the new species. If one were to frown upon this, we would not get any new species from the wilds and, in fact, would probably not have any aquarium hobby at all. What do other readers think?

Recently I asked if readers had found, as I have, that light bulbs don't seem to last as long as a few years ago. Mr. D. Hopkins, of Rugby, Warwickshire, uses 25 watt, screw-in bulbs, and has been using one particular make because he has had difficulty in obtaining other brands. They have usually lasted him for six months, which he thought was a fair 4s. 0d. worth. The last one which he bought lasted only two weeks. Greatly annoyed, he returned the bulb to the manufacturers. After two weeks he had received no reply so he wrote again. Four weeks have now elapsed and he has still received no reply. Needless to say that is the last bulb of that particular brand he will buy, even if it means converting the fittings in his aquarium hood. (I often wonder about the apparent lack of manners of such firms, especially when dealing with small orders. I've found that the threat of an investigation by, say, a Sunday newspaper, with the possibility of resulting bad publicity, will result in a speedy apology and, very often, the replacement of the offending article, if it was genuinely faulty in manufacture. Surely, in such instances, it is not too much to expect the courtesy of a reply to one's letter?)

Paul Hower is 14 years old and lives at Nottingham. He writes about the use of coal in aquaria. He writes: "When coal is placed into the water it liberates carbon dioxide. In turn, to replace this, it absorbs toxic material from the water, thus stopping the build-up of such things as salts." (I'm afraid that I'm still in the dark, Paul. Perhaps you could give us a reference as to where you obtained this information. I've never seen it in print.) A recent question in "Our Experts' Answers To Your Queries" concerned blushing angel fish. Paul has seen these fish on sale in a local petshop. He says that the fish have their red markings mainly on the gill covers, joining at the bottom, under the head; the body is silvery-white and may have irregular black markings on it. As the best piece of new equipment on the market, Paul nominates the Hykro power filter. He says that it gives good filtration—about 30 to 35 gallons per hour, and does not require a lot of air. Another point in its favour is that the filter box is not cluttered up with return tubes. The pond plants which he would recommend to a beginner are water lilies, *Elodea*, and hornwort, with a bull-rush for added interest. Paul has never had any experience of nervous guppies. The most expensive fish which he has kept were kissing gouramis, which cost 11s. 0d. Although most of his fish are cheap, he has won a prize at a local

show. He thinks that the attractions of marine aquaria are the brilliant colours and unusual shapes of the fish. Paul has never raised any plants from seeds. He has not been keeping tropicals for very long but has increased the life of all his light bulbs by fitting cover glasses on his tanks. Recently he bought a "Rena Super" air pump, and it is now his favourite pump.

Andrew Patterson writes from Durham, and he is also 14 years old. He has kept tropicals for three years and he has had lush plant growth, accompanied by a plentiful growth of algae. The kind which grew on the glass he did not mind as it was easily cleared, but the hair type which grew on plants was his enemy for nineteen months, until his dealer started stocking Wardley's "All-Clear." He thinks that it is "great stuff" for 7s. 0d. He only needed two packets to rid three 3 ft. tanks of algae. This was cheap compared with the plants which he was having to throw out. The remedy did not affect the higher plant life or the fishes and it lasted for a long time. Now he only occasionally adds a tablet as a preventative. Although Andrew has a good 35 mm. camera, his aquarium photography successes have been limited to fish shows where he has photographed show jars—either individually or in a group. His own aquarium photos are just a mass of yellowish and greenish blurr, with fishes hardly showing. The very clear item in the photographs is the reflection of him and his camera in the glass. The slightly out of the ordinary fish which Andrew has are a 4 in. red-tailed black shark, two 3½ in. clown loaches and a 4 in. *Anostomus anostomus*, which is a family pet. He notes that other fish of his received pet names such as Fred and Sam, but "Anostomus" has "stuck" as the pet name of the fish in question. He hopes to show these four fish in the coming season as they are all in excellent condition.

Master Patterson considers that freeze-dried foods are as good as their live equivalents except that they do not give fish the same chance to "attack" them. Considering freeze-dried tubifex, he finds that 3s. 3d. worth of "Magic Worms" last as long as 10s. 0d. worth of live tubifex—he gets his live tubifex in plastic bags with about a ½ in. diameter ball of stinking worms for 1s. 0d. Andrew finds that filter carbon gives much cleaner water than with filter wool alone. He also agrees that light bulbs have a shorter life than they did, even three years ago, and finds that this is true even in bulbs which are not used in aquarium hoods. He finds that an airstone, placed under a bulb, produces a fountain of water drops which shortens the life of bulbs, if one does not use cover-glasses. He finds that this fountain of water drops affects high and low wattage bulbs—say 15 and 75 plus watts—more than it does, say, 40 watt bulbs. Andrew says that he looks forward to readers' views on aquarium photography.

Since typing the letter about Mr. J. Dunbar's very good attempts at aquarium photography, I have had

the pleasure of visiting him at his home in Belfast. There I met Jim and his charming wife and two children. I knew that I had arrived at the correct house when I saw his beautifully decorated, spotless community tank, through the sitting room window of his home, one night this week. After a long and interesting chat about aquaria in general, and an inspection of Jim's various tanks, we got down to the subject of aquarium photography. He showed me his equipment and his technique and I was amazed at its simplicity—a simplicity arrived at through the laborious and costly process of trial and error. He fitted an extension tube to his camera, placed his electronic flash on the centre of the cover-glass of his community tank, focused his hand-held camera about 2 in. from the base of the 15 in. deep aquarium, set the f. stop at 5.6, waited until a fish came into focus, and released the shutter. Later, when Jim set up his projector and showed me dozens of excellent coloured slides of his fish, I knew that his technique was as good as one could wish for. I was most embarrassed when he projected the few slides which I had brought with me for his comments. When I compare the simplicity of his technique and his excellent results, with my complex system of building a small, all-glass tank, setting it up in the back garden, arranging a background, catching fish from my aquaria and placing them, one at a time, in the small tank, setting up my camera on a tripod, focusing, setting the f. stop, and mucking about while the sun disappears behind clouds, to end up with miserable slides showing minute fish, I feel like giving up for good. However, I may have another go when I can obtain extension tubes, a lens-hood, an electronic flash unit and an extension lead. It's all a question of cash! I have enclosed a couple of general aquarium shots which I took, using a photo-flood over my aquaria. The main problems with this type of lighting are that the aquarium water gets very warm at the top, and the light intensity is too low to allow shutter speeds high enough to stop the movement of the fish in the tanks. I therefore have to leave my fish in total darkness for several hours, until they are "asleep", set up my gear quickly and photograph the whole aquarium hoping that the sleeping fish will remain at rest, and not move, when the shutter is open for a relatively long period, thus leaving blurred trails of light over the photograph. After the light has been on for a very short time, the fish start to move, and one has to leave that aquarium until the next night. Jim Dunbar does not have these problems but he has some excellent slides of aquarium fishes, against a natural background. Again I congratulate him on his technique, and hope to visit him again soon to see the results of the photographs which he took for my benefit during my visit. I'm sure we'll probably be seeing more of Jim's photographs in the aquatic press.

I received another copy of "Toras Topics," the newsletter of the Torbay Aquarist Society. Again it contained a lot of interesting news about the society's activities. I was interested to see that the newsletter contained a variety of advertisements from local aquarium dealers. There were a number of factual articles on such topics as fish diseases, coldwater fishkeeping, showing fish and planting media and water for the cultivation and propagation of aquarium plants, although I would disagree with a number of the points made in the latter article. Mr. L. Doubleday's article on the showing of marine fish at club and open shows I found to be very interesting as I have never kept tropical marines myself. What about the idea which was suggested in this column, in a previous issue, regarding the usefulness of various clubs exchanging newsletters with each other. Has any progress been made?

In a previous issue one letter-writer mentioned the possibility of starting a postal club for those with a particular interest in aquarium plants. Perhaps those concerned would let me know if any progress was made. I also included a letter from a reader who had had some trouble with a British made filter. I'm pleased to report that the firm concerned were not content with replacing the offending parts of the filter but sent the reader a complete new filter. Such considerate action by the firm would certainly encourage one to make further purchases of their equipment, unlike the previously-mentioned manufacturers of light bulbs which did not even reply to two communications from a reader. By all means complain if some piece of equipment does not match up to its advertised standards and, conversely, it doesn't cost much to hand out praise to the makers of any equipment with which you are pleased.

Well, that's about all for this month as I'll have to get my copy into the post to reach the Editor in time to go to press for the next edition. Before posing some questions, I'd like to thank those of this month's letter-writers who inquired about my injured hand. I'm pleased to say that it is still making progress, albeit very slow progress. It's now nine months since I met with the wretched accident while reglazing an old aquarium but it'll probably take as long again before it reaches the full extent of its recovery, and even then there'll still be a nasty legacy. So, if I may reiterate my former plea: take care when working with glass!

For next month let us have your opinions on the following: (a) Imagining that a series of aquaria, of different sizes, are sited in a position where they receive very little natural light, and that they are planted with a selection of various aquarium plants, what wattage of lighting and for how many hours per day, would you suggest as being the ideal? (Don't forget to mention the size of the tank and, possibly, the types of plants being grown.) (b) Has anyone else crossed black mollies with green swordtails, and have the young been fertile or sterile? (c) Do you regularly change part of the water in your aquaria and, if so, what benefits do you notice, if any? (I've noticed that one tank of male guppies, which has not had any water change for some months, has resulted in a host of split fins. Is this the possible direct cause of the split fins?) (d) Can a well-planted and stocked aquarium be kept too clean? (e) What have been your experiences in breeding killifishes? (f) I repeat a question from a former edition, which brought no replies: What are the effects on plant growth of under-gravel heating? (g) Do dealers, in general, give amateurs a fair price for home-raised fishes? (h) What single, expensive, aquatic item would you most like to receive as a Christmas present?

JOTTINGS

by M. J. Parry

To the layman the keeping of tropical fish appears to be both an extremely expensive and time-consuming pursuit, demanding the use of numerous electrical apparatus in an effort to keep our "pets" in the very best condition. It is not widely appreciated, however, that the term "tropical" is really something of a misnomer, as although the species that grace our aquariums certainly come from tropical or sub-tropical climates, the actual water temperature at which they must be maintained is sometimes far below the air temperature of the countries to which they are native. The term "tropical" is also a misnomer in the sense that many species are able to live (and sometimes breed), certainly in the summer months, without artificial heat being provided. The Paradise Fish

(*Macropodus opercularis*), several species of *Panchax*, the Medaka (*Oryzias latipes*), White Cloud Mountain Minnow (*Tanichthys albonubes*), Bloodfin (*Aphyocharax rubripinnis*), Zebra Fish (*Brachydanio rerio*) and Guppy (*Lebistes reticulatus*) are only some examples of fish that can withstand lower than average water temperature provided, of course, that the drop in temperature is gradual (i.e., over a few weeks). The Paradise Fish, in particular, is an exceptionally hardy species, and reports have been published of the species living at temperatures near freezing point.

An aqueous solution of methylene blue is a chemical recommended in the treatment of many fish ailments and diseases but, as many an aquarist will testify, it is a "cure" not without drawbacks of a sometimes serious

kind. It must be stressed that the chemical should never be used in a planted aquarium as it has the most adverse effect on aquatic vegetation, reducing them more often than not to a mere skeleton of their original form and beauty. It also has the disadvantage of staining the aquarium compost, sometimes permanently. Methylene blue should never be used to treat the "scaleless" species of fish, notably the loaches, as it has the effect of a poison, eventually bringing about their death. It has been suggested on many occasions that the use of methylene blue renders fish sterile and although this has not been my personal experience, it does possibly add weight to the advice that the chemical should only be used as a last resort attempt at a cure, and certainly not until other, safer, methods (notably proprietary cures) have been tried and proven ineffective.

It is nearly two years (March, 1969) since I contributed to this magazine an article entitled "Aid for Society Secretaries," indicating sources from which films and slides on aquatic subjects were available for hire. Since that time, even up to the present day, I have regularly received letters from club secretaries who apparently missed this contribution, and in an effort to forestall any further additions (pleasant though they are) to my already heavy postbag as a

society secretary, I present below a precis of the probable desired information.

Films:

"Malayan Seashore," "The Story of the Trout," "Coral Wonderland," "The Salmon's Struggle for Survival," etc., are obtainable from the Central Film Library (a government-sponsored organisation) at any of their three offices in Great Britain—Government Buildings, Bromyard Avenue, Acton, London, W.3.; 42 Park Place, Cardiff and 16-17 Woodside Terrace, Charing Cross, Glasgow, C.3.

"Beneath the Seven Seas," "In the Swim," "River of Life," etc., are obtainable from the Rank Film Library, Aintree Road, Perivale, Greenford, Middlesex.

"Between the Tides" is obtainable from the Chief Officer (Films), British Rail Board, Melbury House, Melbury Terrace, London, N.W.1.

There are several sources from which slides are obtainable on hire, including Mr. R. E. Hampson, "The Headlands," Scotland Lane, Horsforth, Leeds; Messrs. Highlands Water Gardens, Rickmansworth, Herts; Mr. A. Robbins, 29 Cootehall Road, Crawfordsburn, Helen's Bay, Northern Ireland; Messrs. Brentwood Aquatics, 274 Warley Hill, Brentwood, Essex; Mr. R. Jamieson, 2 Laurel Bank, Kirkcaldy, Fife and Mr. G. H. Jennings, 2 Gatcombe Road, Tufnell Park, London, N.19.

KEEPING TERRAPINS

by W. J. Wright

TERRAPINS, or water tortoises as they are sometimes called, are becoming very popular in Great Britain, but unfortunately few people know how to care for them properly.

There are many different species of terrapins imported today, some tropical, some hardy, and some semi-hardy, but all require fresh water to live in.

Feeding

Feeding is a very important part in a terrapin's life, not only because it must eat in order to live, but also because incorrect diet can soon spell disaster for any terrapin. They can eat only when in the water. These creatures live mainly on flesh, and although in its wild state it lives on live creatures, such as small fish, worms, etc., in captivity a terrapin will eat raw meat, raw fish, offal, daphnia, etc.

For the baby terrapins, however, all meat, etc., must be finely shredded. Herring and liver are especially good for terrapins, as these contain vitamins

and minerals essential to health. A small piece of lettuce or pond weed two or three times a week also helps to keep the creatures healthy. They must be fed daily, and must be fed well. Stale food must not be allowed to remain in the tank, otherwise it will foul the water causing possible ill-health.

It is essential that finely crushed cuttle-fish is added to the diet often, as this helps to prevent softening of the shell and other deformities. Cod liver oil, or some similar oil must be given frequently, as this helps to prevent blindness which may occur if vitamin A is not provided, and this together with vitamin D is found in these oils.

Living Quarters

These are most important and depend on the species of terrapin kept. The hardy species, such as the European Pond Tortoise and the Spanish Terrapin,

Continued on page 308

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.

TROPICAL QUERIES

by Jack Hems

Are there any albino catfish?

Every so often white catfish (white as distinct from true albinos that have pink eyes) turn up in dealers' shops. Among the best known and hardiest ones are the albino forms of *Corydoras paleatus* and *C. aeneus*, the albino clarias (*C. batrachus*), and a white form of the North American channel catfish (*Ictalurus sp.*).

I never seem able to keep apistogrammas alive for more than a few months. Can you give me some hints about their care and requirements?

These dwarf cichlids live longest and happiest in a well-planted aquarium given up to them alone. They flourish best in soft and acid water changed quite frequently to keep nitrogenous wastes, that soon build up in a small body of water, at a low level. They are carnivorous by nature and need plenty of live food and meat.

Why are so many of the smaller characins called tetras?

Because many years ago they were all included in a single genus or division of the family *Characidae* called *Tetragonopterus*. This mouthful was shortened by popular usage to tetra or tet.

We have some scallop shells in our garden. As these shells have been well-weathered would they be safe to place in our aquarium as decoration?

Do not place shells of any sort in a freshwater tropical aquarium. They will alkalify the water and make it too hard and alkaline for the well-being of the fish.

Is the cichlid called *Namacara anomala* well-behaved enough to introduce into a community tank stocked with characins, gouramis, and medium-sized barbs?

This cichlid will live on good terms with any species not small enough to be looked upon as live food. It is not given to disturbing the compost or the plants and, all in all, makes a very worthwhile addition to a tank housing a collection of smaller fishes.

I shall shortly be making a hood for my tropical aquarium. What colour paint would you recommend for the inside to make the most of the electric light?

I would suggest heavy duty Baco cooking foil rather than any paint for the inside of a lighting hood. This glittering foil gives an all-over increase in light. But because it is metal see that it is separated from the moist air rising from the surface by a glass cover.

Please give me some information on *Hypostomus plecostomus*.

Firstly, this species is usually described in the older aquarium books under the formal name of *Plecostomus plecostomus* or *P. commersoni*. It is an algae- and soft greenstuff-eater (cooked spinach, lettuce, turnip tops and young nettles can be used as a substitute for natural green growths) but also needs more solid fare too. Unfortunately it has a thin time in a community tank (foodwise) unless worms and tiny pieces of meat (or a first class dried food) are dropped in before all the lights go out at night. For this catfish is active at dusk or after dark and will find food on the bottom when the other fish have quietened down for the night. The usual range of tropical tank temperature suits it all right. It has been bred a few times over the last thirty or forty years (or so it is said). It needs a large tank to give it room to grow to its usual length of a foot or more.

Is it possible to over-winter pond-grown *Myriophyllum proserpinacoides* in a tropical aquarium?

The answer is yes. Take strong tip cuttings and anchor them in the compost in the lightest position available. When these cuttings reach the surface (the deeper the tank the better), prune them back to encourage branching. If you keep pruning back and replanting some of the new growth you will have sufficient rooted plants to set outdoors next spring. It may interest you to know that *M. proserpinacoides* is now called *M. brasiliense*.



Planarians showing underside

What fishes and conditions make life difficult for planarian worms?

Professor Sterba in his great book *Aquarium Care* makes the interesting observation that hungry paradise fish will eat planarian worms. For the rest, a clean bottom and a high temperature for a week or so will deplete their numbers considerably.

Our local corn shop sells tropical fish. The other day I bought some silvery fish marked

with dark vertical bars which the proprietor informed me were called striped panchax. Can you tell me where these fish live in the wild state, whether they will settle down with guppies and platys, what is their maximum length and mature coloration, and whether they can be bred in a small aquarium with other fishes present?

Striped panchax is an old-fashioned name for a fish known to tropical aquarium keepers as *Aplocheilichthys lineatus*. It is native to India. At its full size of about 4 in. it is a finely coloured fish, flashing green and gold lights off the silvery sides. A male in good colour is more brilliantly coloured than the female. Also, the fins of the female tend to be smaller and more rounded than those of the male. The species will breed in the surface plants with other fishes present, but their eggs and fry will not stay around for long. To see any fry of *A. lineatus*, a pair must be given a tank to themselves. *A. lineatus* is not an aggressive fish, but it has a big mouth and cannot be trusted with any fish small enough to be swallowed in a few gulps. It would certainly make short work of a half-grown guppy or slim neon tetra. It is important to keep a glass cover on a tank housing lineatus; for the fish go in for quite a lot of jumping, and unless all escape routes are blocked they will end up, sooner or later, on the floor.

Why do aquarists prefer to pack their filters with charcoal and nylon wool rather than the equally efficient graded layers of washed sand?

Graded layers of sand will certainly trap the finest particles of floating sediment in the water, but they will not, like charcoal, absorb the impurities excreted by the fish or produced by decomposing vegetation. Dirty nylon wool is easier to remove from the top of a filter box than a layer of muddy sand. These two facts should answer your question.

A month ago I bought two small spiny eels and introduced them into a community tank housing lemon tetras, bloodfins, golden barbs, and cardinals. When I told a tropical fishkeeping friend what I had done he said I was asking for trouble because the spiny eel is well-known for its habit of attacking smaller fishes. Do you think I should give the "eels" a tank to themselves?

First of all, most spiny eels that come on the market stop growing when they reach a length of about 9 in. At this size it would be a physical impossibility for them to swallow anything much larger than few days' old guppy fry. In general, most spiny eels are well-mannered fishes too interested in their own affairs to worry about the other occupants of a tank.

COLDWATER QUERIES

by A. Boarder

About fifty goldfish are in my pond and some are infested by what I think is Anchor worm. How can these be killed and will they spread to other fish?

I do not think that there is anything you could put in the pond which would be strong enough to kill the Anchor worms without also killing the fish. The worms will have to be taken off with tweezers. If touched with neat T.C.P. they will come away more easily. Other fish could be infested but by removing all the pests seen you will be helping to clear the pond. The pests on the fish are females which carry the eggs around with them, so by removing the females you will also tend to clear the pond of any further infestation.

I am trying to rear some young fantails I have bred in my pond. They are in a tank with an aerator and filter. I also have water plants in the tank. I feed with a good flake food but after about a week the water begins to smell. I have tried tap water and pond water. I siphon off the excess food every other day. Why is the water not clear?

It is quite obvious to me that you are overfeeding your fish. There should be no food whatsoever to siphon off after a few minutes. Only enough food at a time must be given so that it can soon be cleared right up by the fish. Tap water is often better than pond water for a tank unless the pond water is very pure. This is not often the case as it can contain harmful minerals and pests. Give no food to the fish for two whole days and then only offer a little. Never give too much at a time and remember that a hungry fish is a healthy one.

I have a tank with eight small goldfish which I chose for their lovely colourings, some of them had black markings. I am now terribly disappointed to find that the black marks are disappearing. Why is this and how can it be stopped?

You are not likely to stop the black marks from fading. This is a natural happening with young goldfish. When they are small they are bronze in colour like the common Carp. When the colour change starts the fish gradually turn pale at the belly and their upper parts turn black. The lighter colours then start to move up the fish turning gold or silver. At this time the back and upper parts including the dorsal and caudal fins turn quite black. Gradually the black disappears and the fish are completely gold, silver or gold and silver. The only time when more black can form on such fish is when they receive some



Goldfish with black markings which are not permanent.

damage. When new growth is formed this will be black for some time. Some goldfish will carry the black longer than others. It is usually those fish which have had a fairly cool water in their rearing tanks.

I have read a lot about different cures for various diseases of fish and would like to know a general cure for all of them in case my fish get ill?

There is no general panacea for all ills of fishes no more than there is for human beings. There is no need to worry that your fish will get all or any of the complaints. The very best method of ensuring that your fish do not get any diseases is to make sure that they are kept under the very best conditions and that you never introduce anything in the shape of water plants or live foods from the wild. Any new fish should be kept in quarantine for a fortnight to make sure that it is not suffering from any disease. If goldfish are kept under the correct conditions they will not be likely to get any trouble either from pests or diseases.

Some of my goldfish appear to have swollen bodies and their scales stick out. I have had this trouble for some time as one fish after another gets affected. I do not over-feed and put two tablespoons of salt in the tank every time the tank is cleaned out. Is there anything I can do?

The dropsy can be catching as minute germs cause the disease and so it can be spread to other fish in the tank. I do not think that salt should be placed in a tank regularly. If you are using ordinary table salt this could do more harm than good. Only sea salt should be used and then only for a specific occasion. Your temperature of 70°-75°F., is high for goldfish and

they would be better kept at a normal room temperature all the year round. If a fish is badly infected with dropsy I do not think that there is a cure. However any fish which appears to be developing the disease must be taken out of the tank.

I have a pair of shubunkins which I want to breed with. So far, although the male shows every sign of being in breeding condition nothing happens. I have tried lowering the level of the water. I have even tried to strip the fish but was unable to get any eggs from the female.

If you have a proper pair of fish and they are old enough to breed there is no reason why they should not do so. Try changing the water for fresh and rather colder than you have been keeping the water at recently. You cannot strip a fish unless she is ready to spawn and if you try to do so you can damage the fish so that she might not be able to have a normal spawning.

I have been given a large Higo carp by a dealer who could not sell it. It has a large wart-like growth on its head between the eyes. It appears to be in good health and does not seem to be troubled by the growth. Is there anything I can do about it?

Unless the growth becomes inflamed there is no need to try to remove it. It is probable that it is the result of some damage to the place some time ago. The trouble is not likely to spread to other fishes in your pond and no doubt it causes no inconvenience to the fish.

I have a pond with Golden Orfe, Carp and Goldfish. Some time ago they started rubbing themselves against the sides and bottom of the pond. I suspected fish lice but could find no sign of them. What are the reasons for this behaviour?

It is difficult to pin down the exact cause for the actions of the fish. In the first place many fishes will rub themselves along the sides of a pond or on water plants with no traces of pests present. Some do this in the late spring and they may be just cleansing themselves. Some fish act in a similar manner when preparing to spawn or actually spawning. The presence of pests usually cause such actions and these can be tiny creatures such as flukes; fish lice; Anchor worms; white spot parasites or other types of parasite almost too small to see with the naked eye. As a rule fish which are infested by pests will show some other signs such as blood streaks on the body, blood patches; lowered finnage and a general failing in health. They usually go off their food and may mouth at the surface. If no visible signs are present and the fish appear to be normal otherwise there is no need to do anything about it. I presume that the water in the pond is in good

condition as if it contains a preponderance of minerals it could be causing the fish to become distressed and their mucus covering could be deranged. If possible change all or most of the water and see if the health of the fishes improves.

Please could you send me information on setting up a tank as I wish to have more fish?

Get the book, "Coldwater Fishkeeping," as shown in *The Aquarist*, and look out for an article by me in a future issue on the subject.

I intend to build a number of tanks for breeding and selling goldfish. The material I have for this are a number of blocks made of cement, sand and sawdust. These blocks are very porous and so I intend to cover them inside and out with some concrete. The tanks will be above ground level. Will this be all right?

You will have to make sure that there are good foundations for the blocks or the weight of water could spread them out. The covering with concrete will have to be at least an inch thick. Try to get this coating on as quickly as possible so that there is as little time lag between applications. A good base of concrete will also be necessary and this should be well joined to that on the sides.

MARINE QUERIES

by Graham F. Cox

You continually recommend the usage of a powerful undergravel filter in the marine aquarium. Could you please tell me how often one must strip down the tank in order to clean the gravel and filter, etc?

Since we do not know the size of your tank, the depth of the filter-gravel, the stocking ratio in inches of fish per gallons of sea water, your feeding programme, nor the turnover rate of your filtration system in gallons per hour, it is difficult to give a definitive answer to your question. However, I can tell you of some data from my own tanks, which might be helpful. I have a 20 gallon tank (36 in. x 12 in. x 15 in.) with an under-gravel filter giving 150 galls./hour turnover rate and a stocking ratio of one inch to two gallons of sea water. The fishes are fed to repletion with fresh protein once per day and receive three daily snacks of a well-known dried food. **THIS TANK HAS NEVER BEEN CLEANED IN THREE YEARS**, but I change approximately one third of the water every five months. The fishes are in beautiful condition and the tank is most attractive in appearance. The theory underlying the functioning

of the under-gravel filter is that all the fishes' wastes are ultimately converted to soluble salts, mostly nitrates and phosphates. These which are not utilized by algae as food, are automatically disposed of by one third water changes at three to six months intervals—the precise interval between changes being determined by the loading of the tank.

Two Tips Regarding Filter Gravel

- (1) *Never* throw matured sea aquarium gravel away. It can be used to "seed" up the u/g filter of a newly established tank, thus reducing the maturation period needed for the gravel from weeks to days.
- (2) *Never* wash matured gravel from the u/g filter of a sea aquarium in tapwater. This will kill off the nitrifying bacteria. Always have some old sea water stored for washing matured gravel in.
- (3) Those who possess a power filter (in addition to the u/g filter) may "backwash" the gravel in their filter by periodically inserting the power filter's water delivery tube down the airlift of the u/g filter. This simple servicing procedure should completely remove the need for stripping down a u/g filter.

Which do you consider to be the best equipment for controlling pathogenic "disease-causing"

organisms in sea water—an ozoniser or an ultra-violet sterilizer?

Both ozone gas and ultra-violet radiation are means of controlling pathogenic organisms in the sea water of your aquarium. Ozone, since it goes into solution in the sea water to a limited extent, has a far reaching effect on bacteria and other pathogens. Ultra-violet radiation will only destroy those organisms which are exposed to it at close range i.e. those in the water which passes through the irradiation chamber of the u/v sterilizer. It is also true to say that all the u/v sterilizers on the market at the moment employ the Philips TUV 6 radiation source. These bulbs produce only some 80 microwatts of radiation at the lethal frequency—an amount of u/v probably insufficient to have any worthwhile lethality, in view of the limited exposure period. The TUV 15 is very large (about 18 in. long) and requires a ballast control gear to run it, but is a much better tube, producing some 3 watts of lethal frequency radiation.

All things considered, an ozoniser is a more worthwhile buy than a u/v sterilizer, although the latter, if properly designed with regard to both the amount of ultra violet radiation emitted and the period for which the water is exposed to that radiation, (as controlled by the water flow rate through the sterilizer), is an effective means of controlling disease-causing organisms.

KEEPING TERRAPINS

continued from page 303

can be safely kept out of doors all the year round, providing suitable conditions, such as I will mention later, can be provided. Tropical species, however, must be kept in heated tanks all the year round, as even in the summer months our climate is probably much too cold for them. They need a constant temperature of 75-80°F. The semi-hardy species, such as the N. American Red-ear, and the Yellow-bellied terrapins, can be kept out of doors in the summer if the weather is warm, but during cold weather they also must be kept indoors, in a tank, in a temperature of 70-80°F.

Whichever species you have that is suitable to keep out of doors, it must, of course, be provided with a pond, or sunken tank, into which it can retreat, and whether kept in a pond or in a tank, it must be provided with an island onto which it can easily climb, to sun itself, or to dry itself as they sometimes like to do. If a pond is provided your terrapins can, of course, come onto the edge of the pond, in which case an island is not necessary, but it is advisable to fence the pond otherwise they will wander away, and small specimens, even up to three or four inches in length, must be protected from dogs, rats, and big birds.

Small terrapins, whatever the species, are best kept in a tank all the year round, heated to a temperature of 70-80°F. when necessary. It must be remembered that where artificial heat is provided, with the recognised heaters, a thermostat must always be connected. Sunlight is very beneficial to terrapins, but some form of protection from this must be provided so that they can move from the sun if it gets too hot as too much direct heat will kill any reptile, as will too cold a temperature.

If you keep your terrapins in a tank, either a proper filtering system must be used, or the tank must be cleaned out often to prevent bad smells, and most of all to prevent the terrapins becoming prey to disease. And again an island must be provided.

Hibernation

The tropical species must not, on any account, be hibernated, otherwise they will die. This also applies to sick terrapins, and those with an under-shell measuring less than 3½ inches in length. These must all be kept in a tank throughout the winter months in a temperature of 75-80°F., and must be fed as during the summer months.

continued on page 311

SORTING AND FEEDING THE YOUNGSTERS BREEDING GOLDFISH

by Arthur Boarder

THE SORTING OF the current season's youngsters should be completed as soon as possible so that the best ones can receive the most space and food. If only common goldfish have been bred there is little that one can do in the form of sorting. These fish do not change colour very early and so one must wait perhaps a couple of years to see which are worth keeping. The general body shape may not vary very much but it is possible to find a few throwouts among the youngsters. If the fish are placed in a tank so that they can be viewed from the side, the dorsal fin can be inspected as this is one which can be mis-shaped. Any badly shaped fish should be discarded as a fin will never alter for the better.

The caudal fins may also vary among the same batch of fish and where one is found to be irregular in shape, that is the lower longer than the upper fork, or vice versa, this fish can be discarded. The body shape may not vary much in young fish but a medium shape is desired and any with too deep a body need not be kept. With so many strains of common goldfish it will be found that many do not change colour from the original bronze at all. If any such fish are returned to the pond they are likely to eventually spoil the whole strain, as more fish which do not change colour may be bred each year. There is one way to go about this sorting of common goldfish and that is to give the fry more warmth. This will encourage the fish to change colour much more quickly than otherwise. The warmth can be up to 75-80°F., and during the summer months the water in the rearing tanks could be up to this level if the tanks were in a fish-house or frame.

The provision of extra warmth is very necessary where fancy goldfish are concerned but a word of warning can be given here. Once the temperature of the water rises to 75°F or more the fishes will require much more food than when the water was cooler. If plenty of food is not available then the fish will become stunted in growth. They will be very active all the time and so will use up much energy. If this cannot be replaced by frequent feeding the fry will not grow at their maximum rate. The scaled types will change colour very early before they are any size and I have had fantails change colour

when they are only half an inch long over all. This state occurs when the fry are in rather crowded conditions and it will be found that once the fry are stunted it is very difficult to get such fish growing again at the maximum rate.

On the other hand, if warmth and aeration can be provided and at the same time, plenty of space, the provision of frequent feeds will ensure that the fish grow very quickly and healthily. The space question is almost as important as the feeding problem. It will be found that fish which are not fed at all, as long as there is a plentiful supply of growing water plants in the tank, will grow on far better than fish which are crowded, even if well fed. The early sorting of the fry will tend to give the breeder more space for the better fish which can then be grown on far more easily than before. In a hatching and rearing tank with plenty of water plant life it may not be possible to assess how many fish are in a particular tank. It may come as a surprise to find just how many there can be. Moving on the better ones to a roomier tank will give them a better chance of growing.

If shubunkins have been bred then it is a far easier task to sort them early than it would have been with common goldfish. Shubunkins are scale-less, that is they have no hard scales like common goldfish. They also change colour far more quickly than scaled kinds and so the sorting can be done much more early in their lives. It will be found that some of the shubunkin fry change very quickly and become almost white. These are of little use to the breeder and although the ultimate colour cannot always be determined at an early age, it is possible to sort out the best with little trouble. The desired blue ground is not likely to develop on fish which turn white early, but those which remain rather dark will be the ones which are likely to turn out the best in the end. Providing the fry have had good growing conditions it should be possible to sort out shubunkins at the age of three or four months and so the better ones can be given more space and extra good food.

If the shubunkins are of the London type their general body and fin shapes can be examined as for

common goldfish. If Bristol types are being bred then there is much more to sorting with this type. The body must not be too deep and although it may not be possible to determine this until the fish are six months old, it may be found that some develop a very deep body, which is not required. A streamlined body is desired for the Bristol and larger finnage than for the London type. The caudal fin is very important and this must be rather flowing with well shaped forks.

Any of the double-tailed types of fancy goldfish such as fantails, veiltails, orandas, lionheads, moors, celestials, bubble-eyes and pearl scales, can be sorted quite early in their lives. It is possible to tell at the age of one week whether the fry are likely to be of any use or not. By this I do not mean that one can pick out a winner at this early age but one can certainly pick out every fish which is never likely to make a good specimen. If week-old fry are examined from above the double-tailed types will show up quite plainly. The single-tailed ones will just have a thin straight line for a tail, whilst the double-tailed ones will show a distinct spade shape. These spade-shaped ones can be kept apart and the single-tailed ones discarded. Among the better ones there will still be plenty of further sorting to be done. Some of these may not have a divided tail, some may be web-tailed (Joined tails), others may be tri-tailed (Single top, double bottom). However, even at this early stage there is no need to be bothered with the single-tailed ones and it has been my experience that these types always grow far more quickly than the better ones and so eat up much of the food and take up valuable space which should be reserved for the good ones.

After two or three months, as long as the fish have been well fed with plenty of swimming space, they can have a further sorting. This is done in a white bowl when they can be examined from above. The tails are then seen very plainly and any which are not of a good shape can then be discarded. Do not be in a hurry to throw out those which appear to have a good shaped tail but which do not show the division clearly. I have found that some fish, when young, carry the two parts of the caudal fin so closely together that they appear joined. Later on the same fish may have a well divided caudal. After the examination from above it is important to watch the fish from the side in a tank. The dorsal fins can then be checked and it may be found that some have an incomplete dorsal fin which can be shaped almost like that of a shark. It is of no use keeping such fish as the fin will never improve in shape.

The body shape may not yet have developed sufficiently for one to be sure that it is of the proper type. A good deep body is desired in these fancy

fish, especially for the veiltail and oranda. It is said by some that the type of food given will control the shape of the body. I do not think that there is much truth in this statement as all the proper feeding possible will never put a good deep body on a thinly shaped fish.

With the above types of fancy goldfish the changing of the colour will depend on the variety. The moors will remain black, and the blacker the better. Incidentally when will people, dealers included, stop referring to these fish as *Black moors*? They would not be moors if they were not black and so the adjective is quite superfluous. The varieties like veiltails which should be of a shubunkin colour will change colour early in life like ordinary shubunkins, but the scaled varieties will take longer, often according to the strain and the conditions under which they have been reared. All the scaled types will change much more quickly with extra warmth than if they were left to normal temperatures.

Once the sorting has been done it will be easy to ensure that the better fish get the maximum feeding and space. In warm water such fish can eat well every two hours of the day. This of course as long as the water remains in good condition. It will soon become apparent to the breeder if anything has gone wrong with the water. As long as it keeps in good condition there will be no bad smell and it will remain clear. There may be some green *Algae* which will do no harm, as long as it does not get too thick, but the best sign as to water condition is that the fry come immediately to the top and take food as soon as it is given. If no fry are seen soon after the food is given then something is wrong. The water has lost its purity and does not contain sufficient oxygen. If food is given this will only make matters worse. Fish will not eat if there is not a good supply of oxygen in the water and so unless much of the water is changed for fresh, the fry will not start to eat again. If you do change a lot of the water, do let the fish recover before giving any food and let at least a day elapse before feeding begins again.

Some people think that fish must be forever being fed. This is not so. As long as there are some water plants in the tanks the fish will not starve. I have left very young fry for a fortnight at a time with no artificial food at all and have not lost one during that time. They will browse about on the water plants and sides of the tank removing plenty of soft *Algae* and minute *infusoria*, which is usually present in any well set-up rearing tank. I have mentioned in a previous article how I found a dozen quite large fish in a spare tank which had never been fed by me, and they had hatched and grown very well on what they could find among the plants.

The type of food does not appear to be so very important as far as the development of the fish is concerned. The chief test is if they eat what is offered. Remember that goldfish will eat anything a pig will eat and plenty more besides. The diet can be varied with types of live foods. I favour white worms (*Enchytrae*) and garden worms. In the early stages these are mashed and then chopped up as the fry grow. I never use any live foods from water sources, I know that many breeders do and so they can, but one day they may get a bad crop of pests or diseases and wonder where the crop came from. If any forms of live foods can be obtained in freeze-dry condition then I imagine that these would be quite safe. Whether you would be able to afford

to feed a large number of fry on such foods depends on the depth of the pocket. Some fry foods are getting so expensive that one needs to be almost a millionaire to be able to use them. I recently paid 4s. for a tiny tube of fry food which could have been placed in a desert spoon quite easily and which my fry ate in a day or two. There is one point about this very dear food and that is the breeder is tempted to experiment with many other types of food which are quite well taken by goldfish and it pays the breeder to experiment with all types of human foods to find out which his fish will take.

I have just tested the 4s. fry food container and find that it actually holds just two desert spoons of dust-like food.

KEEPING TERRAPINS

continued from page 308

The hardy species which have been kept out of doors during the summer months, can be safely hibernated out of doors, providing they are in a deep pond which has several inches of mud at the bottom into which the terrapins can burrow, but they must be well away from frost, ice, etc., otherwise they will die.

If no deep pond is available, it is wisest to hibernate the terrapin indoors, and the simplest and most satisfactory way is to have a large metal or plastic container, and in the bottom place a layer of a mixture of fine soil, moss, leaves, etc.; place the terrapin on this and cover it with a further layer of the mixture three or four inches deep. **DO NOT USE CLAY**, otherwise the clay will harden and seal the terrapin in an airtight casing.

Place the container with terrapin in a cool, draught-proof place, such as a cellar or shed, and leave it there until the spring arrives and the creature awakes. Until the weather becomes warm leave the terrapin indoors, but bathe the eyes and mouth with warm water to make sure that they are free to open. Do not attempt to wash the terrapin until the weather is warm enough.

How do we know when a terrapin is ready to hibernate? Well, of course, the terrapin which has spent the summer months indoors will not show signs of hibernation because it is in the warmth.

The terrapin which has spent the summer months out of doors, however, will show signs of wanting to hibernate and these will be noticed about October, when the cooler weather comes. The terrapin will lose its appetite, and will become sluggish. These signs will increase and about the end of October, or

early November it will be safe to put it into its winter quarters. Putting it into hibernation too early is not always advisable, for two reasons. First, if we should get a warm day the terrapin may want to eat owing to the rise in temperature, and secondly, if the temperature is not cold enough the terrapin will not settle, and will simply struggle to get out and in so doing will use up energy, which it will need during hibernation. Keep an eye on the hibernation quarters until you are sure the creature has settled in case it falls onto its back, or comes to some other harm.

Hibernating terrapins require no food or drink during hibernation, but it is essential that they are well fed during the summer months so that they can store sufficient food to last through the hibernating period.

Many people like to put their name, or some mark on a terrapin's shell, in paint or varnish, but this should NOT be done, as it can result in the shields of the shell coming off, and also it can come off in the water, poisoning the terrapin.

Finally, if your terrapin develops some illness or injury, take it to a veterinary surgeon who will prescribe the necessary treatment for it.

PRICE OF "THE AQUARIST"

It is regretted that because of increasing costs in production and distribution of periodicals, the publishers of *The Aquarist* have to increase the price of the journal to 3s. 6d., starting with the January issue. Subscribers will be notified of the new rates when current subscriptions come to an end.

OUR READERS WRITE

Oscar Award

As in the Filmworld the Scandinavian Aquarists have an "Oscar," for which trophy a winner is chosen once a year.

For 1969 the specialist of aquarium plants—Gerhard Brünner of Hamburg—got the trophy at a celebration on October 4 in Malmö, Sweden.

His work with aquarium plants is well known among aquarists all over the world and his articles in several magazines have widely increased the knowledge of plants and their requirements.

His new work on plants "Akvarievaxter" was issued during 1969 by *Tidskriften Akvariet*. The 216 page book being an original work specially written for the Scandinavian Aquarists is outstanding as it is the first book in Swedish on this subject. The Author's rich photomaterial has also met with the highest approval.

Tidskriften Akvariet.

Nest Adoption

I am writing to tell you about a very unusual occurrence, recently a pair of honey Gouramis (*Colisa channa*) have spawned in an 18 in. x 10 in. x 10 in. tank. I removed the female and noticed that the male was removing the eggs from his bubble nest and placing them under a worm feeder that was floating in the tank. When the eggs hatched the male spat the helpless fry into the feeder. When they sank he repeated this action.

I wonder if any of your readers have had similar experiences of anabantids "adopting" a floating object in the breeding tank and using it as a bubble nest.

W. F. PRICE,
21 Horwood Close,
Headington,
Oxford OX3 7RF.

Help Wanted

As secretary for Bishop Auckland Aquarist Society I am also responsible for entertainments for our fortnightly meetings. I am finding increasing difficulty in finding films or film libraries with anything of interest to aquarist societies.

I would be grateful if you could place a request in your magazine for any help which any other aquarists

or entertainments committees can give regarding films, slide shows, etc.

R. N. GOUGH, Secretary,
6 Langley Drive,
Bessemer Park,
Spennymoor, Co. Durham.

Has Anyone Bred Koi

Being interested in breeding Koi I bought two large "pairs" only to find that they are all males and wasted two breeding seasons before finding this out. Has anyone had any luck breeding Koi in this country? If so I would like to hear of their experiences and would also like to contact anyone with young Koi to sell. Also, has anyone any way of sexing Koi short of a post mortem?

If you could publish this letter I would be most grateful. Thanking you.

J. F. GREGORY,
Nurseryman—Fish Breeder,
Monkton Lodge,
Springwell Road,
Jarrow.

Mendelism

Don Pillimore and Serge Goodhall's interesting and practical article on genetics had one error. The Abbot Mendel published his paper on genetics in 1866, just over a hundred years ago and not two hundred as the writers suggest; and he certainly used a microscope. His paper was ignored until 1902 when it was translated and its scientific possibilities realized. So Mendelism is comparatively new.

Mendel worked with limited resources and his success was due to careful observation, quantitative experiments and brilliant reasoning. The "Canadian Experiment" upon which the authors are embarking follows Mendel's principles (he kept records of over 10,000 plants) perhaps *The Aquarist* will publish their findings.

R. MILLER,
London, S.E.26

Umbra krameri

In the September edition of *The Aquarist* I read an interesting, though not always accurate, article about the European Dogfish (*Umbra krameri*). It appears that Mr. Forster, who wrote this article has lost touch with the coldwater world of fishkeeping when he suggests that this particular fish is never likely to be on sale in this country. I have had European Dogfish in my possession for the last six or seven years and I have seen them on sale in aquarist shops in London and also in Portsmouth. On one occasion I was confronted with a tank containing over a hundred of them. Only today, the second of October, I purchased a pair of them for a friend of mine in Manchester.

Continued on page 318

THE BRITISH AQUARISTS FESTIVAL 1970



"Wells Fargo" by
Oldham and District A.S.

THE twentieth British Aquarists Festival was held at Belle Vue, Manchester, on October 10th and 11th, 1970, and was a great success. The attendance was staggering (13,129) and by far exceeded any previous records. All day Sunday the large hall was filled with people who found plenty to inspect and enjoy. From fairly small beginnings in the early years this exhibition has grown out of all proportions and bookings have already been made for the twenty-first anniversary show next year. It is also obvious that a larger hall will have to be engaged at Belle Vue to accommodate the thousands of aquarists and friends who are likely to attend.

This exhibition has become world renowned and it was obvious that many people had travelled far to see this outstanding show. It was very pleasing to see so many keen aquarist friends from Scotland as well as

many from all parts of England, Ireland and Wales. A visitor from Scotland was heard to say that it was the best aquarist show in Great Britain and Mr. G. Reid, the President of the Scottish Federation of Aquarist Societies, interjected that it was the finest show in the world. This appears to be borne out by the fact that aquarists had come many miles to obtain information as to running a show in their particular areas. One well-known aquarist from Canada, Mrs. M. Williams, of Toronto, had come especially to find out as much as possible in order to run a show in Toronto. Mr. Clarence Chua of Singapore had also come with the same object in view.

The society stands were again an attractive feature of the exhibition and although many were rather formal, they were also neat and attractive. A few were outstanding and it was very difficult for the judges to



Part of Northwich and District A.S. stand called "Sea of Tranquility"

place the first four and even then some of the others ran very close. There is no doubt that the stands put up by the societies are the chief attraction and make this type of exhibition so much better than the old style with rows of tanks, some containing one small fish. All the societies who participated are to be congratulated as without their support the show would not be such a wonderful event. Fish entries were up by approximately 18 per cent on those of last year.

The first prize for stands went to Oldham and District A.S. for a splendid replica of a Wells-Fargo western stage coach. It was so authentic that at first sight it appeared to be a specimen borrowed from a museum, but enquiries proved that it was "home made," and had taken seven and a half months to complete. One member supplied a pair of wheels and another the other pair. From this the whole construction was carried out. Even the harness was present and a shot-gun stood by the driver's seat. There was baggage on the top and the name stood out clearly on the sides. The necessary tanks were inset as windows, etc. The coach stood on a sand platform complete with cacti.

The second prize went to Northwich and District A.S. and took the form of a moon shot. The face of the moon was presented with tanks inset and a fine

model of a space craft was suspended by it. A very fine effort. The third prize was awarded to Ashton-under-Lyne A.S., and was most attractive. It occupied a corner site with two neat stands with a view of a waterfall added to the pleasant scene. The fourth prize was won by the Loyne A.S. with a brewer's dray on which were rows of full-sized barrels. A cut-out in each one made space for the tanks. One excellent stand which did not qualify for judging was put up by Southport A.S. This took the form of a bar and was splendidly adorned, even having fishes in bottles and small barrels. This stand would surely have been in the cards but by an oversight sufficient entries of fishes had not been made to enable the stand to qualify for competition.

Edinburgh displayed a very good bamboo hut with their tanks and Leigh A.S. stand took the shape of an eastern palace. The stand of Sunnybrow A.S. was particularly neat in the form of a suitcase labelled B.O.A.C. Several other stands were worthy of mention and proved most interesting to the thousands of visitors on both days.

Although the stands were a fine feature there were also many very good fishes to be admired and it was very noticeable that the coldwater fishes were more abundant and of better quality than in some previous years. The shubunkins made a brave show and it is evident that this section of fancy goldfish is gaining in popularity as it obviously deserves. Some of the breeders' teams in this section showed much promise for future years.

The tropicals must have given the judges a headache as there were many fine fishes to examine. The judges must be congratulated on their efforts as it is very difficult to judge a show of this kind where the entries can be as much as a hundred yards apart. This necessitates much walking to and fro which must be a strain on the judges.

"Looking through the window" by Ashton-under-Lyne A.S.



THE AQUARIST

The Champion of Champions class was the centre of attraction and for a change the coldwater fish were to the fore among the prizes. The first was a sunbass owned by Mavis Miller of Belle Vue A.S., the second was a Lionhead owned by C. E. Witney, of Accrington A.S., and the third prize was taken by a *severum* Cichlid.

As usual the dealers made a brave show and they occupied a run of 160 feet along part of the sides as well as many in the centre of the hall. There were thousands of fishes for sale as well as all types of accessories. The stands of the dealers were besieged by purchasers all the time and by the look of the many plastic bags in the hands of the visitors, business must have been very brisk. It was obvious that the throngs of visitors enjoyed the show immensely and so it is reasonable to expect increasing numbers for next year.

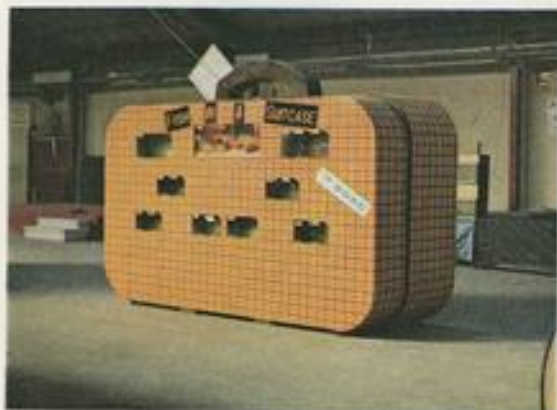


Above: "We're only here for the beer!" by Loyne A.S.

Right top: Champion of Champion's

Right middle: First award for best individual furnished tropical aquarium went to Mr. I. Wood of Bury

Right bottom: Fish in a suitcase by Sunnybrow A.S.





Mr. J. Warburton of Ashton-under-Lyne A.S. receiving his award for best fish in the show



Above left: Dr. Wilkinson presenting cheque for Champion of Champions (see cover picture) to Mrs. Mavis Miller of Belle Vue A.S.

Above: Mr. H. T. Jago receiving his award for the Exhibitor gaining most cards in the Breeders Sections

Left: Oldham and District A.S. representative receiving cheque for the best stand

CHAMPION OF CHAMPIONS

Competition Results



1st
MAVIS MILLER
 Belle Vue Manchester A.S.

2nd
C. E. WHITSEY
 Accrington & D.A.S.

3rd
D. & R. Standen
 Loyne A.S.

RESULTS OF OTHER FESTIVAL COMPETITIONS

Best Fish of the Show: F. Warburton (Ashton-under-Lyne) 87 pts. Best Tropical Fish: F. Warburton (Ashton-under-Lyne). Best Coldwater Fish: H. Penhall (Osram) 82 pts. Best Other than Best Fish in Show—Tropical Egglayers: D. Kennedy (Bradford) 86 pts. Tropical Livebearers: Stockbridge 77 pts. Coldwater: H. Penhall (Osram) 82 pts. Best Society Furnished Aquarium—Tropical: J. Oldham 81½ pts.; 2, Halifax 78½ pts.; 3, Bradford 78 pts. Coldwater: 1, Accrington 70½ pts.; 2, Northern Goldfish 70 pts.; 3, Bury 65 pts. Best Individual Furnished Aquaria (Tropical): 1, I. Wood (Bury) 80 pts.; 2, L. Thorne (Northwich) 77½ pts.; 3, D. L. Shields (Halifax) 76 pts. Best Individual Furnished Aquaria (Coldwater): 1, D. L. Shields (Halifax) 78 pts.; 2, H. Penhall (Osram) 77½ pts.; 3, B. Simmonds (Blackpool) 75½ pts. Best Aquascape: 1, J. C. Thompson (Edinburgh) 78 pts.; 2, H. Penhall (Osram) 74 pts.; 3, Mrs. Mathews (Northern Goldfish) 72 pts. Novelty Aquascape: 1, J. Evers (Ashton) 76 pts.; 2, D. Chambers (Hyde) 72 pts.; 3, W. Heap (Belle Vue) 69 pts. Common Goldfish and Comets: 1, F. Cobb (Belle Vue) 76 pts.; 2, Mrs. Mathews (Northern Goldfish) 75 pts.; 3, W. H. Ramsden (Northern Goldfish) 72 pts. Shubunkins: 1, H. T. Jago (Bristol) 77 pts.; 2, S. Walsh (Accrington) 73 pts.; 3, J. H. Phillips (Bristol) 71 pts. Moors: 1, H. T. Jago (Bristol) 74 pts.; 2, W. H. Ramsden (Northern Goldfish) 73 pts.; 3, W. H. Ramsden (Northern Goldfish) 70 pts. Veiltails: 1, W. H. Ramsden (Northern Goldfish) 70 pts.; 2, W. H. Ramsden (Northern Goldfish) 65 pts.; 3, C. H. Whitney (Accrington) 61 pts. A.O.V. Fancy Goldfish, Fantails, Orandas, Lionheads and any "New" Variety: 1, H. Penhall (Osram) 82 pts.; 2, N. S. Farrall (Northern Goldfish) 75 pts.; 3, H. T. Jago (Bristol) 73 pts. Any Species of Coldwater Fish other than those above: 1, C. H. Whitney (Accrington) 77 pts.; 2, W. H. Ramsden (Northern Goldfish) 74 pts.; 3, H. Penhall (Osram) 71 pts. Guppy (Single): 1, F. Cobb (Belle Vue) 76 pts.; 2, Mr. and Mrs. D. Glenn (Bury) 74 pts.; 3, A. Wild (Salford) 71 pts. Guppy (Pairs): 1, R. Tomkinson (Glossop) 71 pts.; 2, H. Greenhall (Leigh) 69 pts.; 3, H. Greenhall (Leigh) 67½ pts. Livebearer (Pairs): 1, R. Grimshaw (Sunnybrow) 66½ pts.; 2, N. R. Gibson (Holme Valley) 66 pts.; 3, J. Tunney (Stockbridge) 64½ pts. Livebearers (Single): 1, J. Tunney (Stockbridge) 77 pts.; 2, S. G. Mooney (Tottenham) 73 pts.; 3, J. Day (Stretford) 72 pts. Angel (Pairs): 1, R. Atherton (Mount Pleasant) 71 pts.; 2, R. Tomkinson (Glossop) 70 pts.; 3, P. Kenyon (Belle Vue) 65 pts. Angel (Single): 1, N. R. Gibson (Holme Valley) 68 pts.; 2, J. Carrington (Bradford) 65 pts.; 3, B. Pearson (Northwich) 62 pts. Dwarf Cichlids (Pairs): 1, N. V. Fearn (Stockbridge) 76 pts.; 2, J. Faulkner (Merseyside) 75½ pts.; 3, B. Green (Dewsbury) 69½ pts. Dwarf Cichlids (Single): 1, F. Burton (Aireborough) 79 pts.; 2, H. Cooper (Bury) 76 pts.; 3, N. V. Fearn (Stockbridge) 75 pts. Cichlids A.O.V. (Pairs): 1, W. Heap (Belle Vue) 64 pts.; 2, R. Hazley (Loyne) 61 pts.; 3, R. Toyne (Workop) 60 pts. Cichlids A.O.V. (Single): 1, F. Warburton (Ashton) 87 pts.; 2, B. Phillips (Ashton) 79 pts.;

3, J. Brook (Huddersfield) 78 pts. Fighters: 1, P. Shackleton (Belle Vue) 76 pts.; 2, P. Shackleton (Belle Vue) 74 pts.; 3, R. Smith (Tottenham) 73 pts. Gouramis and Paradise (Pairs): 1, J. Shackleton (Belle Vue) 75½ pts.; 2, D. Smith (Glossop) 74 pts.; 3, J. Tunney (Stockbridge) 72½ pts. Gouramis and Paradise (Single): 1, N. R. Gibson (Holme Valley) 80 pts.; 2, D. Smith (Glossop) 78 pts.; 3, A. Stear (Stretford) 77 pts. Barbs (Pairs): 1, K. Parkes (Merseyside) 77½ pts.; 2, J. H. Dornie (Dukeries) 69 pts.; 3, F. Gregory (Oldham) 67½ pts. Barbs (Single): 1, P. Barrett (Aireborough) 69 pts.; 2, F. Gregory (Oldham) 67 pts.; 3, M. Cobb (Belle Vue) 66 pts. Characin (Pairs): 1, J. H. Dornie (Dukeries) 69 pts.; 2, J. Robertson (Mount Pleasant) 67 pts.; 3, J. V. Hill (Ashton) 66 pts. Characin (Single): 1, Parker and Greave (Stretford) 80 pts.; 2, K. Parkes (Merseyside) 74 pts.; 3, D. Moorcroft (Merseyside) 69 pts. Carp and Minnow (Pairs): 1, R. Toyne (Workop) 64½ pts.; 2, K. Stafford (Oldham) 59½ pts.; 3, J. Burton (Holme Valley) 55 pts. Carp or Minnows (Single): 1, A. G. Whyte (Halifax) 71 pts.; 2, F. Gregory (Oldham) 69 pts.; 3, N. Spencer (Bradford) 68 pts. Catfish (Pairs): 1, R. Davies (Belle Vue) 81 pts.; 2, P. Robinson (Sunnybrow) 79 pts.; 3, P. Mulla (Merseyside) 77 pts. Catfish (Single): 1, R. Taylor (Aireborough) 82 pts.; 2, B. Thompson (Hyde) 77 pts.; 3, S. Mooney (Tottenham) 76 pts. Egg-laying Tooth Carp (Pairs): 1, R. Huey (B.K.A.) 68 pts.; 2, J. Hurton (Holme Valley) 60½ pts. Egg-laying Tooth Carp (Single): 1, A. Thorpe (Leigh) 69 pts.; 2, B. and G. White (Leigh) 68 pts.; 3, J. B. Wyke (Huddersfield) 67 pts. Loach: 1, D. Thomas (Merseyside) 75 pts.; 2, P. Mulla (Merseyside) 74 pts.; 3, J. Belbin (Huddersfield) 72 pts. A.V. Other than classes above: 1, D. Kennedy (Bradford) 86 pts.; 2, P. Harrison (Loyne) 79 pts.; 3, K. Parkes (Merseyside) 77 pts. Breeders (Egglayers): 1, Parker and Greave (Stretford) 79 pts.; 2, S. Brown (Dewsbury) 78 pts.; 3, A. Mathias (Leigh) 73 pts. Breeders (Livebearers): 1, H. Gardner (Aireborough) 75 pts.; 2, P. Danielson (Holme Valley) 72 pts.; 3, R. Tomkinson (Glossop) 70 pts. Breeders (Coldwater): 1, H. T. Jago (Bristol) 74 pts.; 2, H. T. Jago (Bristol) 73 pts.; 3, W. H. Ramsden (Northern Goldfish) 72 pts. Plants: 1, M. Riseley (Ashton) 79 pts.; 2, J. Murray (Salford) 70 pts.; 3, T. Hardman (Bury) 68 pts. Marine (Furnished Aquaria): 1, G. Abel (Sunnybrow) 71½ pts.; 2, Howarth and Wright (Blackpool) 62½ pts.; 3, Howarth and Wright (Blackpool) 59 pts. Marine Fish (Pairs): 1, R. Atherton (Mount Pleasant) 62 pts.; 2, T. Garner 60 pts.; 3, T. Garner 52 pts. Marine Fish (Single): 1, D. Chambers (Hyde) 74 pts.; 2, R. Atherton (Mount Pleasant) 73 pts.; 3, D. Chambers (Hyde) 69 pts. Best Society Stands: 1, Oldham; 2, Northwich; 3, Ashton; 4, Loyne. Society whose members won the most points: Ashton. Individual Exhibitor gaining the most awards: 1, W. H. Ramsden (Northern Goldfish), Roses Shield (Lancashire). Exhibitor gaining most cards in Breeders Section: H. Jago (Bristol).

I disagree with Mr. Forster on the subject of breeding. Though I admit that the mating procedure is akin to that suggested in the article it is the female, not the male, I must point out, which carries out the task of guarding the nest and rearing the young. Once the male has satisfactorily completed the fertilisation of the eggs he is unceremoniously driven away by the female which is more than twice his size, and woe betide him if he returns. The male, incidentally, rarely exceeds three inches in length whilst the female can attain an overall length of six inches.

I found there is little to choose between the pair on the point of colouration though there is supposed to be a pronounced reddish line in the vicinity of the area where the lateral line would normally be—this characteristic was not apparent in my specimens.

The actual spawning of my own fishes took place in the early Spring at a temperature of 46°F. The female, to my surprise, did not construct her nest in the normal way which would be in the nature of a simple cave-like hollow in the heavy plant foliage, instead she selected a flat piece of coal directly behind a clump of willow moss without any real hint of concealment. The eggs were laid and the male driven off after he had fulfilled his purpose. Any fish that dared to venture too close after that received a very savage reception. Indeed, the ferocity with which the dogfish strikes is not limited to the breeding season. Some books venture to suggest that these fishes, being of a ponderous nature, are best kept on their own where they will be able to feed at their leisure instead of being bullied and deprived by other fishes. On the contrary, dogfishes themselves can be inveterate bullies—I found this when I kept them in a tank with sunfishes. Quite often any food that reached the bottom was immediately "claimed" by them even if some of the sunfishes reached it first. They seemingly coiled their bodies then struck at lightning speed and any sunfish that was unfortunate enough to receive the full force of impact an ugly wound would be the result. I lost two rock bass this way.

Returning once more to the breeding procedure as I observed it in my own tank the female carried out the necessary duties of ensuring the well-being of her nest by fanning and constantly inspecting her eggs. I waited for a period of fourteen days for the eggs to hatch but alas, the parent began to lose interest in them and finally abandoned them. On close inspection I observed that the eggs had "fungused." I can only attribute this to the fact that the dogfish, being a species acquainted with the soft, acid waters of the peat bogs of Hungary, would be totally ill at ease breeding-wise in the really hard water of the Portsmouth area.

I was rather surprised on reading of the somewhat delicate disposition of Mr. Forster's charges. Perhaps I have been rather fortunate over the years but I have

yet to see a dogfish in the distressed condition related by Mr. Forster. The necessity for the constant use of heavy aeration and water change in order to maintain their well-being after recovery from their mysterious malady left me rather puzzled. The dogfish seems happiest in very old water and is impartial as to the general condition and upkeep of its aquarium. It will even tolerate foul conditions, consequently as a result this fish will survive after its aquarium inmates of other species have perished. It does not seem prone to disease and furthermore I have yet to see the fins folded at any time, there again I might have been lucky over the last six years. Higher temperatures do not bother the dogfish at all, and when one considers the nature of its natural environment—Central Europe in the area of the reed beds and peat bogs of the Middle and Lower Danube System—it seems strange when one reads that it succumbs to a Summer temperature in the aquarium. The water temperature in my coldwater fish-tanks often exceeds 70°F throughout the Summer.

V. B. HUNT,
Hants.

[European Catfish in British Waters

In "Our Readers Write," in the November issue of *The Aquarist*, Mr. J. S. Vinden is not aware of the presence of the European Catfish, *Silurus glanis*, in this country. I can assure him that there are many such fish to be found in waters all over the country. Many years ago, I believe before the first World War, the late Lord Rothschild, of Tring Park, Herts., introduced some of these fish to the Tring reservoirs. A few of these were later found dead which weighed twenty pounds or more. It is also probable that they bred in the reservoirs as I know of young ones having been caught in the Grand Union Canal. The reservoirs in question serve this canal, and water is pumped or run out into the canal close by. As canals run over very much of the country from the Thames to Newbury, Birmingham, Huddersfield, Oxford, Leicester and scores of other places, there appears to be no valid reason why some of the catfish have not spread about considerably.

I have heard about the occasional catch of catfish in canals as for twelve years I judged the gardens and lock equipment of the canals in the southern half of England and during my travels came across stories of such catches. That some of these fish are still alive in our waters is confirmed by the fact that during this year a Mr. Richard Bray caught one in Wilstone reservoir (one of the Tring group), which weighed 43½ pounds. I have a press photograph of this fish as evidence. I trust that Mr. Vinden does not suggest that this was *Ameiurus nebulosus*.

ARTHUR BOARDER.

THE WORLD OF THE CICHLID (Part 3)

THE NON-CONFORMISTS

by Stephen Forster

UNLIKE the two previous articles on cichlids, there can be no generalisation of the species discussed in this group. Not only are they the non-conformists of the genus, they are also individuals in behaviour, breeding, environment or some other factor which precludes the possibility of covering them by any generalities. Because of this there can be no definite rules laid down for keeping and breeding these fish and therefore these details have been covered under each heading.

Four species have been detailed, ranging from the well-known Oscar to a Congo species which has been shipped from Africa on very few occasions.

A. ocellatus are found in Guyana and Paraguay and in their native waters they attain a size of 10 to 12 inches. Oscars are one of the few fishes which reach almost the same size in captivity as they do in nature providing, of course, that they have ample tank space.

The body colouration of this species is reminiscent of dark brown suede, splotted with fiery orange markings. As the fish grow old these orange spots tend to lose their colour and an Oscar in the Methuselah class will also have folds in the skin along the belly.

The Oscar or marbled cichlid



The Oscar—*Astronotus ocellatus*

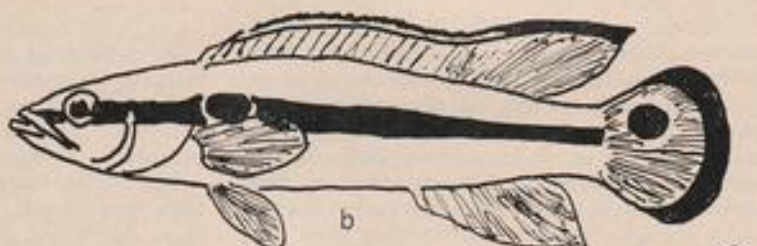
These fish are probably the most popular of all the large cichlids and many of them become one of the family dog. I have not been able to determine how the name "Oscar" stuck to this species but they are recognised throughout the world by this pseudonym.

Sexing *A. ocellatus* is extremely difficult as there are no finnage differences and as the species are heavily built there is no noticeable difference in body depth of the female. Two opinions have been forwarded on the sexing of Oscars, the first is that males have more coloured spots than the females, and the second opinion is that some males have three "eye" spots at

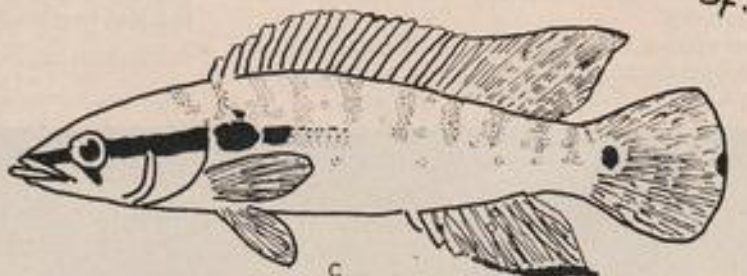
Crenicichla species (after Sterba)
a. *C. dorsoocellata*.



b. *C. saxatilis*.



c. *C. lepidota*.



the base of the caudal fin. There may be some justification for the second opinion but having watched a pair laying eggs and raising fry, I can definitely state that the first method of sexing is totally unreliable.

Breeding is rarely achieved with Oscars, usually because of inadequate tank-space and the majority of these fish sold in this country are bred in ponds in Ceylon, Hong Kong and Thailand. Given ample space, Oscars will breed and this is why there are quite a few spawnings recorded in public aquaria. It is practically impossible for any aquarist to use aquaria of this size due to the phenomenal cost of a tank which holds somewhere between 100 and 200 gallons of water. There are two methods which are suitable if you are fortunate enough to have a fish-house and both methods can be used at a fraction of the cost of large tanks.

The two main pieces of equipment which must be obtained are:

- (1) A secondhand bath, or
- (2) A large packing case as used by shippers.

An old bath, preferably of the old-fashioned long type, can be picked up for a couple of pounds and

once you have overcome the problem of transporting it to your fish-house most of your troubles are over. All that is then required is to give the bath a thick coat of non-toxic rubberised paint, let it dry and then fill it with water and heat it up. Plants are not necessary but the bottom of the bath should be covered with a layer of gravel and an assortment of rocks and large flowerpots. If the bath can be raised on bricks the plug hole can be used for drainage purposes but if it stands at floor level it is advisable to cement the plug in. Depending on the size of the bath, it will hold anywhere between 80 and 140 gallons and provide adequate room for breeding Oscars.

Using the packing-case simplifies the problem of transport and also storage when not in use, as all the sides are hinged to allow them to be stored in piles. These cases come in all sizes and shapes but the ideal size is $6 \times 2\frac{1}{2} \times 2\frac{1}{2}$ ft. The principle in using this method is that the bottom and sides are assembled and then bound with heavy gauge wire and once this has been accomplished, butyl pond sheeting is laid into the box and anchored with staples all the way around and then filled with water. Furnishing should be as

described for the bath.

Heating economy can be obtained in both cases by sticking polystyrene tiles around the outside of the packing case or the bath.

Eggs are deposited on a rock or flowerpot and are laid in strings of 20 to 30 and are well protected by both parents. On becoming free-swimming the fry are split into two groups, each cared for by one parent and as Oscars will deposit 600 to 1,000 eggs at each spawning one has to be prepared to pour food into the breeding tank continuously. The best way to dispose of young Oscars is to approach a wholesaler and get a price for the whole lot as you will have to make quite a few trips to various traders if you sell them in small lots.

Approximately two years ago reports of a Red Oscar began to filter in from America and the Far East and these fish are now with us. There are two claimants, one in Ceylon and one in Thailand, of establishing the strain but irrespective of who was responsible, these fish are welcome additions to the tanks of many aquarists.

The Pike Cichlid—*Crenicichla lepidota*

C. lepidota are well named as the Pike Cichlid as they are extremely predatory and catch their prey in exactly the same manner as the Pike and, therefore, cannot be considered as suitable tankmates for other species.

There are a number of species of Pike Cichlid known to science but only three, *C. lepidota*, *C.*

dorsiocellata and *C. saxatilis*, are normally kept in domestic aquaria.

C. lepidota is the most attractive of the three having red anal and caudal fins on a grey body dotted with flecks of orange and red. These markings change in intensity depending on the environment or mood of the fish and different patterns have been seen when the fish were frightened, aggressive, courting, etc.

The experts have differing opinions on the sexing of *C. lepidota*, Innes states "In this species it is the female which has the longer rays on the anal and dorsal fins." Axelrod and Vorderwinkler are of the opinion that "Males have more pointed fins than females" and Frey states: "The soft rays of the dorsal and anal (fins) of the female may be a little longer." From specimens which I have examined Frey would seem to be more correct than the others, i.e., in many cases there are no distinctions between the sexes but where larger points exist on the dorsal and anal fins this specimen is usually a female.

Although this species spawns like most cichlids, occasionally they spawn on plants rather than on the more usual rock or flowerpot. Spawnings are not large, approximately 40 eggs are laid, but the fry are a good size when they become free-swimming. After spawning the female should be removed immediately as the male assumes the responsibility of caring for the eggs and young and will not tolerate any interference from his partner. Although said to be an excellent father it is as well to remove the male after the fry are free-swimming. The fry are easily

Orange
chromide



raised on brine shrimp, *daphnia* and whiteworm.

Adults will eat only live foods, preferably suitably sized fish but they will accept earthworm, tadpoles, maggots, etc.

Teleogramma brichardi

These extremely rare, elongated cichlids from the Congo spend most of their lives buried under stones and rocks and as they are nocturnal are rarely seen during daylight. Although they show complete indifference to fish of other species they are complete individualists amongst other *Teleogrammas* and two or more of the species, irrespective of sex, will continually fight usually with fatal results. The only time a truce is called is when mating is about to take place.

You may well ask how one would know when a pair would prove compatible, as, considering the risk of fatal injury to expensive specimens, it would be inadvisable to keep bringing the pair together haphazardly. As is usual in these cases, Nature provides the answer; when the female approaches breeding condition her body takes on a unique colour pattern. Both sexes are normally a dark charcoal grey colour with light yellow highlights on the dorsal fin but when filled with eggs the female develops a red ring around the middle of her body, similar in size to a paper cigar band. When this ring appears this is the time to introduce the male to the female's tank. As the male swims past the female's cave she will rush out, but just as it looks as though there is going to be a battle, she stops dead and curves her body around his head. In this position the red band of her body is right in front of the male's eyes and visibly grows more intense in colour. The red ring seems to serve as a combined flag of truce and an invitation, as the male then joins his partner in her cave. There then follows a period of "getting to know you" during which the male's visits to the cave become increasingly longer until the eggs are laid.

Although these fish are quite large, being 4 to 5 inches in size, only 6 or 8 eggs are laid. The reason for this is that the eggs are at least one-eighth of an inch in diameter. As soon as the last egg is deposited the truce is over and the male is instantly attacked and should be removed for his own safety. The female assumes care of the eggs which hatch in 60 hours and the fry become free-swimming in a further five days.

For these fish a temperature of 80°F is suitable and the water should be slightly acid and not too hard.

The Orange Chromide—*Etroplus maculatus*

This fish is unique due to the fact that it is the only cichlid from the Indian sub-continent that has found its way into the hobbyists' tanks.

Orange chromides tend to be shy and don't usually fare well if they have to compete with other species for their food and it is therefore best to give them their own quarters. This species seem to have been mis-

named as the body colour is not orange but yellow, with the anal and caudal fins touched with a black edging while the dorsal fin is patterned with a row or rows of small dots.

Although they can and do exist in fresh water, *E. maculatus* seem to flourish best in water which contains enough salt to taste. The chances of breeding this species are certainly increased by the use of salt in their water.

Sexing Orange chromides is not easy but many females have white edges on the upper and lower sides of the tailfin. The pair should be set up in a 24 × 12 × 12 tank and liberally fed on live foods to bring them into breeding condition.

Many pits are excavated prior to spawning and this may be taken as an indication of forthcoming events. The eggs are usually deposited on the upper arch of a flowerpot or low down on a rock facing the rear of the tank. The clutch will number between 60 and 200 eggs, which are very dark in colour and are shaped like miniature rugby balls. They are fixed to the rock at one end and as the parents fan the eggs they sway about in the current. As both parents get very enthusiastic about this exercise the adhesive properties of the eggs must be excellent. The eggs hatch in three days and the fry can be seen wriggling at the end of a tiny thread. This thread disappears after 10 hours when the fry are moved to a pit, usually at the base of the rock used for spawning. During this time the parents become very nervous so it is advisable to disturb them as little as possible and overhead lighting should not be used at this time.

Artificial hatching is not very successful with this species as the eggs are very susceptible to water changes and under the care of the parents the percentage of hatchings is much higher.

The fry become free-swimming on the fifth day after hatching and they are large enough to eat newly hatched brine shrimp immediately. During the following week they will eat well and grow rapidly but at the end of this time, for some unknown reason, they are again in danger of being eaten by their parents. I have watched a pair of Orange chromides raise five successive broods of young to the age of 10/12 days and then proceed to eat them. It is therefore best to remove the parents at this stage, again being careful to place them in a tank containing well-aged salted water.

Given adequate feeding and room for growth the fry grow well and reach saleable size about the age of 15 weeks. Before taking them to your dealer, advise him of the water conditions in which the young have been raised as this will alleviate the possibility of shock when the young are transferred.

About five years ago a fish called the Silver chromide appeared on the market and although this is undoubtedly a sport raised from *E. maculatus* nobody knows from whence it came.

MODERN TECHNIQUES FOR THE MARINE AQUARIUM

by A. J. Jenno

NOT SO LONG AGO, tropical marine fishkeeping was looked upon by the average aquarist as being something rather above his means and experience; and the idea has grown up that only extreme devotion, knowledge and finances will allow any success in this field. Nowadays however, new ideas and modern technical applications have improved the basic equipment and methods to a point where it is possible to compare tropical marine fishkeeping favourably with tropical freshwater fishkeeping.

The fishes themselves of course, are still more expensive than freshwater fishes and will no doubt remain so until some success is achieved in breeding under artificial conditions. Otherwise, however, in terms of equipment and other essentials, the use of modern techniques now permits a marine tropical aquarium to be set up for more or less the same cost as a well-equipped tropical freshwater aquarium. Even in the case of the fishes there is the argument that because the number which can be kept in a given sized aquarium is much less than the number of freshwater tropicals, the price difference is not so effective. Also of course, there are no plants to buy.

With these thoughts in mind then, it is instructive to examine modern ideas and techniques as applied to salt water aquaria.

The first major improvement which has taken place has been the introduction of nylon-coated aquarium frames. The nylon is impervious to salt and is applied before glazing so that the whole of the metal frame is sealed off from the water. This development has at last given us an aquarium frame which cannot rust nor contaminate the water. There can still be problems with aquaria glazed with metal casement putty, as the salt water has been found to attack this, but the use of silicon rubber sealant on all internal joints eliminates this problem quite easily.

The procedure is to run the silicon rubber sealant along the internal glass to glass and glass to frame joints, while the aquarium is dry, and allow it forty-eight hours to set. The aquarium is then filled with water and left to soak for a further twenty-four hours. Following this it can be drained, cleaned and is then ready for setting up.

The best of the artificial salts used to make up salt water have now improved so much that synthetic salt

is now preferred in this country to natural sea water. The salt content of the water is measured by a hydrometer, which determines the density of the solution. It is important that the hydrometer used is calibrated for use at the aquarium temperature, otherwise its readings will be in error. For instance, should it be required to mix a batch of salt water with cold water and check this with a tropically-calibrated hydrometer, then the hydrometer will read low in the cold water, say about 1.018 for a true density of 1.020. The final testing in the aquarium should not take place until after at least ten hours with the heating and filtration systems in operation.

A rather revolutionary development has taken place recently with regard to the filtration of tropical marine aquaria. Experiments by various authorities have suggested that the expensive external power filters formerly considered essential, can now be unnecessary under certain conditions. The idea is that a particular type of pure coral sand, recently introduced from America, can be very successfully used as a medium for base filters. It is recommended that the sand be used to a minimum depth of two and a half inches at the back sloping to one and a half inches at the front of the aquarium, and up to an inch deeper if possible.

The following advantages are claimed for this method of filtration:

- (1) That the salt water, in addition to being cleaned, is reconditioned chemically by continuous circulation through the coral sand and thus maintains its essential qualities better and lasts longer.
- (2) Since the water is in better condition under this system, the fishes will be healthier, feed better and be less prone to disease.
- (3) The apparatus required costs far less than an expensive external power filter and if correctly used a worthwhile saving in replacement of salt water can be achieved.
- (4) The system need not be switched off when feeding fine foods such as brine shrimp and daphnia.
- (5) The filters are hidden inside the aquarium and thus do not detract from its appearance.

Further filtration by means of activated charcoal may be required and it is possible to purchase small

cartridges which fit onto the filter output tubes and which perform this function efficiently.

The equipment for heating the water should be the best available and an outside fitting thermostat is preferred. This should be fitted either by gluing with silicon rubber sealant or if a retaining clip is used it should be threaded through plastic air tubing so that there is no metal in contact with the water. The rubber bung in the heater can be sealed off with silicone rubber. Any heater clips, cover glass clips, air-line fittings, etc., which are in, or exposed to, the salt water must be made of non-toxic plastics.

Extremely efficient aeration can now be achieved by the use of wooden diffuser blocks which give off a column of superfine bubbles. Aeration should be plentiful but not so strong that the water cannot dissolve all the oxygen present. This condition is as harmful to the fishes as having no aeration at all and can be recognised by putting a piece of non-toxic black material into the aquarium and viewing the water against this background. If the water appears to contain large quantities of small bubbles then it is saturated with oxygen and the aeration must be reduced.

Decorations for marine aquaria should be chosen carefully. Natural coral can be cured by immersion in water containing a liberal amount of domestic bleach and soaking for at least four hours. The coral must then be washed extremely well in running water before placing in the aquarium. All traces of bleach must be removed. The effectiveness of the curing can be checked by removing the coral periodically during the first few days and examining the underside for blackening or smell. In either case the curing process should be repeated.

Rocks which dissolve or add metallic traces to the water must be avoided. Marine sandstone and Westmorland stone are suitable for use. Artificial plants, ornaments, etc., must be made of non-toxic materials and chances must not be taken with materials

whose toxicity is doubtful.

Some problem may be found with lighting hoods. From what has already been said it will be realised that a cover glass is essential to stop the salt attacking the hood and fittings with consequent contamination of the aquarium. There does not seem to be a hood available into which a cover glass can be fitted and so the best method appears to be to have the hood of smaller area than the cover glass and stand it upon the cover glass. In this way the water cannot get to the metal and the lighting arrangements.

If the aquarium is boxed into a cabinet or similar arrangement there should be no unsealed wood, paint or metal surfaces above the water from which condensation can drip back into the aquarium, as this has been found to cause serious contamination in marine aquaria.

Generally then, tropical marine fishkeeping is a lot easier nowadays than it used to be, provided that the basic rules which apply to all branches of fishkeeping are adhered to, such as cleanliness, food requirements and regular attention. There are several types of equipment available which are worthwhile improvements for the more serious marine aquarist. If the filtration system already described is used properly then the external power filter could come under this heading. Air operated external power filters are another useful addition in larger aquaria where base filters may not circulate the water at the same rate as in a small aquarium. Ozonizers and ultra-violet sterilizers are useful refinements, but by no means essential, and some practice in their use is required. The best advice, particularly to the newcomer to marine aquatics, is to keep the system as simple as possible, maintain a clean aquarium by correct feeding and lighting and do not dose the water with cure-alls and tonics unless they are necessary. A close watch on the fishes themselves and their activities will soon determine a healthy environment is being provided for them.



SEASONS GREETINGS

for Christmas and the New Year to all our Readers

PRODUCT REVIEWS



INTER-PET'S NEW MINI-RANGE

INTER-PET OF DORKING are aiming to be the smallest in the world—certainly with their latest range of Mini-heating equipment.

MINIMATIC

The new Minimatic is probably the smallest combined heater thermostat ever designed and offers entirely fresh scope to the fishkeeper in that it is completely submersible, can be placed at any angle and as it is only 8½ in. long by ½ in. diameter it is easily concealed behind a plant or rock.

This ingenious little unit, which costs only 25s. complete, and has a nominal capacity of 75W which is adequate for a 20 in. aquarium under normal conditions or for a much larger aquarium in a centrally heated home. Its versatility also makes it ideal for the very popular smaller type aquarium such as the Hyware and other plastic tanks.

As with other high quality Inter-pet products, the instrument is supplied with full instructions to ensure correct usage and its 100 per cent efficiency disproves the old fallacy that combined heater/thermostats are not as accurate to control as separate units.

MINI-HEATER

Only ½ in. diameter by 4½ in. long, this miniature heater is ideal for those aquariums such as Hyware tanks and larger tanks in centrally heated houses which do not require more than 75W.

Inter-pet are confident that this Mini-Heater will satisfy the big demand abroad for heaters in the 5W

to 25W range; particularly in countries where homes tend to be centrally heated so that only a small boost is required.

THE MINI-THERMOSTAT

Easily concealed in the corner of any normal aquarium, the Mini-Thermostat has a differential of plus/minus 1°F and is capable of controlling heaters up to 200W which removes the necessity for a larger, conspicuous thermostat.

KING BRITISH REMEDIES are manufactured and marketed by the King British Aquarium Accessories Co., Cannon Mills, Union Road, Bradford 7, Yorkshire.

This range of remedies contains treatments for a wide variety of aquarium diseases and adverse conditions. The following are available in 2 oz. polythene bottles—dropper for liquids, and open screw cap for powders. They cost 4s. 9d. per remedy. "Body Slime Cure It" is for the treatment of body slime; "Methylene Blue" is for the treatment of white spot, flukes and fungus but is not recommended for use with plants; "Rest It Sedative" is a water conditioner and a sedative for new fish, or fish moved to a different aquarium—it also reduces the chlorine content of aquarium water, and does not harm plants; "Off It" is a wide spectrum cure for cases where no specific diagnosis can be made—it acts as a general "pick-me-up" cleansing agent and antiseptic, and can be used to cleanse live foods; "Velvet Cure" is for the treatment of velvet disease, and does not harm plants; "Snails Destroy It" is for killing snails in aquaria, and does not harm fish or plants; "pH Adjuster Acidity" is used to lower the alkalinity of aquarium water, i.e., render it acidic and "pH Adjuster Alkalinity" is for reducing acidity, and rendering water alkaline. "White Spot Avoid It" is sold in a 1 oz. size, and is an aquarium disinfectant used to prevent white spot and other diseases. It also helps to reduce algae, but does not harm higher plant life. The water being treated should not be in contact with the upper frame of the aquarium.

"Fungus Cure It" costs 7s. 9d. for a 2 oz. bottle, and is used to treat fungus and body infections. "Grow It" costs the same price, for the same weight, and it is a vitamin supplement to promote large healthy fish, at an "express rate". It is used added to standard foods, and I have it under test at the moment.

This is an interesting range, especially the latter item, and should be useful to the aquarist who meets

with problems. Unfortunately, as is the case with many British products, only the methylene blue tells us what the remedy contains. It is, therefore, difficult to know if one is getting value for money, in some cases; however, if a remedy works, many aquarists will be satisfied without knowing what they have used. The addition of a plant fertilizer to the range would be useful to some aquarists. B.W.

DORKING COMPANY, Interpet Ltd., is now producing the first range of stainless steel aquarium tanks and hoods to be made entirely in the U.K. Utilising best quality 18/8 (nickel/chrome) stainless steel, the aquariums feature tapered uprights to improve their design appearance, and the satin finish is protected with a polythene coating during manufacture.

The combination of high quality stainless steel and polythene eliminates any possibility of rust and makes the tanks decorative in appearance and suitable for tropical freshwater or marine fish. Such tanks are impervious to the usual effects of salt water.

These new aquariums are double sealed for further protection. The glass is first set into the stainless steel frame using a hot mastic compound, which sets to give additional rigidity to the completed tank. An internal silicone rubber seal provides a final barrier to fresh or salt water and has an indefinite life.

To complement these aquariums—available in a range of standard sizes from 12in. x 6in. x 8in. to 36½in. x 16in. x 12in.—larger sizes can be manufactured to special order.

Interpet has also introduced a stainless steel hood featuring a hinged front flap to make servicing, cleaning and feeding the fish as simple as possible. The hoods also allow for the fitting of fluorescent lighting (Grolux, etc.) and incandescent bulbs at the same time.

This combination of lighting is now recognised as an excellent alternative to daylight for fish and plant life. The fluorescent tubes can be powered by Interpet's existing range of Convertagear which can be positioned behind or below the tank.

To support the tank at a reasonable viewing height the company also manufactures a knock-down stand which is packed flat for delivery but which can be erected in minutes to form a firm base.

Prices for the stainless steel tanks start at 47s. 0d., hoods cost from 26s. 4d., and knock-down stands at 114s. 5d.

Trophy Fish Foods. Trophy Products, Laurence Drive, Stover Trading Estate, Yate, Bristol.

Trophy Fish Foods are in constant demand by those fortunate aquarists, here and abroad, who have had them brought to their attention and, having once given them a trial, have proved their worth. It is only

of recent months, however, that Trophy fish foods have become more generally available. The five different sorts, manufactured for specific purposes, are identifiable by a coloured spot on the container. Red spot for guppies and indeed all similar-sized fishes; blue spot for general community use; green spot, a finely balanced mixture, with germ of wheat added, ideally suited for bringing the smaller fishes, and in particular the guppy, into fine colour and breeding condition; yellow spot for all varieties of fry; and orange spot, a specially compounded wheat germ food for coldwater species as well as tropicals. Four-ounce canisters of red, blue and green spot foods are priced at 6s. each. A smaller size of any of the above is available at 2s. 9d. Yellow spot is in one size only at 2s. 9d. Orange spot is priced at 4s. 3d. and 2s. 3d. Apart from their high nutritive value, Trophy fish foods should appeal to all aquarists who just cannot afford to dig deeply into their pockets. You do get a lot in quantity and quality for your money.

JACK HEMS.

'WARDLEYBURGER' INSTANT FISH FOODS, manufactured by Wardley Products Co. Inc., Long Island City, N.Y., and distributed by T.F.H. (Great Britain) Ltd.

A few years ago I reviewed the first freeze-dried food to be introduced to Britain. At that time I had no idea that such foods would have such an influence on our fishes' diet. I wonder if this new concept in fish feeding will have a comparable effect? No doubt time will tell!

The new Instant Wardleyburgers come in three varieties: 'Shrimp Cocktail', for 'Tropical Fish' and for 'Goldfish'. The foods are in powder form and a measure of the appropriate food is mixed with hot or boiling water in, say, an egg-cup. The resulting paste is allowed to cool and forms into a gel. The idea behind these new foods is that fish have little or no stomachs and cannot store food, hence they eat almost continually in their natural habitats. In the aquarium, they may only be fed by their owner two or three times per day. Too much food given at one time could cause fouling of the water. These new foods will not pollute the water and can provide continual feeding for the fishes for 24 hour periods. The makers state that fish grow faster because food is continually available to them.

In their natural habitat fish are said to feed on foods which contain 85-90% moisture. 'Instant Wardleyburgers' are a complete diet, dried to retain essential nutrients; multivitamins and flavour have been added. When one mixes up the food, its removed water is replaced. From the gelled food, one cuts off a small portion which is dropped into the aquarium water. After sinking it will eventually

be found by the fish which will nibble at it at will. The gel does not disintegrate and can be left in the tank for 24 hours. Any food left after this period can be removed with a net and a smaller portion fed next time. One can soon discover how much food is required by a given fish population. The feeding chart with the foods gives an idea of how much food to give at one feeding.

The unused portion of the mixed food can be wrapped in foil or polythene and kept in the fridge for up to two weeks. As the fish eat more often, they produce more waste and it is important that the aquarium has an efficient filter. If the aquarist is spending the week-end away from home, a larger 'Wardley-burger' than usual can be given before leaving. As fish need light to see when feeding, the aquarium needs to be left lighted.

The cost of 'Shrimp Cocktail' is 9s. 3d. for 1 oz., the 1 oz. 'Tropical Fish Food' costs 8s. 3d. and the 'Goldfish Food' is 5s. 9d. for 1 oz.

The analysis of the 'Tropical Fish Food' is: 35% protein, 5% fat, 5% fibre, 18% ash and 8% moisture; 'Shrimp Cocktail' is: 35% protein, 3% fat, 8% fibre, 23% ash and 10% moisture; 'Goldfish Food' is: 22% protein, 3% fat, 4% fibre, 10% ash and moisture 9%. The ingredient list for each food is rather lengthy so I'll only give that for the 'Tropical Fish Food': animal liver meal, shrimp meal, meat meal, fish meal, crab meal, salmon egg meal, mosquito larvae, ground aniseed, daphnia, dried skimmed milk, xanthan gum, guar gum, irradiated dried yeast, wheat germ meal, oat flour, soy flour, sodium borate, citric acid, cod liver oil, carrot oil, lecithin, brewers' yeast, d-activated animal sterol, vitamin B12 supplement, calcium d-pantothenate, iron oxide and tri-calcium phosphate—quite a list!

It took my fish some time to discover the food but having done so they attacked it with relish, various species having been at it for intervals all day. This is certainly a new concept in fish foods and should appeal especially to those who can only feed their fish before work in the morning, and after work in the evening. The foods would certainly provide a change from, or a complement to, other standard food forms. The protein content of the foods seems rather low compared with other foods but perhaps this is intentional as the method of feeding is original. In fish terms it is probable that several feeds of a lower protein food would be of more benefit than one feed of a high protein food, and the purpose of this food is to simulate natural live foods such as those which the fish would have if they were in their natural, wild environment.

I hope to try them out soon on my school fish which, during the long summer holiday periods, are only fed every few days. This new Wardley range could ensure that they get as much food as

they need without having someone visit the pupil-less school every other day. There's something sad about an empty school!
B.W.

'MICRO EELS' cost 7s. 6d. for a starter culture and are available, for the first time in this country, from Temol Products, 72 Halesowen Road, Halesowen, Worcs.

'Micro eels' are *Turbatrix aceti*. They are not new to the hobby but the method of culturing them, as suggested by Temol Products, is new and makes them safe for adding direct from the culture to the aquarium. The 'eels' are very small—about the size of micro worms, and are suitable for fish fry.

The micro eels are cultured in a pint of tap-water to which has been added a level teaspoonful of syrup or sugar. When the sugar solution has reached room temperature, a few grains of yeast are added. (I managed to buy a 6d. packet from a local dealer and it would contain enough to make up dozens of cultures.) The yeast/sugar mixture is placed in an open-topped container and some of the starter culture of micro eels added. Next day a further pint of fresh water is added, together with more eels from the starter culture. In a couple of days the eels multiply quite readily. To feed the young fish, a little of the liquid containing the eels is added to the aquarium, at intervals. The culture needs little attention and can be left during holiday periods of up to a month. New cultures can easily be started at intervals, as required.

I found that young guppy fry were very keen on the 'eels' right from the moment of birth, and they would also be suitable for a wide variety of other fry although I have not had any with which to try them at the time of writing this. The 'eels' are too small to be of much interest to larger fish.

Comparing 'micro eels' with 'micro worms' I would say that the 'eels' are much easier to keep, to feed and to supply to the baby fish. They do not have the unpleasant odour of micro worms which can sometimes cause them to be banned from being cultured in the house. If you breed your own fish, I suggest you try 'micro eels' as another welcome addition of variety in live foods for baby fish. B.W.

MAXAMATIC SUBMERSIBLE COMBINED HEATER AND THERMOSTAT, a new product and a new British design, by Inter-Pet, Dorking, Surrey; price 27s. 3d.

The "Maxamatic" is a new British designed heater/thermostat which is completely submersible, and said to give utmost reliability. It has the best possible specifications, e.g., the thermostat body is impression moulded and not thermoplastic, the contacts are of silver, and the heater element is wound on the modern

single coil system for ruggedness and reliability. "For technical reasons this unit will give better temperature control than can ever be achieved with a separate heater and thermostat." (Thus says the instruction leaflet with the "Maxamatic," and it goes on to explain why, but I'm afraid that several other people, to whom I showed the leaflet, and I, could not follow the explanation given in the leaflet. The leaflet also went on to say that another common fallacy is that better heat distribution is obtained if the heater and thermostat are at opposite ends of the tank. Again my friends and I could not follow the explanation given. Perhaps some of Dr. Carrington's staff would care to explain the reasons more fully and more simply; or perhaps my friends and I are rather slow on "the up-take").

However, despite my being unable to understand the reasons why the "Maxamatic" should give very accurate temperature control, I have found, on test, that it does. The unit is sturdily constructed, and is about 11 in. in length—about an inch shorter than many other combined heater/thermostats. Being completely submersible, it may be easily concealed behind rocks or plants. It is fitted with a rubber bung

with a rubber sleeve to keep it watertight, and a neon indicator light to show when it is operating. The unit is adjusted to stabilise at about 75°F before leaving the factory but, because of the different positions in which it may be used, the temperature in the aquarium must be allowed to stabilise for 24 hours before fish are introduced into the aquarium. The unit can easily have its stabilising temperature adjusted by removing it from the water, removing the sleeve and bung, and turning the adjusting screw.

In use, one must make sure that the heater tube does not touch the gravel and, unless there is constant water circulation in the aquarium, the heater end of the unit should be as near the base of the aquarium as possible. The thermostat end should never be lower than the heater end, but the unit can be used in an almost horizontal position—with the heater end slightly lower than the other end—but best results are obtained if the "Maxamatic" is placed vertically. The "Maxamatic" is guaranteed for one year.

This is a sturdy, compact and reliable unit which I would certainly recommend. The cost is reasonable—compared to other combined heater/thermostat units—or to a separate heater and thermostat. B.W.

KUHLI LOACHES

by S. M. H. Loquens

AS A REGULAR READER of *Aquarist and Pondkeeper*, I thought your readers might be interested in a small article I have written. This account concerns an unusual spawning I was lucky enough to witness, involving a trio of Kuhli loaches, which spawned the day after changing part of the water in preparation for breeding Angels. Throughout the spawning I made notes upon which is based the following.

The tank was a standard angle-iron 24in. × 12in. × 12in., containing about two-thirds mature aquarium water and one-third fresh rain water. The conditions were, therefore, possibly slightly soft and tending towards acidity rather than neutrality. This assumption could not be verified as at the time I had no means of testing water hardness or pH.

There were few rooted plants, but an abundant amount of Hornwort (*Ceratophyllum demersum*) was floating within the top two inches of the water surface. The tank was in a relatively sunny position and although with the amount of near-surface plants the light was reduced, the tank was by no means darkened.

On looking into the tank I observed the loaches chasing about in a frenzied manner. Although three were present, only two appeared to be spawning; the third, apparently excited, only occasionally joined in the drive.

The two involved swam very closely together and often locked together at the point of the pectoral fins, simultaneously grasping one another's mouths with their barbels. Most of this action took place amongst the floating Hornwort although they would swim separately at lower depths until meeting, when they would assume the "clasped" attitude and shoot to the surface.

During the spawning the colours were greatly intensified, the region around the gills and abdomen flushed to a reddish purple. This was apparent in both, though more so in the deeper bodied one (spawning colours of the female?). In spite of maintaining the water temperature at 80°F from the time of spawning onwards, the eggs were all attacked by fungus.

The question in my mind now is, did I have a pair, or was this the action of two females as is common amongst Cichlids? Alternatively, I had a pair and water conditions were good enough for spawning but incorrect for hatching. It is quite possible that a hatching would have occurred had the tank contained pure rain water instead of the mixture mentioned.

Having read several accounts concerning Kuhli loaches spawning, the theory involving bubble nest building, similar to Anabantids, can, I think, be dispensed with.

There are many other possibilities that could be considered before attempting to spawn these interesting scavengers. I, for one, have not yet attempted to repeat the above, but have by no means forgotten the experience and will endeavour to find time in the future for a "repeat performance."

BOOK REVIEWS

Tropical Fish by Douglas Gohm. *Published by Paul Hamlyn at 30s.*

ORIGINALLY published in 1952 by C. Arthur Pearson Ltd., this is a completely revised edition with new illustrations consisting of colour photographs and drawings. This book provides quite a good working foundation for the beginner and deals with a number of the most popularly kept species of fish. It appears, however, that no expense has been spared in illustrating the work and the result is somewhat top-heavy to the detriment of the text.

Animals of Seashore and Coast. *Published in the Private Lives Series by Fredk. Warne & Co. Ltd., at 25s.*

THIS is a picture book upon first inspection, its large pages (approx. 12in. x 9in.) being filled with very colourful and attractive drawings. Closer perusal is rewarded by concise captions and additional text which deal with the way in which the creatures described lead their lives. The authors regard this approach to the young student as the most stimulating and most likely to encourage more seriously scientific study of life-forms.

In the main the information in this attractive book is accurate but I'm sure that most keen-eyed young aquarists will object to an illustration of an aquarium containing a Siamese fighting fish, a goldfish and a saltwater suckerfish!

The Complete Aquarist's Guide to Freshwater Tropical Fishes. *Published by Ward Lock Ltd. at £4 10s. 0d.*

Authors as follows:

- Peter Utton on Principles and Management.
- Colin Roe on Aquatic Plants.
- Peter Bird on Characins and Related Species.
- George Cust on Egg-laying Tooth Carps and on Cichlids of Africa.
- Michael Thomas on Live-bearing Tooth Carps and on Cyprinids.
- Donald Cook on Labyrinths.
- Albert Jessop on Cichlids of America and Asia.
- Roy Skipper on the Discus Fish.
- Harry Loder on Catfishes.

David Walliker on Diseases of Fishes.
Consultant Editor: Raymond Legge.

This is not a cheap book but, then, it is not a cheap production. Britain has always enjoyed a reputation for the high quality of its book production and it has been a saddening experience, of recent years, to witness our standards declining to conform with the gaudy but shoddy publications emanating from other countries. This has been particularly noticeable in the field of interest with which we are here concerned.

While pretty pictures do not constitute the basis of a good book on a specialised semi-scientific subject, if they are necessary the standard of reproduction should be of the highest. This can be truthfully asserted in this instance.

On the inside of the colourful jacket the reader is told that the book will appeal to both "beginners and professionals" alike. While it may be difficult to determine precisely what a professional aquarist is, it would be more accurate to say that the book is likely to have most appeal for the aquarist who has been truly hooked by the hobby and has every intention of becoming a chronic addict.

The inclusion of the term "complete" in the book's title may be a trifle unjustified but the step-by-step involvement from the acquisition of the aquarium,

A date for your Diary
9th, 10th, 11th JULY 1971

for the third
**AQUARIST
& PONDKEEPER
FISHKEEPING EXHIBITION**

at
**Alexandra Palace,
Wood Green, London, N.22**

Organised with the co-operation of The
Federation of British Aquatic Societies

through the stages of planting and stocking, is thorough and painstaking. This is followed by an introduction to each of the main families and genera of aquarium fish and a successful attempt has been made to depart from the tiresome catalogue concept to which we have become unwillingly accustomed and which involves often unnecessary detailing of each species' individual requirements. Here we are given an overall picture of the characteristics of the genus followed by briefer descriptions of the species covered with relevant notes where there is any departure from the norm.

Each of the chapters has been written by an "expert" in the particular field dealt with. This means, in fact, that the writers are known among experienced aquarists as people who have specialised in the propagation of plants or the breeding of a certain species of fish. Since the tremendous and universal hobby of keeping fish ranks only second to the hobby of photography in popularity and diverse opinion as to the efficacy of this and that method are legion, it is only to be expected that criticism will be forthcoming from members of differing camps concerning some of the statements made by the experts concerned but the involvement of several authors is a refreshing wind of change and the finished product is not the hotch-potch that one might have envisaged at the outset of such an ambitious and daring endeavour.

L.E.P.

AQUARIUM PLANTS AND DECORATION. R. F. O'Connell. Published by The Aquarium Press. 8s. 6d.

HOW TO ENJOY BEING AN AQUARIST. By Keith Barraclough and Gordon Holmes. A King British Book. 2s. 5d. at all dealers. 2s. 11d. post paid.

Aquarium Plants and Decoration is liberally illustrated with pleasing line-and-wash drawings of aquarium plants and aquarium layouts. The latter bear a remarkable resemblance to the drawings done by Wilfried Weigel for his wonderful little book called *Planning and Decorating the Aquarium* (Studio Vista, 1966).

In general the information on plants given by Mr. O'Connell is sound, but reading his book is wearing on account of the mis-spellings, poorly constructed sentences, and erratic punctuation. At a first reading I could not understand what pages 51 and 52 were about.

How to enjoy being an aquarist. By Keith Barraclough and Gordon Holmes. A King British Book. 2s. 5d. at all dealers.

The growing interest in aquarium keeping, more especially in tropical freshwater aquarium keeping, has for some time called for an inexpensive booklet written specifically for the person who has not kept an aquarium before. Messrs. Barraclough and Holmes

have done just this, and they are to be congratulated on putting into their booklet everything the absolute beginner needs to know in such an easily assimilated way. The reader is given excellent advice on choosing a tank, lighting it, heating it, aerating it, planting it and stocking it with readily obtainable and easy fishes. This is indeed a publication that can be recommended without reserve to all dealers to keep in stock and press on to their inexperienced customers.

JACK HEMS.

The British Cichlid Association

The British Cichlid Association has been formed to promote interest in all aspects of keeping and breeding Cichlids.

It is hoped that communication will be made with similar organisations in other countries and contact has already been established with Cichlid Associations in the U.S.A. and Scandinavia.

Dr. Robert J. Goldstein of Emory University, Georgia, has agreed to assist the B.C.A. in the scientific work being done with the genus.

All those who are interested should send s.a.c. for further details to:

STEVE FORSTER,
(Sec., B.C.A.),
32 Trinidad Way,
East Kilbride, Scotland

Answer to Find the Fish:

BLACK SHARK

Owing to pressure of editorial space, the feature "Why not join a Society" will appear in the January issue.

TYPOGRAPHICAL ERROR.

We regret the typographical error in "What Is Your Opinion?", November issue, where the word absorptive has been substituted for adsorptive.



from AQUARISTS' SOCIETIES

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

A COLOURED slide show of the Mid-Sussex A.S. events during the past year was shown at the monthly meeting in October. Members appreciated seeing projects they had worked so hard upon during the year, including the boat at the Dolphin Fair, the stall and Tropical Fish Exhibition at the carnival of Youth, and the Tropical, Coldwater and Tropical Marine Fish Exhibition held at the Park Centre, Burgess Hill in September. After last month's meeting at which a talk was given on "Garden Ponds," the members showed interest in seeing progressive slides of a pond under construction by Mr. N. Short, a committee member.

Mr. R. Johnson, the Chairman, said that as the Society was growing so rapidly with a membership of more than 130, the committee felt the need for a second Vice-President, and he put forward Mr. Graham Cox's name which was agreed by the meeting. Mr. G. Cox, one time director of Brighton Aquarium, is known well in the Society as a specialist in Marine Fish and gave a talk accompanied by a slide show on "Keeping Tropical Marine Fish," to the members earlier in the year. The Table Show for Killifish and Any other Variety was judged by Mr. Baker who awarded the prizes as follows: Killifish: 1 and 4, J. Walker; 2, R. Smith; 5, G. Leach. A.O.V.: 1, B. Slade; 2, R. Buttriss; 3 and 4, D. Soper; 5, J. Walker.

To help new members of the Society, Mr. B. Baker told of ways to prepare fish for a show and of containers to show the fish in. He suggested a small tank was preferable to a jar although some smaller fish would show well in a 4 in. x 4 in. jar. He also said that it was advisable to paint the bottom of a show tank black as most fish would be happier and show better in a container with a dark bottom. He is returning in March next year to give a talk on Angel Fish. There were ninety-three members present at the October meeting.

WITH a new secretary the Valley Aquarist Club, Rampton, are endeavouring to make a fresh start and would welcome any assistance. After a drive for new members there was an attendance of 29 at the first meeting under the new committee and the Society seems to have aroused fresh interest and hope it will continue so. The secretary is H. Jones, 21 Trinity Green, Higher Summerseat, Rampton, with Ilbury and new members would also be welcomed.

THE Suffolk Aquarist and Pondkeepers Association exhibition was a huge success with an estimated attendance of 4,000. Cups were awarded for Best Tropical Fish in Show to K. Cocker. Two cups went to H. Stock for the most popular exhibit and the Best Coldwater Fish, youngest exhibitor was five year old Diane Fellingham who won the reptile cup. Master W. Chapman won the junior class and W. Card retained his cup for points won in the monthly meetings table shows. Results: Livebearers: 1, 2 and 3, L. Jermy; Barbs: 1, K. Cocker; 2, K. Fellingham; 3, J. Green; Labyrinths: 1, K. Cocker; 2, L. Jermy; 3, W. Chapman; Characins: 1, K. Cocker; 2, J. Anderson; 3, W. Chapman; Cichlids: 1, W. Card; 2 and 3, G. Phillips; Catfish and Loach: 1, W. Card; 2, W. Chapman;

3, K. Cocker. Danios: 1, J. Green; 2, W. Card; 3, L. Jermy. A.O.V.: 1, W. Chapman; 2 and 3, W. Card. Breeding Pairs: 1 and 2, P. Barrow; 3, W. Card. Coldwater Fish: 1, Stock; 2, N. Clarke; 3, K. Fellingham. Furnished Jars: 1, J. Green; 2, L. Jermy; 3, K. Cocker. Furnished Aquaria: 1, J. Green; 2, P. Barrow; 3, L. Jermy. Junior Entries: 1, W. Chapman; 2, G. Fellingham; 3, M. Auffer; 4, N. Fellingham; 5, D. Fellingham.

OFFICIALS elected for the coming year of the Yeovil and District A.S. were as follows: President, S. Langdon; Chairman, A. Nicholls; Vice-Chairman, F. Lange; Secretary, C. Bushell; Treasurer, M. Hulbert; Show Manager, D. Phinn; Show Sec., T. Rendell; Committee members, Messrs. V. Collins, B. Seddon, A. Poind, K. Wright, R. Heather and P. Sealey; Show Committee, Mrs. Langdon and Mrs. Wright. The society had good success at both the Bristol and Torbay A.S. Open Shows when Messrs. S. Langdon and V. Collins won most of the coldwater awards. These included the Best Fish in Show, Best Coldwater, Best Shubunkin, the Novices Class and various card awards at Bristol and Best Coldwater, 1, 2 and 3, at Torbay all by S. Langdon, showing his shubunkins. At Torbay V. Collins had success also showing his Fantails and Rudd he took first, second and third. Twin tail class, First Breeders coldwater and first and second Pond and River. The F.B.A.S. Trophy for highest exhibit by a junior was won by Miss K. Rendell, Mrs. Langdon being second and Mrs. Nicholls third.

THE results of the Bristol A.S. Open Show were as follows: Common Goldfish: 1, A. Oxenham; 2, F. Radford; 3, W. G. Ham; 4, V. King. Bristol Shubunkins 3 in. Limit: 1, K. C. Juson; 2, R. Pincock; 3 and 4, H. J. Whiting. Bristol Shubunkins 5 in. Limit: 1 and 2, D. S. Langdon; 3, K. C. Juson; 4, H. J. Whiting. Varietal: 1, 2 and 4, R. King; 3, S. Tibble. Moors: 1 and 4, K. C. Juson; 2 and 3, S. Tibble. Lionheads, Bubble Eye, Pearl Scaled, Celestials, O.V. Telescopes: 1, H. T. Jago; 2, K. C. Juson; 3 and 4, J. H. Phillips. Orandas: 1 and 4, R. King; 2, C. J. Cotterill; 3, K. C. Juson. Nymphs and Comets: 1, K. C. Juson; 2, F. Radford; 3 and 4, J. H. Phillips. Fantails (Scaled): 1, 3 and 4, V. F. G. Collins; 2, K. C. Juson. Fantails (Calico): 1 and 2, F. Radford; 2, S. Tibble; 4, R. King. A.O.V. Pond or River Fish: 1, F. Radford; 2, V. Collins; 3, S. Tibble; 4, R. King. Bristol Shubunkins (bred 1970): 1 and 4, K. C. Juson; 2, H. T. Jago; 3, G. J. Bell. Moors (bred 1970): 1, K. C. Juson; 2 and 4, H. T. Jago; 3, F. Radford. A.O.V. Fancy Fish (bred 1970): 1, 2 and 3, R. King; 4, K. C. Juson. C.W. Breeders Class (4 fish, bred 1970), Shubunkins, Goldfish, Comets: 1 and 2, K. C. Juson; 3, G. J. Bell; 4, R. W. Savage. C.W. Breeders Class (4 fish), A.O.V. Fancy Fish (bred 1970): 1, H. T. Jago; 2, V. Collins; 3, S. Tibble; 4, R. W. Savage. Bristol Shubunkins (matched pair): 1, K. C. Juson; 2, C. H. Clark; 3, H. J. Whiting; 4, W. Clark. Novice Class (Bristol Shubunkins): 1 and 3, D. S. Langdon; 2, R. S. Bell; 4, P. Phillips. Furnished Aquaria (coldwater): 1, P. Lloyd; 2, G. J. Bell. Furni-

shed Aquaria (Tropical): 1, Mrs. I. Stone; 2, R. Bishop. Furnished Aquaria—Inser Club: 1, Bristol Aquarists Society. Aquatic Plants (Coldwater): 1 and 3, Miss A. H. Morgan; 2 and 4, C. J. Cotterill. Aquatic Plants (Tropical): 1, M. Taylor; 2 and 3, Miss L. Kimber; 4, Miss Morgan. Fighting Fish: 1, 2 and 4, Mrs. C. C. King; 3, J. D. Brown. Labyrinths, excluding Fighters: 1, G. R. Furber; 2, B. Earnshaw; 3, R. Bishop; 4, J. D. Brown. Barbs: 1 and 3, R. Watts; 2 and 4, D. Noble. Characins (H & H): 1, 3 and 4, R. K. Day; 2, R. Watts. A.O.V. Characins: 1, S. Green; 2 and 4, E. G. Newman; 3, J. D. Brown. Cichlids (excluding Angels): 1, E. Wilson; 2, S. Green; 3, B. Earnshaw; 4, H. Mussaliak. Angels: 1, A. D. Jenkins; 2, J. May. A.O.V. Egglayers: 1, G. R. Furber; 2, M. A. Lerway; 3, J. D. Brown; 4, J. May. Catfish: 1 and 4, S. Green; 2, J. D. Brown; 3, G. M. Shirlow. Guppies (short tail): 1, M. Taylor. Guppies (long tail): 1, M. A. Lerway; 2, M. Taylor; 3 and 4, R. S. Bell. Guppies (female): 1 and 4, M. Taylor; 2 and 3, R. S. Bell. Swordtails: 1, M. A. Lerway; 2, R. Bishop; 3, G. R. Furber; 4, R. Watts. A.O.V. Livebearers: 1, A. D. Jenkins; 2, M. A. Lerway; 3, G. R. Furber; 4, B. Earnshaw. Tropical (Livebearers Breeders): 1, R. Watts; 2 and 3, M. Taylor; 4, B. Earnshaw. Tropical Egglayers Breeders: 1, R. Toote; 2, 3 and 4, H. Mussaliak.

THE first leg of the inter-society contest held between Bedworth A.P.S. and Nuneaton A.P.S. resulted in Bedworth emerging the victors by 31 points to 20. Over one hundred fish were benched in the five classes, and these were judged by Mr. and Mrs. Walker of M.A.A.S. Results: Egglayer (Pairs): 1, 2 and 4, R. Shakespear (Bedworth); 3, Mr. and Mrs. Carter (Bedworth). A.V. Livebearer: 1, Mr. and Mrs. Carter (Bedworth); 2, Mr. and Mrs. Jeffcote (Nuneaton); 3, and 4, D. Cannon (Nuneaton). A.V. Coldwater: 1, Mrs. Leigh (Nuneaton); 2, Mrs. Haines (Nuneaton); 3, Mr. and Mrs. Balcome (Bedworth); 4, Master C. Pratt (Bedworth). A.V. Cichlid: 1, R. Tedds (Bedworth); 2, Edkins & Pagett (Bedworth); 3, Mr. and Mrs. Kemp (Nuneaton); 4, Mr. and Mrs. Walker (Nuneaton). A.O.V. Tropical: 1, S. Bloxham (Nuneaton); 2, Mr. and Mrs. Carter (Bedworth); 3, R. Shakespear (Bedworth); 4, Mr. and Mrs. Hardy (Bedworth). Best fish in the show was a Red Devil Cichlid entered by R. Tedds of Bedworth.

THE following changes in officers were made at the Bracknell A.S. annual general meeting. Chairman, Brian Johnson; Secretary, Mrs. G. Carter, 15 New Road, Ascot, Berks; Show Secretary, Les Jordan, 62 Fernbank Place, Ascot, Berks. New members are welcome at the meetings which are held at "The Admiral Cunningham," Bracknell, second and fourth Mondays, or by contacting the Secretary.

AN interesting talk was given to the Coventry Pool & A.S. by Mr. W. Harold Cotton on fish diseases which was full of helpful tips and hints. Table Show results. E. Sheehy had the best fish in the show with a Red Devil. Other results: Egglayer Breeds: B. and P. Hirst. Livebearer Breeds: D. J. Salmon. Cichlids: E. Sheehy. Junior—Barbs: B. Hirst. The date for the 1971 Coventry Open Show has been changed to 30th May.

AT the October meeting of the New Forest A.S. the results of the second leg of the triangular competition with Bournemouth and Salisbury were given. In this, New Forest received fourth for Characins, first and third for Danios and first, third and fourth for Rasboras. The New Forest Club are leading at this stage. The evening was mainly concerned with a discussion on the Club's future membership of A.S.A.S. and the request from a group of Devon Aquarist Societies concerning the formation of a Regional Association. The Table Shows were not supported so well as usual. The results were as follows: Fancy Goldfish: 1, R. Travers; 2, D. Lane. Breeders Trophy: R. Moseley took the first three places with *Corydoras aeneus* P. Irwin, and C. aeneus, fourth place being taken by C. Knapp with Golden Barbs.

THU Bracknell Open Show was the best the Society has staged and there was an entry of 680. The results were as follows:

Barbs: 1 Mr. Hatton, Weymouth; 2 and 3, Mr. Marshall, Basingstoke and 4, C. Pike, H. Wycombe. **Characins:** 1, Mrs. Twine, Walthamstow; 2, Mr. Ridley, Basingstoke; 3, A. Blake, Basingstoke; 4, D. Walls, Basingstoke. **Class C.A.:** 1, S. Cowell, Bethnal Green; 2, Mr. Gower, Bethnal Green; 3, Mrs. Leslie, H. Wycombe; 4, S. Orton, Weymouth. **A.O.S. Cichlids:** 1, M. Davies, Reading; 2, L. Jordan, Bracknell; 3, T. Duffy, Bracknell; 4, P. Stevens, Bracknell. **Dwarf Cichlids:** 1 and 2, A. Blake, Basingstoke; 3, T. Duffy, Bracknell; 4, A. Keith, Bracknell. **Labyrinth:** 1, P. Kenrick, Froelance; 2, S. Greenhalf, Kingston; 3, S. Cowell, Bethnal Green; 4, J. Orton, Weymouth. **Siamese Fighters:** 1 and 2, Mr. Gower, Bethnal Green; 3, R. Cooper, Kingston; 4, W. Netherell, Riverside. **Egg Laying Toothcarps:** 1, 2, 3 and 4, R. Armstrong, Bracknell. **A.O.S. Catfish:** 1, P. Merritt, Reading; 2, J. Batts, Basing; 3, T. Horwood, Bracknell; 4, D. Walls, Basingstoke. **Cory Brochis:** 1, D. Armour, Riverside; 2, T. Cruickshank, Basing; 3, J. Stamp, Froelance; 4, Mr. Blanchard, Salisbury. **Rasboras:** 1, P. Merritt, Reading; 2, Mr. Arnold, Bethnal Green; 3, A. Blake, Basingstoke; 4, Mr. Mackay, Kingston. **Danios and Minnows:** 1, R. Weston, Basingstoke; 2, Mrs. Carter, Bracknell; 3, M. Carter, Bracknell; 4, Mrs. W. Arkell, Bracknell. **Loaches:** 1, M. Carter, Bracknell; 2, T. Cruickshank, Basing; 3, Master M. Gough, Basingstoke; 4, E. Leavay, Hemel Hempstead. **A.O.S. Egglayers:** 1, Mr. Arnold, Bethnal Green; 2, S. Batts, Basing; 3, P. Merritt, Reading; 4, Mr. Hatton, Weymouth. **Male Guppy:** 1, J. Stamp, Froelance; 2, T. Jones, Weymouth; 3, S. Cowell, Bethnal Green; 4, Mrs. Goss, Riverside. **Female Guppy:** 1 and 2, Mrs. Netherell, Riverside; 3 and 4, C. Pike, H. Wycombe. **Swordtails:** 1, K. Barrett, Kingston; 2, J. Greenhalf, Kingston; 3, Mr. Quenell, East Dulwich; 4, Mr. and Mrs. Twine, Walthamstow. **Plays:** 1, R. Boves, Walthamstow; 2, L. G. Little, Bracknell; 3, D. Schrumm, H. Wycombe; 4, L. G. Little, Bracknell. **Mollies:** 1, J. Greenhalf, Kingston; 2, J. Healey, Basing; 3, Mrs. Cruickshank, Kingston; 4, W. Netherell, Riverside. **Best in Show A.O.S. Livebearers:** 1, J. Batts, Basing; 2, Mrs. Barrett, Kingston; 3, Mrs. Cruickshank, Kingston; 4, A. Blake, Basingstoke. **Breeders Egglayers:** 1, R. Cox, H. Wycombe; 2 and 3, M. Strange, Basingstoke; 4, Mrs. Quenell, East Dulwich. **Breeders Livebearers:** 1 and 2, J. Greenhalf, Kingston; 3, R. Cox, H. Wycombe; 4, M. Strange, Basingstoke. **Sexable Pairs (Egglayers):** 1, A. Marshall, Basingstoke; 2, J. Garrad, Runnymede; 3, R. Armstrong, Bracknell; 4, M. Carter, Bracknell. **Sexable Pairs (Livebearers):** 1, A. Blake, Basingstoke; 2, Mrs. Barrett, Kingston; 3, Mrs. Cruickshank, Kingston; 4, M. Carter, Bracknell. **Single Tailed Goldfish:** 1 and 2, D. Goodbody, Walthamstow; 3, J. Norris, Bracknell; 4, L. Menhennet, New Forest. **Twin Tailed Goldfish:** 1 and 2, D. Ashell, Bracknell; 3, V. Beavis, H. Wycombe; 4, R. Rich, Basingstoke. **A.O.S. Coldwater:** 1, J. Norris; 2 and 3, V. Voysey, Salisbury; 4, M. Davies, Reading. **Centrarchidae:** 1, Mr. and Mrs. Stillwell, Portsmouth; 2 and 4, V. Voysey, Salisbury; 3, Mrs. Barrett, Kingston. **Roseed Plants:** 1, M. Davies, Reading; 2 and 4, T. Duffy, Bracknell; 3, Mr. Quenell, East Dulwich. **Cuttings of Plants:** 1, M. Goss, Riverside; 2, T. Duffy, Bracknell; 3, V. Hunt, Portsmouth; 4, L. Little, Bracknell. **Mini-Furnished Aquaria:** 1, T. Duffy, Bracknell; 2, D. Goodbody, Walthamstow; 3, A. Chandler, Walthamstow; 4, Mrs. Carter, Bracknell.

IN October Mr. H. Hatridge gave an interesting slide show on Marine Fish to the members of **Hampstead and District A.S.** which was thoroughly enjoyed by those present. Mr. C. A. T. Brown (P.B.A.S.) judged two classes of fish and afterwards gave an account of the fish. The results were as follows:

Rasboras, Danios and W.C.M.M.: 1, Mrs. V. Riech; 2, T. V. Cassack; 3 and 4, D. Moore. **A.V. Livebearers:** 1, 2 and 3, R. Green; 4, Miss J. Bolton. **R. Green** won Best in Show with 77 points for a Female Guppy.

THE Federation of Guppy Breeder's Societies Annual Open Show was held on the 11th October and attracted 261 entries. This year the event was staged by the Three Counties Section and the results were as follows:

A. Coffertail: 1, R. Cox; 2 and 3, L. Myers. **Roundtail:** 1, C. Cole; 2, 3 and 4, Mrs. L. Myers. **Speartail:** 1 and 4, T. Nason; 2, M. Scott; 3, R. Cox. **Pintail:** 1, T. Nason (Silver Pin Award); 2, R. Cox; 3, J. Myers; 4, M. Delingpole. **Scarftail:** 1 and 3, J. Myers; 2, P. Walker; 4, R. Cox. **Original Colour Veils:** 1 and 3, H. Gregory (Silver Pin Award); 2, C. Pike. **Original Black Veil:** 1, B. Myers. **Long Dorsal Veil:** 1, 2 and 3, J. Myers (Gold Jewel Award); 4, M. Delingpole. **Short Dorsal Veil:** 1, B. Myers; 2, A. Watts; 3 and 4, H. Gregory. **Doublewords:** 1 and 2, P. Walker. **Lycrals:** 1 and 4, G. Davis (Silver Pin Award); 2, R. Cox; 3, M. Delingpole. **Bottom Swords:** 1 and 2, N. Court; 3, C. Cleave; 4, P. Walker. **Topsword:** 1, D. O'Brien; 2 and 3, P. Walker. **Delta:** 1, C. Cole; 2, M. Delingpole. **Dovetail:** 1, J. Myers; 2, M. Delingpole. **A.V. Gold Male:** 1, L. Myers; 2, M. Delingpole. **A.V. Gold Lace Male:** 1, M. Delingpole. **Grey Roundtail:** 1, Mrs. J. Cleave (Silver Pin Award); 2, M. Scott. **Gold Lace Female:** 1, M. Delingpole; 2, Mrs. L. Myers. **Coloured Roundtail/Red Eye:** 1 and 3, C. Pike; 2, Mrs. L. Myers. **Wedgetail:** 1, H. Gregory (Silver Pin Award); 2, M. Delingpole; 3, Mrs. J. Croft; 4, A. Baker. **Metropolitan:** 1 and 2, M. Delingpole. **Scalloptail:** 1, H. Gregory; 2, B. Walker. **Superba:** 1, C. Pike (Silver Pin Award); 2 and 3, M. Delingpole; 4, J. Myers. **Gold Roundtail (Female):** 1 and 2, C. Cole (Gold Jewel Award). **Breeders (Male):** 1, M. Delingpole; 2, C. Pike; 3, T. Errey; 4, W. Prince. **Breeders (Female):** 1 and 2, C. Cole (Gold Jewel Award); 3, B. Myers; 4, J. Wilkinson. **Furnished Class:** 1, A. Baker; 2, Mrs. J. Cleave; 3, T. Errey. **Best in Show:** C. Cole (Gold Roundtail). **Best Opposite Sex:** D. O'Brien (Top Sword). **Best Breeders:** M. Delingpole (Delta).

THE open show results of the Ashton-under-Lyne and District A.S. were as follows: **Guppies:** 1, R. Tomkinson (Glossop); 2, R. Barnaby (Belle Vue); 3, B. Townley (Belle Vue). **Swordtails:** 1, Mr. Gibson (Huddersfield); 2, Mr. Gee (Belle Vue); 3, Mr. and Mrs. Cobb (Belle Vue). **Platies:** 1, P. Finton (Ashton-under-Lyne); 2, Mr. and Mrs. Heap (Belle Vue); 3, J. Y. Hill (Ashton-under-Lyne). **Mollies:** 1, C. Walker (Ashton-under-Lyne); 2, Mr. and Mrs. Heap (Belle Vue); 3, S. Harrop (Osram). **Anabantids (Small):** 1, R. G. Gibson (Huddersfield); 2, S. Harrop (Osram); 3, P. Warburton (Ashton-under-Lyne). **Anabantids A.O.V.:** 1, W. Parkin (Ashton-under-Lyne); 2, K. Parkes (Merseyside); 3, B. Dawson (Oldham). **Fighters:** 1, P. Shackleton (Belle Vue); 2, N. Spencer (Bradford); 3, P. Dawson (Oldham). **Dwarf Cichlids:** 1, S. Harrison (Huddersfield); 2, Mr. and Mrs. Heap (Belle Vue); 3, R. Davies (Ashton-under-Lyne). **Large Cichlids:** 1, C. Walker (Ashton-under-Lyne) (best in show); 2, Master F. Cobb (Belle Vue). **Angels:** 1, P. Kenyon (Belle Vue); 2, R. Gibson (Huddersfield); 3, B. Knowle (Hyde). **Barbs Small:** 1, Mr. and Mrs. Cobb (Belle Vue); 2, Miss B. Kaye (Top Ten); 3, Mr. Tonge (Oldham). **Barbs (Large):** 1, K. Parkes (Merseyside); 2, Mr. and Mrs. Grimshaw (Sunnybrow); 3, J. and B. Dawson (Osram). **Characins (Small):** 1, Miss B. Kaye (Top Ten); 2, Mr. and Mrs. Cobb (Belle Vue); 3, E. Birchwood (Oldham). **Characins (Large):** 1, K. Parkes (Merseyside); 2, D. Kennedy (Bradford); 3, F. Mulla (Merseyside). **Rasboras:** 1, R. and A. Johnson (Ashton-under-Lyne); 2, K. Parkes (Merseyside); 3, S. Harrop (Osram). **Danios:** 1, Mr. and Mrs. Cobb (Belle Vue); 2, B. Wright (Hyde); 3, Mr. Tonge (Oldham). **Toothcarps:** 1, G. Mellett (Ashton-

under-Lyne); 2 and 3, A. and C. Lofthouse (Huddersfield). **Catfish (Small):** 1, R. Davies (Belle Vue); 2, R. Bowling (Sunnybrow); 3, P. Ledger (Top Ten). **Catfish A.O.V.:** 1, L. Kaye (Top Ten); 2, J. Blansires (Huddersfield); 3, F. Mulla (Merseyside). **Loaches:** 1, F. Mulla (Merseyside); 2, R. Barber (Ashton-under-Lyne); 3, P. Kenyon (Belle Vue). **Sharks:** 1, N. Spencer (Bradford); 2, Mr. and Mrs. Beawick (Middleton); 3, G. T. Taylor (Glossop). **Flying Foxes:** 1, F. Mulla (Merseyside); 2, R. Gibson (Huddersfield). **Livebearers Pairs:** 1, Mr. and Mrs. Cobb (Belle Vue); 2, J. V. Hill (Ashton-under-Lyne); 3, I. & K. Barlow (Ashton-under-Lyne). **Egglayers (Pairs):** 1, P. Robinson (Sunnybrow); 2, Miss B. Kaye (Top Ten); 3, Mr. and Mrs. Cobb (Belle Vue). **Breeders (Livebearers):** 1, R. Tomkinson (Glossop); 2, R. Barber (Ashton-under-Lyne). **Breeders (Egglayers):** 1, G. Mellett (Ashton-under-Lyne); 2, D. Shaw (Ashton-under-Lyne). **A.O.V. (Tropical):** 1, D. Kennedy (Bradford); 2, F. Mulla (Merseyside); 3, Mrs. J. Tonge (Oldham). **Common Goldfish:** 1, Miss M. Miller (Belle Vue); 2, Master F. Cobb (Belle Vue); 3, Master A. Kaye (Top Ten). **Fancy Goldfish:** 1 and 2, Master A. Kaye (Top Ten); 3, Mrs. Miller (Belle Vue). **A.O.V. Coldwater:** 1, Mr. and Mrs. Miller (Belle Vue); 2, Mr. and Mrs. Brearley (Glossop); 3, J. P. Gee (Belle Vue). **A.O.V. Juniors:** 1, Master A. Kaye (Top Ten); 2, Master G. Seabright (Gorton and Openshaw); 3, Master K. J. Dunn (Ashton-under-Lyne). **Furnished Mini-Jars:** 1, Mrs. V. Parkes (Merseyside); 2, E. Birchwood (Oldham); 3, Master F. Cobb (Belle Vue). **The new Show Secretary** is P. Finton, 9 Bennick Terrace, Richmond Park Estate, Ashton-under-Lyne, Lancs.

THE Weymouth and District A.S. were hosts recently to Yeovil for a Table Show. A very interesting evening took place with Weymouth winning the "Mavis Rogers Trophy." It was agreed to hold this competition annually, one year at Weymouth and the following at Yeovil. **Winners of the Table Show** were: 1, Mr. Jones (Weymouth); 2 and 4, Mr. Hatton (Weymouth); 3, Mr. Bushell (Yeovil).

THE Wednesbury and District A.S. attended the Paul Stokes and Henry Williams Memorial Show staged by G.K.N. A.S. in their canteen. This is an annual four-cornered show between G.K.N., Tipton, Dudley and Wednesbury, in memory of the two well-known Midlands Aquarists. It was a well-organised and entertaining afternoon, with free refreshments, a Film Show and Sideshow.

The honours went to Wednesbury with 31 points, G.K.N. and Dudley tied for second place with 10 points and Tipton were fourth with 4 points. The award winners for Wednesbury were: A. Masby, two firsts and one second; Mrs. Smith, one first and one second; Mrs. E. Highfield, one first; H. Heaven, one first; W. Devinson, one first and one second; D. Highfield, one first; K. Walker, one first; T. January, one second; J. Reeves, two thirds. **Best Fish in Show:** Mrs. Smith, of Wednesbury, with a Butterfly Fish (*P. fuckelii*).

At the October meeting Mr. G. Wyse of Temol Products, the live culture experts, gave an interesting lecture to an attendance of 35 members. He demonstrated how to create Infusoria and then went onto talk about worms from Micro right up to Whiteworms. Mr. Wyse presented the Club with some products to auction in aid of the funds. The Table Show of the Month was Anabantids Class A and B, also A.O.V. Novice. The results were as follows: **Class A:** 1, T. Shipson; 2, W. Tyson; 3, A. Masby. **All three fish** were Thick Lip Gouramis. **Class B:** 1, 2 and 3, Hickman and Ward (with a Banded Climbing Perch, Leeri Gourami and Kissing Gourami respectively). **A.O.V. Novice:** 1, Hickman & Ward (Velifera Molly); 2, L. Dockers (White Convict); 3, Hickman & Ward (Kribensis). **Hickman & Ward** also had the best fish in the show. Mr. P. Bolton of M.A.A.S. judged the show.

The organisation of the Inaugural Open Show to be held at Wood Green School, Wednesbury

on the 27th June, 1971, is now being prepared. The venue is within 100 yards of the M5-M6 Motorway and is within easy reach of any Midland, North Country or West Country Clubs. The Club Nights are held at the Midland Vaults, Upper High Street, Winesborough, Staffs, the first Monday evening in every month at approximately 8 o'clock. Anyone interested in Tropical Fish will be very welcome.

THE only item on the agenda at the October meeting of **Belle Vue A.S.** was a discussion on the British Aquarist Festival. Congratulations were given to Mrs. M. Millar whose Pumpkin Seed Sunbass won Champion of Champions and also to other members who did as well. Although the Society had six firsts, three seconds and one third—very pleasing results.

At the last committee meeting the officers for 1971 were elected, and these are as follows: President: Mr. R. E. Legge; Chairman: S. Taylor; Vice-Chairman: P. Kenyon; Secretary: R. Davies, 38 Wetherby Street, Higher Denshaw, Manchester 11, W.U.; Tel: 061-370 1976. Treasurer: Margaret Cobb, Show Secretary: J. Beasley, 9 Herford Road, Beccington, Stockport, Magazine editor: Wendy Heap, Committee: H. Shackleton, Joan Shackleton, A. Haslam, G. Thompson, S. Heap. At the December meeting of the Society, the finals of the Fish of the Year will be held, with entries which have won Best Fish at our table show during 1970. Also there will be a furnished mini-iar competition for the juniors.

AT the October meeting of the **Bishops Cleeve A.S.** members of the Swindon and District A.S. were invited for a friendly contest. While the judging was taking place both teams were busy furnishing two tanks which were later raffled. **Bishops Cleeve** won with a total of 9034 pts. against Swindon's 8371 pts. Details are as follows: Egglayers: 1 and 2, N. W. Dooley (B.C.); 3, P. Treadgold (B.C.); 4, R. Bewles (S. and D.). Livebearers: 1, N. Binding (B.C.); 2, R. Haakerton (S. and D.); Joint 3, R. Board (S. and D.) and F. Scriver (B.C.); 4, L. Gambden (B.C.). The same evening there was also a "Table Show", the winners being as follows: Guppy: 1, P. Tattersfield; 2, M. Keeley; 3, R. Smyth. Furnished Aquaria: 1, M. Keeley; 2, Mrs. M. Scriver. Plants: 1, T. Duffern (Vallisneria). The judge for the evening was Mr. M. Stray.

THE results of the table show at the first October meeting of **Selby A.S.** were as follows: Rasboras, Danios and Minnows: 1, Mr. Petton; 2, Mr. Goat; 3, Mr. Hill, Mr. W. Bunnage. Show Secretary, also gave hints on the setting up of a furnished aquarium.

The second meeting was well attended and a very interesting talk on the "Behaviour of Cichlids" was given by Mr. Bateman. The Xmas draw of the Society will be drawn at the promoter's residence. Any club members wishing to attend may do so. Old and new members are cordially invited to attend meetings on the first and third Monday of each month at the Technical College of Further Education, New Lane, Selby.

THE annual general meeting of the **Bethnal Green A.S.** was held in October when the following officers were elected: Chairman, J. Gower; Secretary, P. Arnould, 24 Rawson House, Skipworth Road, Hackney, London, E.8. Treasurer, J. Hayes; Show Secretary, S. Cowell; Asst. Show Secretary, D. Bundy; P.R.O., P. Brindley; Committee, A. Collings, J. Adams, M. Carter, T. Lovett. F.R.A.S. Representative, A. Collings. A vote of thanks was given to Mr. P. Tomkins for the great help and benefit he has been to the club and how glad they were to welcome him back again as Resident Lecturer.

The Year's past trophies were as follows: Fish of Month: P. Arnould. Points Cup: J. Gower. First Year Members' Cup: T. Lovett. Most Points at Open Shows: S. Cowell. Fish of Year: 1, S. Cowell (Phreatico Barb); 2, P. Arnould (Red Fin Shark); 3, T. Lovett (Nigristink); 4, J. Gower (Red fighter).

The Club meets every Tuesday Night, 7.45 at the Bethnal Green Institute, Bethnal Green Road, London, E.2. New members experienced or novice will be made very welcome and may come along Tuesday nights or contact the Secretary for further details.

THE **Doncaster and District A.S.** held their first Open Show in October and were very pleased with the response from the many aquarists who attended. The results were as follows: Guppies: M. Sullivan (Four Star A.S.); 2, Mrs. Ristley (Ashton-under-Lyne); 3, G. Thickbroom (Castleford). Plants: 1, Mrs. Ristley; 2, I. Heptinstall (Castleford); 3, Mr. and Mrs. Ormsher (Southport). Swordtails: 1, P. Reynolds (Swillington); 2, A. Hudson (Huddersfield); 3, K. Petton (Selby). Mollies: 1, J. Igoe (Sherwood); 2, Dawn (Ashton-under-Lyne); 3, S. Buchanan (Sherwood). A.O.V. Livebearers: 1, P. Reynolds; 2, C. Easton (Grimmy and Cleethorpes); 3, L. Kaye (Top Ten). Small Characins: 1, R. Wheeler (Four Star); 2, R. Johnson (Aireborough); 3, N. Dwyer (Aireborough). A.O.V. Characins: 1, W. Bailey (Ind.); 2, G. Thickbroom; 3, J. Sullivan (Four Star). Dwarf Cichlids: 1, H. Kahan (Lincoln); 2, L. Heptinstall; 3, K. Frew (Castleford). Angel Fish: 1, A. Hudson; 2, Mrs. Igoe (Sherwood); 3, E. Smith (Sheffield). A.O.V. Cichlids: 1, Mr. and Mrs. Ormsher; 2, Martin (Alfreton); 3, D. Jones (Rotherham).

Small Barb: 1, Mr. and Mrs. Hardie (Scunthorpe); 2, P. Jensen (Grimby and Cleethorpes); 3, E. Manchester (Gateshead). A.O.V. Barbs: 1, E. Parker (Four Star); 2, Scarle (Selby); 3, R. Bowling (Stannycroft). Corydoras Catfish: B. Wells (Doncaster); 2, Mr. and Mrs. Cohen (Castleford); 3, Mr. and Mrs. Grimshaw (Sunnybrow). A.O.V. Catfish: 1, C. G. York; 2, Shipley (Selby); 3, M. Whiteley (Aireborough). Loaches: 1, R. Barber (Ashton-under-Lyne); 2, A. Higginbottom (Sheffield); 3, J. Rhoads (Scunthorpe). Toothcarps: 1 and 2, M. M. and A. Crowther (Swillington); 3, W. Bailey (B.K.A.). Small Anabantids: 1, K. Petton; 2, L. King (Doncaster); 3, A. Bailey (Sunderland). Siamese Fighters: 1, D. Kirk (North Star); 2 and 3, J. Rhoads (Scunthorpe). A.O.V. Anabantids: 1, Mr. Scarle; 2, C. Easton; 3, R. T. Bull (Derby). Sharks and Flying Fishes: 1, Mr. and Mrs. Ashton (Middleton); 2, K. Petton; 3, Mr. Scarle. Rasboras, Danios and Minnows: 1, Toyne (Workop); 2 and 3, R. Clarke (Sherwood). A.O.V.: 1, P. Galey; 2, I. Heptinstall; 3, G. Thickbroom. Pairs (Livebearers): 1, P. Reynolds; 2, S. Buchanan; 3, S. Pogson (Scunthorpe). Pairs (Egglayers): 1, E. Hooper (Sherwood); 2, S. Clowes (Castleford); 3, Mr. and Mrs. Ashton (Middleton). Breeders (Livebearers): 1, J. Igoe; 2, H. Gardner (Aireborough); 3, Mr. and Mrs. Cohen. Breeders (Egglayers): 1, E. Wells; 2, S. Pogson; 3, J. Igoe. Caldwellers: 1, G. Thickbroom; 2, J. Blizard (Sheffield); 3, J. Byres (Ashton-under-Lyne). Junior (Livebearers): 1, D. Sharp (Castleford); 2, S. Clowes (Castleford); 3, S. Clarke (Sherwood). Junior (Egglayers): 1, A. Kaye (Top Ten); 2, S. Rhode (Four Star); 3, A. Bull (Derby). Best Fish in Show: H. Kuhn (Lincoln).

THE meetings of the **Loughborough and District A.S.** are now held at the Brunz Club, Pennel Street, Loughborough, on the first Tuesday and the third Thursday of each month. Officers elected at this year's annual general meeting are as follows: President and Chairman, D. Slack; Social Secretary, T. Perry; Secretary, D. Wood, "Aquarium", 126 Valley Road, Loughborough, Leicestershire; Treasurer, Mrs. A. Walker; Editor and P.R.O., D. Keeley; Show Manager, I. Purdy; Librarian and Auditor, S. Pandy; Auditor, B. Prior; Show Secretary, M. Parndon; Shop Manager, B. Street.

THE judge and speaker at the October meeting of the **Carshalton and District A.S.** was Mr. P. Tomkins, who gave a thorough and instructive talk on livebearer breeding methods. There were some new faces at the meeting and at least one enrolment. The society is

having a social and dance on Friday, 11th December and anyone interested should contact the secretary at 8 Reading Rd. Sutton, Surrey. Tickets are available from Sutton Aquarium and Carshalton Aquarium. The results of the table show were: A. V. Livebearers: 1, D. Pilgrim; 2 and 3, C. Lamb; 4, D. Wiltshire. Junior: 1, J. Dixon. Rasboras: 1, D. Wiltshire; 2 and 3, T. Baser.

ANYONE interested in joining a section of the **Fancy Guppy Association** who live in the location of Brighton, Sussex, would they contact Ron Elms at 24 Sutcliffe Avenue, Peasehaven, Sussex, or telephone Peasehaven 2534.

ONE of the highlights of the October meetings of the **West Cumberland A.S.** was a film show given by Mr. S. Martin on community fish in general. There was also a table show for Sharks and Platy's. The results being as follows: Sharks: 1, R. Ward; 2, 3 and 4, J. Parker. Platys: 1, 2 and 3, W. Frain; 4, B. Woodward. At the second meeting there was a talk on the inter-club show with Border Club at Carlisle. New members were welcomed and a talk given by the Chairman, Mr. S. Martin which was most beneficial for the new members and for those who had not yet set up a new tank. Table show was for any three of one species and resulted as follows: 1 and 3, J. Ward; 2, W. Frain; 4, R. Strand.

A SLIDE quiz show presented by Mr. Itheridge was the main item at the October meeting of the **Gloucester Fishkeeping and Social Club**, under the Chairmanship of Mr. R. E. H. Moulder. Any persons interested in joining the club are cordially invited to attend the meetings which are held at the Longlevens Pavilion, Longford Lane, Gloucester, on the last Monday in the month or alternatively should contact the Secretary, Mr. B. H. Stoneham, 54, Tredworth Road, Gloucester, for further details.

AT the October Annual General Meeting of **Gainsborough A.S.**, the following members were re-elected: Chairman, Mr. Alan Thorpe; Secretary, Mr. A. Chapman, 26 Arkwright Street, Gainsborough; Treasurer, M. Horace Ellis, was unable to seek re-election and the post was accepted by Mr. M. Davies. The elected committee was as follows: Messrs. P. Wright, G. Vernon, C. Noble, M. Hatfield, R. Middleton and Mr. Burton.

The Table Show awards for 1969-70, the Bacon Trophy, were: 1, Mr. A. Chapman (Sec.) 13 pts.; 2, Mr. K. Cowan, 8 pts.; 3, Mr. R. Middleton, 7 pts. The monthly meetings are held at 7.45 p.m. on the third Thursday of every month at the Friendship Hotel, Church Street, Gainsborough. Any interested persons would be made welcome.

DURING October **Hemel Hempstead A.S.** have had a talk about Goldfish given by Bob Eason and a talk on Tropical Fish given by Henry White of Hendon. Both talks were extremely interesting.

Two table shows have also taken place, the results being: Characins: 1 and 2, A. Dibley; 3, E. Leavy. Loaches: 1 and 3, T. Craddock; 2, Mr. and Mrs. S. J. Collins. Swordtails: 1, A. Dibley; 2, Mr. and Mrs. S. J. Collins; 3, F. Grottick (Jun.). Barbs: 1, I. Somers. Meetings are held every other Thursday at Adeyfield Secondary School, Hemel Hempstead and the Secretary is P. Trenwith, 51 Woolmer Drive, Hemel Hempstead. Press Secretary: Mrs. J. V. Collins, 63 Pulleys Lane, Hemel Hempstead.

**BE SAFE
BE SURE** 
Hillside Aquatics London N12

CHANGES in officials of the **Chingford & District A.S.** are as follows: President: H. Sumner, 111 New Road, Chingford, E.4. Chairman: A. J. Bobb, 81 Ripping Way, Chingford, E.4. Secretary: G. Ledger, 32 Priory Avenue, Chingford, E.4. Treasurer: R. E. Harvey, 54 Kemilworth Avenue, Walthamstow, E.17.

DURING October the **Merseyside A.S.** had a talk from Mrs. Shirley Taylor, who at very short notice, 24 hours only, stepped into the breach and gave an excellent and informative talk on keeping and breeding Coldwater Fishes, particularly the Fancy Goldfish. Not many of the Society are Coldwater enthusiasts and Shirley gave a very good insight into the difficulties involved. Her obvious enthusiasm for her subject held her audience in close attention and some very interesting questions were put to her in the course of the evening. Later in the month seven Society members accepted the invitation of the **Stretford A.S.** to an inter-society table show and social gathering. They spent a thoroughly enjoyable evening watching three films whilst judging was in progress. Since they picked up a dozen prize cards between them, including Best in Show, the journey involved was well worthwhile.

THERE was a good attendance for the November meeting of the **Bournemouth A.S.** After the club's Secretary, R. Matley, had read the minutes of the previous meeting, there was a short discussion on the Society's recent visit to a London Aquarium Show. Then followed the main item of the evening, a "Picture Quiz" by Jack Jeffery, with the aid of the Society's recently renovated episcoposcope. The Table Show results were as follows: Catfish and Loach: 1 and 2, Mr. Cox; 3, Mr. Earl. Breeders (Tropical): 1, Mr. Cooke; 2, Mr. Cox; 3, Mr. Redley. Anyone interested in fishkeeping is cordially invited to attend the meetings, which are held at Kinross Community Centre, Pyramids Park, Kinross, Bournemouth on the first Monday of each month.

THE new officers and meeting place of the **Romford & Becontree A.S.** are as follows: Chairman/Show Secretary, D. G. Kent; Treasurer, M. J. Moffat; Secretary, R. C. Smith, 2364a Longbridge Road, Barking, Essex. Meetings are held every other Monday evening at 8 p.m. at Elm Park Constitutional Hall, Elm Park Avenue, Hornchurch.

THE recent Annual Open Show held by **Edmonton Section of the Fancy Guppy Association** attracted a record entry of two hundred and seventy-two entries totalling four hundred and seventy-six fish in all. The prize-winners were as follows: Best Fish in Show: Delta. Male: A. Fowles and H. Vinnall, Edmonton Rose Bowl and "The Aquarist Pin." Best Opposite Sex—Natural Tailed Female: B. Bradford, Radlett Rose Bowl and "F.B.A.S. Award." Best Breeders—Advanced Master Breeders: G. Goodall, Radlett. Females: Metropolitan: Mr. and Mrs. Phillimore (Edmonton). Scallops: D. Crane (East London). Natural: B. Bradford (Radlett). Superba: A. Fowles and H. Vinnall (Edmonton). Cofer: D. Crane (East London). Wedge: G. Goodall (Radlett). Round tail: L. Smith (Radlett). Colour: W. Myers (East London). Breeders: Master Breeders: G. Goodall (Radlett). Advanced Master: G. Goodall (Radlett). Matched Pairs: K. Lee (Edmonton). Males: M. Delingpole (Birmingham). Females: K. Lee

(Edmonton). Ladies: Breeders: Mrs. P. Abbott (Radlett). Male: Mrs. P. Abbott (Radlett). Female: Mrs. P. Abbott (Radlett). Junior: Male: Miss Bradford (Radlett). Female: Miss Bradford (Radlett). Males: Original Veil: W. Myers (East London). Bottom Sword: D. Crane (East London). Double Sword: D. Crane (East London). Top Sword: Redford and Ballard (South London). Dove-tail: S. Smith (Birmingham). Delta: A. Fowles and H. Vinnall (Edmonton). Faintail: M. Delingpole (Birmingham). Cofer: D. Crane (East London). Lyretail: M. Delingpole (Birmingham). Long Dorsal Veil: R. Waters (Edmonton). Short Dorsal Veil: W. Myers (East London). Colour: P. Moriarty (Radlett). Roundtail: B. Bradford (Radlett). Scarftail: S. Smith (Birmingham). Spertail: D. Crane (East London).

FOLLOWING their recent open show, seventeen **Ealing and District A.S.** members went up to the R.A.F. at Manchester. Once again the Belle Vue Aquarium was admired as was the quality of the fish in the Show. The Open Show season being almost at an end, the interest at the Club now centres around the various long-running competitions within the Club. Once these have been resolved there only remains the Society's closed show, Annual General Meeting and the annual Dinner and Dance to round off the year.

John Batts, the resident Aquascape expert, gave a demonstration of his art recently and plans are in hand to formulate rules for this class, which was very popular at the Society's Open Show. The Newsletter exchange system has had some response and several Societies have been contacted in this respect. The Society would like to take this opportunity of wishing all their aquarist friends and rivals a Very Happy Christmas and a successful 1971 season. Three-way Match—Second Round: Riverside A.S. 28 pts, Ealing A.S. 29 pts, Runnymede A.S. 12 pts. Totals to date: Riverside 46 pts, Ealing 41 pts, Runnymede 33 pts.

THE officers elected at the Annual General Meeting of the **Edmonton Section of the Fancy Guppy Association** held recently were: Chairman, D. Curry; Secretary, D. Phillimore, 103 Wilbury Way, Edmonton, N18 1BX; Treasurer: K. Lee; Public Relations Officer, E. Manning; Show Secretary, H. Rhind.

OVER one hundred and thirty entries were judged at the **Thurrock A.S.** annual club show. Results were as follows: Furnished Aquaria: 1, K. Appleyard; 2, Mrs. B. Nicholls; 3, R. Nicholls. Barbs: 1, D. Durrant; 2 and 3, A. Riddles. Characins: 1, P. O'Bryan; 2, Miss A. Sutton; 3, R. Alborough; 4, D. Durrant. Cichlids: 1, J. Furber; 2, D. Durrant; 3, M. Martin; 4, J. Haron. Labyrinth: 1, M. Martin; 2, P. Hinkley; 3, S. Hendle; 4, R. Nicholls. Fighters: 1 and 2, D. Durrant; 3, K. Appleyard. E.L.T.C.: 1, E. Nicol; 2, A. Riddles; 3, R. Nicholls; 4, K. Appleyard. Catfish: 1 and 2, D. Durrant; 3, P. O'Bryan. Danios and W.C.M.M.: 1, S. Hendle; 2, K. Appleyard; 3, Miss A. Sutton. A.O.S. Tropical Egg-layers: 1, R. Alborough; 2, K. Appleyard; 3, P. O'Bryan. Sexed Pairs: 1, P. Hinkley; 2, J. Furber; 3, D. Durrant. Guppies: 1, P. O'Bryan. Swordtails: 1, 2 and 4, P. O'Bryan; 3, K. Appleyard. Platies: 1, K. Appleyard; 2, P. O'Bryan; 3, S. Hendle. Mollys: 1, D. Durrant; 2, J. London; 3, R. Alborough. A.O.S. Livebearer: 1 and 3, D. Durrant; 2, E. Nicol. Breeders: 1 and 2, D. Durrant; 3, J. Furber. A.S. Coldwater: 1, 2 and 3, J. Hunt; 4, P. Groot. Aquatic Plants: 1, S. Hendle; 2, P. O'Bryan; 3, D. Durrant. Special awards were presented to P. O'Bryan (Best Fish in Show), K. Appleyard (Thames Trophy—Furnished Aquaria), Miss A. Sutton (Best Novice Entry).

MEMBERS of **Guildford and District A.S.** were entertained at the first meeting in October with three short films kindly lent by the C.E.G.B. These were watched with great interest and the one most enjoyed involved

the importing of a vast number of fish from abroad for use at a Power Plant to keep the weeds from growing and causing an obstruction. At the second meeting a talk on Marine Fish was given by John Adams. This is a branch of the Fish World that some of the members know little about, and found the talk both very informative and interesting. New members are always welcome at the Guildford and District Labour Club, The Mount, Guildford, second and fourth Wednesdays in the month, time 7.45 p.m.

AT the October main meeting of the **Bradford and District A.S.**, Mr. Prince spoke on "Water Chemistry." He admitted at the outset that he had never kept fish although he had spoken to many other aquarist societies. As one of Romford's Water Board's top chemists, he brought with him costly testing equipment and inexpensive indicator papers. Apart from doing tests on samples of aquarium water, a jarful from Mr. Parth's new pond showed it to have too high a lime content to introduce fish. Although Bradford members were fortunate in the quantity and quality of their water supply, Mr. Prince said any aquarist having water trouble in the Romfolds area could contact him at Garsley. Here are the results of the Breeders Table Show class: 1, D. Parkin; 2, G. Fairclough; 3, J. Mosley. Mr. Mosley also took first and second places in the A.O.V. class.

At a later October meeting D. Carr commenced his talk, "Fishkeeping from a Dealer's Aspect", by covering good customer-relationships. Although his premises are not Bradford's largest, the running costs he outlined for one year must have surprised many of those present. He also mentioned the time taken to maintain 36 tanks and keep them clean, etc. Mr. Carr had strong words to say regarding dealers entering fish in Table Shows and getting themselves elected on to society committees. It was very interesting to hear a dealer speak so openly on the business side of the hobby.

AT the October meeting of the **Tonbridge and District A.S.**, an inter-club contest was staged with the North Kent A.S. and a very interesting and entertaining evening was provided for the fifty-four members who attended from both clubs. During the judging a talk was given by Mr. Mathison, Chairman of the Tonbridge and District A.S., together with a slide show of a visit made by him to Nairobi, Kenya, in the late 1950s, which also included a visit to one of Kenya's National Parks. The result of the Table Show was Tonbridge and District A.S. 34 points, North Kent A.S. 26 points.

THE following officers were elected for the coming year at the annual general meeting of the **East London Aquarist and Pondkeepers Association**. President, P. Camokin; Vice-Presidents, F. Petto, R. Taylor, F. Arnold; Chairman, R. Dodkins; Vice-Chairman, A. Field; General Secretary, Mrs. P. Harris, 86 Leigh Road, East Ham, E.6; Treasurer, A. Harris; Show Secretary, P. Vickers, 13 Irons Way, Romford, Essex; Show Organiser, G. Green; Librarian, C. Sweeting; Editor, M. Pearson; Press Secretary, Mrs. J. I. Arrow; Programme Secretary, A. Bennett; Equipment Officer, K. Priest; Social Secretary, J. Ross, F.B.A.S. Delegate, R. Dodkins; Committee Members, K. Wrightson, T. Hatherton; Auditors, Mr. and Mrs. Arnold. Meetings of the association are held at the Ripple Road School, Barking, every first and third Friday of the month.

A RECORD of 471 entries was received for the sixth open show of the **Stone A.S.** The results were as follows: The Josie Trophy and "Aquarist" Gold Plated Pin for Best Fish of the Show: R. J. Hough (North Warwick A.S.) (African Knife Fish). Plants A.V. Aquatic: 1, 2 and 3, I. Brough (Stone). Breeders (Livebearers): 1 and 3, D. J. Colclough (Independent); 2, A. Smith (Stone); 4, R. Holmes (Derby Regent). Breeders (Egg-layers): 1, W. Morrell (Derby Regent); 2, D. J. Colclough (Independent); 3, J. Sheldon

halamid Proved
for twelve Years
Hillside Aquatics London N12

(Tube Products); 4, R. and F. Hirst (Coventry). Pairs (Livebearers): 1, Mr. and Mrs. Carter (Bedworth); 2, A. Morrey (Stone); 3, R. Harlow (Derby Regent); 4, K. Ankers (North Staffs.). Pairs (Egglayers): 1, W. Anderson (Leicester Fishkeepers); 2, A. Morrey (Stone); 3, I. Ford (Tube Products); 4, K. Ankers (North Staffs.). Guppies: 1 and 2, Mrs. J. Whitfield (Rubery Select); 3, Mr. and Mrs. Carter (Bedworth); 4, K. Taylor (Tube Products). Platies: 1 and 2, W. Anderson (Leicester Fishkeepers); 3, N. Furness (Rubery Select); 4, A. Smith (Stone). Swordtails: 1, J. January (Wednesbury); 2, I. Brough (Stone); 3, A. Dawes (Wednesbury); 4, T. Harvey (Stone). Mollies: 1 and 2, V. Knowles (North Staffs.); 3, M. Baker (Warrington); 4, J. H. Jordan (Leicester Fishkeepers). Rasboras: 1, M. Westmancoat (Binks Hollows); 2, J. Sanders (Stone); 3, R. Hall (Derby Regent); 4, I. Tucker (Stone). Danios, W.C.M.M. Rainbows: 1, J. Dutton (Lucas); 2, J. S. Booth (North Staffs.); 3, Mr. and Mrs. G. Roberts (Lucas); 4, N. W. Plant (Stone). Toothcarps: 1, J. H. Jordan (Leicester Fishkeepers); 2, J. S. Booth (North Staffs.); 3 and 4, B. and F. Hirst (Coventry). Fighters: 1, J. S. Booth (North Staffs.); 2, W. Morrell (Derby Regent); 3, G. Brownwood (Independent); 4, Mr. and Mrs. Carter (Bedworth). A.O.V. Anabantids: 1, K. Lacey (Stone); 2, K. Taylor (Tube Products); 3, V. Knowles (North Staffs.); 4, R. Harlow (Derby Regent). Barbs (under 3 in.): 1 and 2, J. Lemo (Stone); 3, R. J. Hough (North Warwick); 4, J. H. Jordan (Leicester Fishkeepers). Barbs (over 3 in.): 1 and 2, P. Rogers (Stone); 3, Edkins and Pagett (Bedworth); 4, Mrs. I. Whitfield (Rubery Select). Cichlids (Dwarf): 1, Goodwin Bros. (North Staffs.); 2, A. Masby (Wednesbury); 3, P. Edwards (Rubery Select); 4, P. Boulton (G.K.N.). Cichlids (Large): 1, Atwood and Williams (Rubery Select); 2 and 3, Edkins and Pagett (Bedworth); 4, R. J. Hough (North Warwick). Characins (under 3 in.): 1, I. Tucker (Stone); 2, J. Bailey (North Staffs.); 3, A. Thomas (Lucas); 4, K. Brunt (North Staffs.). Characins (over 3 in.): 1, J. January (Wednesbury); 2, Atwood and Williams (Rubery Select); 3, T. Harvey (Stone); 4, R. J. Hough (North Warwick). Labors and Sharks: 1, Mrs. Highfield (Wednesbury); 2, R. Myer (North Staffs.); 3, T. Colclough (North Staffs.); 4, R. Harlow (Derby Regent). Corydoras Catfish: 1, I. Ford (Tube Products); 2, C. Westmancoat (Binks Hollows); 3, A. Ankers (North Staffs.); 4, R. J. Hough (North Warwick). A.O.V. Catfish: 1, J. Reeves (Wednesbury); 2, E. Smith (Sutton Hill and Dist.); 3, R. J. Hough (North Warwick); 4, M. Millman (Warrington). Loaches: 1, Goodwin Bros. (North Staffs.); 2, M. Millman (Warrington); 3, Mr. and Mrs. G. Roberts (Lucas); 4, W. Morrell (Derby Regent). A.O.V. Tropical: R. J. Hough (North Warwick); 2, R. Harlow (Derby Regent); 3, E. Smith (Sutton Hill and Dist.); 4, J. Reeves (Wednesbury).

THIS retiring chairman of the **Basingstoke & District A.S.**, D. Walls, expressed his delight at the success of the society over the past year and in particular the staging of the country's largest open show and the winning of the Three Counties fish league. He thanked the retiring secretary, H. Gough, and the retiring show secretary, A. Blake, for their tremendous efforts in making the club so successful and also to the committee for their support.

The high standard maintained by the speakers through the year had the effect of sustaining high membership and attendances. The Officers elected for the coming term were: President, R. Ridley; Vice-President, T. Irrey; Chairman, H. Gough; Vice-Chairman, G. Clewer; Secretary, D. Pux; Treasurer, J. Lovegrove; Show Secretary, M. Strange; Show Manager, H. Walls; Committee members, N. Snaad, R. Weston, H. Gough.

THIS next meeting of **Aberdeen A.S.** will be held in the Y.M.C.A. Rooms, Union Street, Aberdeen, on Tuesday, 15th December, at 7.30 p.m. At this meeting it is hoped to have

a guest speaker, Mr. R. Cooper, who will give a talk on general aspects of fishkeeping. The table show for December will be: A single catfish A.V. and a pair of egglayers A.V.

The October meeting was well attended considering that the weather conditions were poor. The quiz was won by Mr. Ross and during the evening Mr. Fletcher, who was on holiday from Paignton, gave a very interesting talk on the different kinds of sea horses. Early in October, eight members went down to Dundee A.S. and this proved a grand evening's entertainment. At the end of October a small number went to Deeside Fish Hatcheries.

The list of office bearers is as follows: President, S. Cox; Vice-President, A. Rennie; Secretary, I. McHattie, 79 Mile End Avenue, Tel: 55773; Treasurer, Mrs. Messen; Vice-Secretary, S. Soutar; Publicity, D. Fraser; Management Committee, S. Soutar, D. Fraser, Mrs. Mitchell; Programme Committee, W. Armstrong, D. Bremner, B. Cooper.

THE Iford and District A. and P.S. enjoyed a most interesting lecture on General Fishkeeping which was given by Mr. Tomkins at their September meeting. The table show results were as follows: A.V. Female Guppy; 1, Mrs. Rowe; 2, Mr. Bloomer; 3 and 4, F. Hartam. A.V. Male Guppy; 1, F. Hartam; 2, Mrs. Rowe; 3, Mr. Seaman; 4, Mr. Ruth.

At the October meeting the table show at this meeting was for A.V. Brooders' class, which was won outright by Mr. Seaman. Also announced were the results of the Home Aquaria Competition from an entry of thirteen tanks as follows: 1, Mr. Seaman; 2, Mr. Woodham; 3, Mr. Forrester; 4, Mr. Seaman Jr. Future meetings will be held at the usual venue at 8 p.m. New members or anyone who may like to attend is most welcome to do so or may obtain further literature from the Secretary, Mr. R. Ruth, 103, Heath Road, Chadwell Heath, Essex.

THE Brighton and Southern A.S. activities during October were many and varied. A table show for Sexed Pairs was held and the judge for the occasion was Mr. P. Ginger who gave the club a very entertaining discussion by analysing the points of the various fish exhibited by number in the table show that evening. The results were as follows: Egglayers (Sexed Pairs): 1, Mrs. M. Tee; 2, K. Williams; 3, K. Orange; 4, P. Tee. Livebearers (Sexed Pairs): 1, Miss M. Scott. The Chairman, Mr. A. Dawes, announced that the club had taken over the maintenance of four tanks of various size and contents at the Clarence Hotel, Brighton, which would give the Society scope to specialise in plants and fish in some of these tanks as they are to be purely exhibition pieces.

The second meeting was well attended. News was announced at this meeting of the proposed formation of a local branch of the Fancy Guppy Association and all persons interested to any degree in membership of this new project will be welcomed. At this meeting members saw a slide Film Show of Plants and Fish. The plant photographs have recently been acquired by the club from Mr. J. Kail, and the photographs include some really fine rare material. The club have also purchased Mr. Kail's collection of Slides of Fish and again these are really excellent. These slides have been made up into a series of interesting and informative slide tape lectures and can be hired by interested parties. For information on these slides please contact the Club Secretary, Mr. B. Sheldon, 43 Coventry Street, Brighton (Phone: Brighton 506642). Any persons interested in joining the club can also obtain full details from Mr. Sheldon.

THE first Open Show of **Sherwood A.S.** was a huge success with a total of 706 entries. The results were as follows: Best Fish in Show award was won by Hanna Kuhn, of Lincoln A.S. with a Dwarf Cichlid. The exhibitor with the most points was I. Heptinstall of Castleford A.S. The society with the most points was Castleford A.S., second Alfreton A.S., joint thirds Doncaster A.S. and Belle Vue A.S., Fourth, Bedworth A. and P.S.

Junior Egglayers: 1, Master A. Bull, Derby Regent A.S.; 2, D. Sharp, Castleford A.S.; 3, H. Higginbottom, Sheffield. **Junior Livebearers:** 1, Miss D. Jordan, Leicester F.K.; 2, Miss S. Anderson, Leicester F.K.; 3, G. Thickbroom, Castleford A.S. **Guppies:** 1, K. Brown, Mid. Trop. A.; 2, C. Anquist, Castleford A.S.; 3, Mr. and Mrs. Orsbiter, Southport A.S. **Platies:** 1, I. Heptinstall, Castleford A.S.; 2, Mr. and Mrs. Orsbiter, Southport A.S.; 3, Mr. Flett, Stockton-on-Tees A.S. **Mollies:** 1, L. King, Doncaster A.S.; 2, Mr. and Mrs. Carter, Bedworth A. and P.S.; 3, J. H. Jordan, Leicester F.K. **Swordtails:** 1, N. R. Gibson, Huddersfield A.S.; 2, R. Widdowson, Hucknall A.S.; 3, Mr. and Mrs. S. Hoop, Belle Vue A.S. **Small Characins:** 1, B. Smith, Workop A.S.; 2, P. Reynolds, Dukeries A.S.; 3, M. Allsop, Alfreton A.S. **Large Characins:** 1, J. A. Whiteley, Aireborough A.S.; 2, Atwood and Williams, Rubery Select; 3, P. Reynolds, Dukeries A.S. **Dwarf Cichlids:** 1, H. Kuhn, Lincoln A.S.; 2, I. Heptinstall, Castleford A.S.; 3, G. Thickbroom, Castleford A.S. **Large Cichlids:** 1, Mr. and Mrs. Orsbiter, Southport A.S.; 2, Mr. Leese, Stone A.S.; 3, J. A. Whiteley, Aireborough A.S. **Angels:** 1, G. Platts, Grantham A.S.; 2, J. Lyall, Skegness A.S.; 3, M. Allsop, Alfreton A.S. **Small Barbs:** 1, Mr. and Mrs. Cohen, Castleford A.S.; 2, M. Lindley, Alfreton A.S.; 3, J. Jones, Grantham A.S. **Large Barbs:** 1, S. Hill, Alfreton A.S.; 2, J. Bizard, Sheffield A.S.; 3, Mr. Hubert, Derby Regent A.S. **Killifish:** 1, S. Hill, Alfreton A.S.; 2, R. Shakespeare, Bedworth A. and P.S.; 3, J. A. Stoff, Lincoln A.S. **Mollies and Danios:** 1, I. Heptinstall, Castleford A.S.; 2, M. Allsop, Alfreton A.S.; 3, D. Jackson, Dukeries A.S. **Sharks and Frogs:** 1 and 3, J. M. Delaney, Loughborough A.S.; 2, I. Heptinstall, Castleford A.S. **Rasboras:** 1, R. Shakespeare, Bedworth A. and P.S.; 2, Whitfield and Massey, Rubery Select; 3, R. and A. Johnson, Aston-under-Lyne A.S. **Fighters:** 1 and 3, J. R. Rhodes, Scunthorpe A.S.; 2, G. Thickbroom, Castleford A.S. **A.O.V. Anabantids:** 1, I. Heptinstall, Castleford A.S.; 2, L. King, Doncaster A.S.; 3, D. Jackson, Dukeries A.S. **Breeders (Egglayers):** 1, E. Wells, Doncaster A.S.; 2, H. Kuhn, Lincoln A.S.; 3, M. Linsley, Alfreton A.S. **Breeders (Livebearers):** 1, Mr. and Mrs. Cohen, Castleford A.S.; 2, C. Ward, Doncaster A.S.; 3, Mr. and Mrs. Brearley, Belle Vue A.S. **Pairs (Egglayers):** 1, Master S. Clowes, Castleford A.S.; 2, Mr. and Mrs. Hough, North Warwick A.S.; 3, M. Allsop, Alfreton A.S. **Pairs (Livebearers):** 1, Mr. and Mrs. Brearley, Belle Vue A.S.; 2, Mr. Flett, Stockton-on-Tees A.S.; 3, G. Thickbroom, Castleford A.S. **A.O.V. Catfish:** 1, B. Parnell, Crosswell A.S.; 2 and 3, F. Gates, Castleford A.S. **Loaches:** 1, P. Danielson, Huddersfield A.S.; 2, Mr. and Mrs. Hough, North Warwick A.S.; 3, Mr. Hubert, Derby Regent A.S. **Corydoras:** 1, R. Davies, Belle Vue A.S.; 2, C. Cooper, Derby Show Group; 3, P. Anderson, Leicester F.K. **Goldfish and Comets:** 1, C. Hill, Nottingham A.S.; 2, T. Sands, Boston A.S.; 3, M. Shilton, Atherton A.S. **Stubbinskin and Fancy Goldfish:** 1, J. Eyles, Aston-under-Lyne A.S.; 2, C. Pratt, Bedworth A. and P.S.; 3, G. Thickbroom, Castleford A.S. **A.O.V. Goldwater:** 1, T. Sands, Boston A.S.; 2, C. Shilton, Atherton A.S.; 3, Mr. and Mrs. Brearley, Belle Vue A.S. **A.O.V. Tropical:** 1, P. Reynolds, Dukeries A.S.; 2, S. Harrison, Huddersfield A.S.; 3, C. Cooper, Derby Show Group. **Any Variety Female:** 1, I. Heptinstall, Castleford A.S.; 2, Mr. and Mrs. S. Hoop, Belle Vue A.S.; 3, G. Thickbroom, Castleford A.S.

THE SAFE CURE FOR WHITE SPOT IS  **Hillside Aquatics London N12**

THE second open show results of the **Castleford and District A.S.** were as follows: Guppies: 1 and 3, I. Stevenson (York); 2, Master Sullivan (Four Star); Plaies: 1, I. Heptonstall (Castleford); 2, W. Burton (Privatizer); 3, Simpson and Horsefield (Barnsley). Swords: 1 and 2, N. R. Gibson (Huddersfield); 3, Mr. and Mrs. Cohen (Castleford). Mollies: 1, J. Hartley (Independent); 2, Miss J. Helen (Horsforth); 3, L. King (Doncaster). Barbs (small): 1, J. A. Whitley (Aireborough); 2, Mrs. D. Brooks (Castleford); 3, Mr. and Mrs. Cohen (Castleford). Barbs (large): 1, I. Heptonstall (Castleford); 2, J. Scarril (Selby); 3, Mr. Shelton (Castleford). Fancy Goldfish: 1 and 3, C. Asquith (Castleford); 2, G. Thickbroom (Castleford). A.O.V. Goldwater: 1, S. Hall (Aireborough); 2 and 3, C. Asquith (Castleford). A.V. Female: 1, G. Thickbroom (Castleford); 2, N. R. Gibson (Huddersfield); 3, Mrs. D. Brooks (Castleford). A.O.V. Tropical: 1, A. E. Whitelock (Tadcaster); 2, Mr. Turner (York); 3, Mrs. Howard Barnsley (Characins (small)): 1, R. Wheeler (Four Star); 2, Miss B. Kaye (Top Ten); 3, P. Dunscomb (Huddersfield). Characins (large): 1, I. Heptonstall (Castleford); 2, G. Thickbroom (Castleford); 3, Mrs. D. Brooks (Castleford). Cichlids (small): 1, I. Heptonstall (Castleford); 2, Simpson and Horsefield (Barnsley); 3, Mr. and Mrs. Smith (Top Ten). Cichlids (large): 1, J. Howard (Barnsley); 2, D. Jones (Rotherham); 3, J. Scarril (Selby). Carps and Minnows: 1, D. Kennedy (Bradford); 2, Miss B. Kaye (Top Ten); 3, Mrs. E. Wells (Doncaster). Sharks and Foxes: 1, Mr. and Mrs. Cohen (Castleford); 2, B. Conlon (Selby); 3, Mr. White (Emswold). Danios and Rasboras: 1 and 2, I. Heptonstall (Castleford); 3, Mr. and Mrs. Smith (Top Ten). Catfish and Loach: 1, Mr. Shipley (Selby); 2, R. Barber (Ashton-u-Lyne); 3, Mr. and Mrs. Gates (Castleford). Breeders (Livebearers): 1, Mr. and Mrs. Cohen (Castleford); 2, D. Hartley (Castleford); 3, B. Megson (Aireborough). Breeders (Egglayer): 1 and 3, Mr. E. Wells (Doncaster); 2, W. Barley (R.K.A. Pairs (Livebearers): 1, G. Thickbroom (Castleford); 2, S. Hall (Aireborough); 3, B. Hamer (Castleford). Pairs (Egglayer): 1, J. Helen (Horsforth); 2, Mr. Boyes (South Leeds); 3, Mr. and Mrs. Cohen (Castleford). Fighters: 1, Mr. and Mrs. Cohen (Castleford); 2, Mr. and Mrs. Cohen (Castleford); 3, Mr. Rhodes (Scunthorpe). A.O.V. Anabantids: 1, I. Stevenson (York); 2, Mr. and Mrs. Cohen (Castleford); 3, I. Heptonstall (Castleford). Toothcarps: 1, B. and C. White (Leigh); 2, M. and A. Crowder (Swillington); 3, Mrs. Gear (Keighley). A.V. Juveniles: 1, Master A. Kaye (Top Ten); 2, M. Harrison (York); 3, G. Thickbroom (Castleford). Best Fish in Show: B. and C. White (Leigh Society). Best Exhibitor: I. Heptonstall (Castleford). Society with Most Points: Castleford.

THE Rhonda A.S. second annual open show was well supported, and there were 386 entries. The results were as follows: Siamese Fighters: 1 and 2, R. J. Hoare (Cardiff); 3, Mr. and Mrs. C. Harding (Cardiff). Anabantids: 1, Mr. and Mrs. Williams (R.A.S.); 2, W. Drew (R.A.S.); 3, Mr. and Mrs. Baylton (Cardiff). Barbs (under 3 in.): 1, D. Jones (R.A.S.); 2, Mr. and Mrs. Baylton (Cardiff); 3, R. Richards (R.A.S.). Barbs (over 3 in.): 1 and 3, R. Richards (R.A.S.); 2, R. J. Hoare (Cardiff). Best Fish in Show: 1, R. J. Hoare (Cardiff); 2, W. Drew (R.A.S.); 3, B. A. Harding (Cardiff). A.O.V. Characins: 1, Mr. and Mrs. C. Harding (Cardiff); 2, Mr. and Mrs. Williams (R.A.S.); 3, P. Hamer (R.A.S.). Dwarf Cichlids: 1, Mr. and Mrs. C. Harding (Cardiff); 2, Ann Llewellyn; 3, D. Jones (R.A.S.). Large Cichlids: 1, P. A. Player (Cardiff); 2, D. Warrnent (Cardiff); 3, G. Mason (R.A.S.). Angels: W. Drew (R.A.S.); 2, Mr. and Mrs. Williams (R.A.S.); 3, J. Edwards (Llanrwst Major). Corydoras: 1, W. Drew (R.A.S.); 2, Mr. Biding (Bishops Cleeve); 3, N. Rowlands (Bridgend). Catfish and Loaches: 1, K. Williams (R.A.S.); 2, W. Drew (R.A.S.); 3, R. Maher (R.A.S.). Danios Rasboras: 1, Mr. and Mrs. C. Harding (Cardiff); 2, W. Drew (R.A.S.); 3, R. J. Hoare (Cardiff). Killifish: 1, S. Evans (R.A.S.); 2, R. Wigg (Cardiff); 3, J. Edwards (Llanrwst Major). A.O.V. Egglayers: 1, P. A. Player (Cardiff); 2, D. Warrnent (Cardiff); 3, R. J. Hoare (Cardiff).

Swordtails: 1, R. J. Hoare (Cardiff); 2, Mr. and Mrs. C. Harding (Cardiff); 3, G. East (R.A.S.). Platies: 1, R. J. Hoare (Cardiff); 2, A. Ibbertson (Bury); 3, M. Wilkie (Cardiff). Mollies: 1, D. L. Hemme (R.A.S.); 2, W. Drew (R.A.S.); 3, J. Edwards (Llanrwst Major). Guppies (Male): 1, Mrs. M. Littleton (Bristol); 2 and 3, P. A. Player (Cardiff). Guppies (Female): 1, Mr. Ireland; 2, D. Jones (R.A.S.); 3, R. Wigg. Breeders Class: 1, A. Ibbertson (Bury); 2, Mr. and Mrs. C. Harding (Cardiff); 3, M. Wilkie (Cardiff). Furnished Aquaria: 1, D. Jones (R.A.S.); 2, C. Jones (R.A.S.); 3, N. Rowlands (Bridgend). Junior Class: Miss D. Player (Cardiff); 2, M. Wilkie (Cardiff); 3, K. Williams (R.A.S.). Goldfish: 1, 2 and 3, B. A. Harding (Cardiff). A.O.V. Goldwater: 1, Mr. and Mrs. Baylton (Cardiff); 2, B. A. Harding (Cardiff); 3, S. Evans (R.A.S.). Fancy Goldfish: 1 and 2, J. Phillips (Bristol); 3, A. Ward. Best Fish in Show: P. Player (Cardiff). Highest Number of Points in Show: Allcomers: R. J. Hoare (Cardiff). Rhonda Residents Only: W. Drew (R.A.S.). The winner of the Catfish and Loach class was a young lad of only six years old and this fish is his pride and joy.

NEW SOCIETIES

Recently a local Aquarists' Society was formed at New Tredegar. It was decided to name the society "The New Tredegar A.S." Twenty-five members attended the first meeting when the following officials were elected. A. Hawker, treasurer; Don Watkins, secretary. The secretary's address is 21 Pengam Road, Aberbroddog, Bargoed, Glam. New members are most welcome.

A new marine society was formed on the 2nd November, called the **Midlands Marine A.S.** Meetings are to be held every fourth Tuesday at Ye Olde Barley Mow, St. Margaret's Road, Ward End, Birmingham. Next meeting, Marine Slides and lecture, 1st December, at 8 p.m. Anyone interested please contact the secretary, Mr. G. Wallace, 143 Paget Road, Erdington, Birmingham, 24. Tel: 021-373 8763.

SECRETARY CHANGES

Bury and District A.S.: David W. Molincau, 3 Southfield Road, Holcombe Brook, Ramsbottom, Lancs.
Cardiff A.S.: A. Jamieson, 69 Hook Lane, Welling, Kent.
Daventry A.S.: P. A. Swadling, 5 The Rowans, Daventry, Northants.
Dukeries A.S.: Mrs. J. L. Dornie, 89 Sparken Hill, Worksop, Notts. Tel: Worksop 2975.
Grantham and District A.S.: A. O. Wright, 115 Barrowby Road, Grantham, Lincs.
Houghton and District A.S.: H. Leighton, 102 Abbey Drive, Sunnyside Est., Houghton-le-Spring, Durham.
Reading and District A.S.: M. Davies, 31 Caldbeck Drive, Woodley, Berks.
Skipton and District A.S.: B. L. Heald, 19 Ramshaw Drive, Skipton, BD23 2QN.
Winchester and District A.S.: J. Cairns, 4 Hiltzbury Court, Chandlersford, Hants.
Yeovil and District A.S.: C. H. Bushell, 25 Mayfield Road, Yeovil, Somerset.

CHANGE OF VENUE

The monthly meetings of the **Aireborough & District A.S.**, which are held first Thursday of each month, will in future be held in the Recreational Room, Greenacre Hall, Rawdon, Nr. Leeds.
The **Bedworth A. and P. Society** has changed its meeting place to Bedworth W.M. Club, King Street, Bedworth. Meetings are held on the first Friday in every month at 8 p.m.
The meetings of the **South Derbyshire & District A.S.** are now held at "The Railway Inn," Midland Road, Swadlowcoe, Nr. Burton-on-Trent. Meetings first Wednesday in the month at 7.30 p.m.

AQUARIST CALENDAR 1971

28th February: Rotherham and District A.S. Open Show, New Venue, Brinsworth Manor School, Brinsworth Lane, Brinsworth, Rotherham. Schedules from A. W. Harrison, Secretary, 35 Osbert Road, Broom, Rotherham.
14th March: Belle Vue A.S. Open Show to be held at Openshaw Boys Club, Crossley House, Ashton Old Road, Openshaw, Manchester 11.
4th April: Houghton District A.S. Open Show. Schedules available in February from H. Leighton, 102 Abbey Drive, Sunnyside Est., Houghton-le-Spring, Durham.
4th April: Nelson A.S. Open Show, Civic Centre, Stanley Street, Nelson.
18th April: Sheffield and District A.S. Open Show, The Meersbrook Vestry Hall, Meersbrook Park Road, Sheffield 8.
24th April: Reading and District A.S. Open Show at Brock Barracks, Oxford Road, Reading. Show Secretary, B. Grant, 20 Dover Street, Reading.
25th April: York and District A.S. Open Show. Show Secretary: P. Carey, 29 Yeasley Grove, Huntington Road, York YO3 9JX.
25th April: Preclance Aquarist Society Open Show at All Saints' Church Hall, Surrey Square, Watworth, London, S.E.17. Details from: Mr. J. Stamp, 72 Redman House, Borough, London, S.E.1. Tel: 407 4066.
2nd May: Scunthorpe Museum Society Aquarist Group first Open Show. Details from V. Hazle, Hon. Secretary, 126 Baydale Road, Ashby, Scunthorpe, Lincs.
2nd May: Dukeries A.S. third open show to be held in the Winifred Portland Technical Grammar School, Sparken Hill, Worksop, Notts. Show Secretary, Mr. M. Woodley, 56 Silversdale, Dinnington, nr. Sheffield.
9th May: Derby Regent A.S. Open Show. Sherwood Foresters Recreation Centre (Normanton Barracks), Osmaston Park Road, Derby. (Follow R.A.C. signs.) Schedules from R. T. Bull, 36 Queens Drive, Littleover, Derby.
9th May: Worksop A. and Z.S. Open Show at the North Notts College of Further Education, Carlton Road, Worksop, Notts, the same venue as last year. Schedules available shortly on application to Show Secretary, F. G. Sibson, 17 Clinton Street, Worksop, Notts.
15th May: Uxbridge A.S. Open Show, Meadow School, Royal Lane, Hillingdon, Uxbridge. Details from N. V. Lee, 46 Airedale Road, Baling, W5 4SD.
16th May: Merseyside A.S. Open Show.
22nd May: Southend, Leigh and District A.S. Open Show will be held at the Liberal Hall, Clarence Road, Southend. Details from the Open Show Secretary, R. D. Orford, 8 Blenheim Chase, Leigh-on-Sea.
29th May: Catford A.S. Open Show.
29th-30th May: The F.G.A. International Guppy Show, Gliche Farm Community Centre, Stechford, Birmingham.
30th May: Coventry Open Show, Poleshill Community Centre, Coventry.
6th June: Accrington A.S. Open Show.
20th June: Glossop A.S. Open Show, Venue Glossop Centre, Talbot Street, Glossop, Derbyshire. Schedules from Secretary, Miss M. D. Smith, 3 Chapel Lane, Hadfield, via Hyde, Cheshire. This is an A.M.D.A.S. Show.
27th June: Wednesbury and District A.S. first Open Show at Boys' High School, St. Paul's Road, Wednesbury. Schedules from T. Shipton, 9 Gloucester Road, Wednesbury.
4th July: Lytham A.S. Open Show at the Lowther Gardens Pavilion, Lytham. Show Secretary, E. Thompson, 83 Alexandra Road, St. Annes, Lancs.
11th July: Grantham and District A.S. second Open Show at the Guildhall, St. Peter's Hill, Grantham. Schedules available mid-March from Show Secretary M. Pattison, 8 Witham Terrace, East Street, Grantham.
15th August: North Staffs. A.S., Stoke-on-Trent third Open Show.
21st August: Weymouth and District A.S. (proposed date).
26th September: Selby and District A.S. first open show, at The Museum Hall, Park Street, Selby. Further information may be obtained from Show Secretary, W. A. Bunnage, 22 Heath Croft, Fulford, York.