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and Pondkeeper

JANUARY 1967



MONTHLY  
Vol. XXXI No. 10

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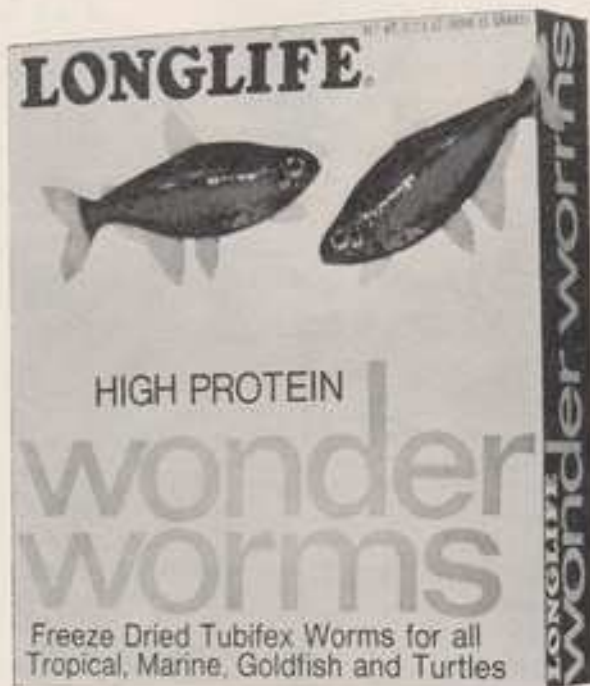
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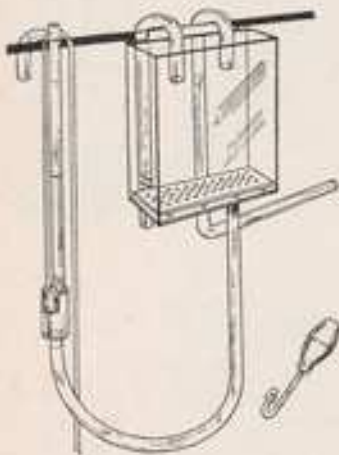
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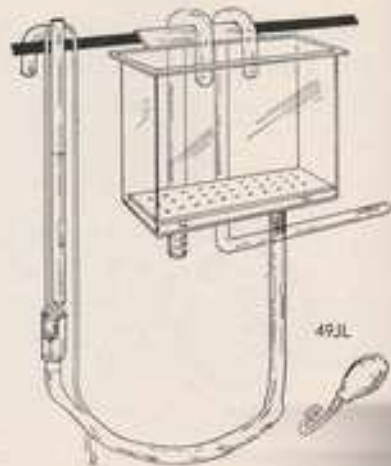
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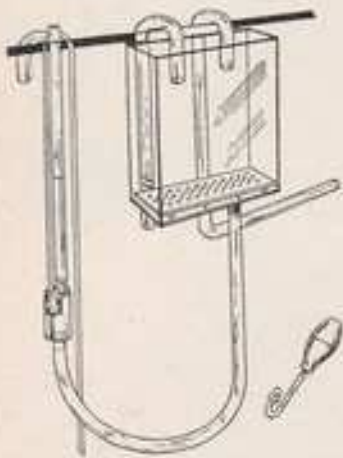
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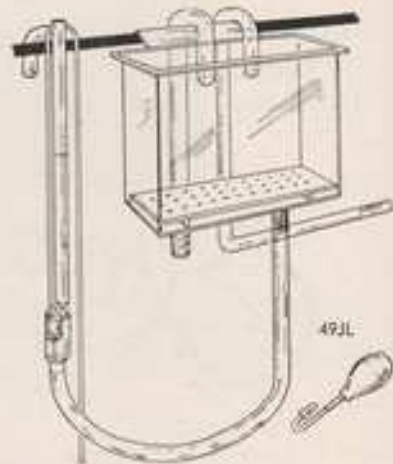
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#### Our Cover

Guppies; among the best known of livebearers. These specimens have overdeveloped finnage produced by line-breeding.

#### Correction

In the December issue 'Miracle Freeze—Dried Tubifex Worms' was reviewed and it is regretted that the price quoted was 5s. 6d. This should have been 4s. 6d.

VOL. XXXI No. 10

1967

## Hendon Aquarists' Convention, 1966

by A. Boarder

ON 12th November, 1966, the Hendon & District Aquarist Society held their eighth annual convention at Whitefield Secondary Modern School, Hendon. It was a great success and I for one enjoyed it more than I had any previous one. Not that it had been easy for the Society on this occasion. On the Thursday before the night a telegram had been received from Dr. Dieter Backhaus, of the Frankfurt Zoo, to say that owing to a bereavement in his family he was unable to attend. With only one clear day in which to act, the Hendon Society, instead of bemoaning their bad luck, set to and with the aid of members put on what I consider to be a very fine affair.

Their first speaker was Mr. Roy Skipper, who described in detail and very interestingly, how he had succeeded in breeding *Symphysodon discus*, and showed slides illustrating how the fry feed from a secretion from the bodies of the parent fishes until they are about three weeks old.

This talk was followed by a fine film of Angel fishes breeding, made and shown by Mr. A. E. Stevens. In this film the laying and hatching of many eggs was clearly shown and the development of the fry could be easily followed. Mr. Stevens is to be congratulated on a fine effort and he says that the film is not yet complete. When it is, there is no doubt that it will be a splendid record to preserve.

After the break, when many aquarists met for a "natter," a large number of slides were shown and described by a lively commentary by Bob Calrow. Slides were shown of the many successes of the Hendon members, with some fine slides of furnished aquaria and specimen fishes.

Several hundred aquarists attended the convention and I saw members of about 70 clubs from the London, Midland and Southern areas. This annual occasion is one to which many aquarists look forward as it gives them an opportunity to meet other aquarists who are not met until another year.

# Terrarium terrapins

by Eric Gillingham

OF the misconceptions current among squarists today, the most popular is, perhaps, the prevailing conviction that exotic terrapins are for the most part, delicate creatures dedicated to the practice of self-immolation.

Whilst it is, unhappily, true that of many thousands of these unfortunate animals which are imported into the United Kingdom annually, less than 1 per cent, survive the first year, this is no indication of inherent frailty but rather serves to indict the purchasers for their inherent stupidity.

Allow me, at the outset, to point out that this tirade is not directed at the enlightened subscriber who, *Aquarist* in hand, is in the position of the medieval abbot with his flask of holy water ready to fling it into the face of the Devil. And who is the Devil? Alas! I am afraid that it is a very impersonal Devil. The diabolical consequences are the outcome of a concatenation of circumstances which it is impossible to prevent whilst bulk-importation is still permitted.

Let me say at once, that the established dealer is not the villain; he rarely loses his stock, partly because it is still vigorous on arrival and, much more to the point, mainly because the weight of his financial involvement compels him to undertake a fairly extensive study of the conditions necessary to promote survival. However, on account of expensive freight charges, particularly in the case of air-transport, the common practice is to pack as many recently-hatched terrapins as close together as possible in some relatively light packing medium—usually sphagnum moss.

Now, this does not inconvenience the little travellers over-much, but it does result in the simultaneous arrival of thousands of hapless infant terrapins in the United Kingdom. The several separate, large-scale importers now seek to disseminate their charges amongst the smaller fry—the “pet shops”—many of whom are experienced, practical reptile-keepers; some however, are not. The outcome of this process is that many hundreds of luckless reptiles end up in various “dry-stock” shops whose main concern is with the sale of bird-cages, budgerigar seed.



European  
terrapin  
(*Emys  
obicularis*)

household, garden fertilizers and tools.

In the midst of this agrarian assembly and usually afforded pride of place in the centre of the window display, can be seen a couple of dozen wretched "American turtles"—most of which are destined to perish from sheer starvation within a few months. The fortunate few who escape this fate are, in fact, purchased by aquarists and vivarium-keepers, but what of the hapless residual victims? These victims are most commonly the Florida painted terrapin (*Cheyemys picta*), and the elegant terrapin (*Pseudemys scripta elegans*) whose attractive appearance with bright grass-green carapace and scarlet "ear" spot, is directly responsible for its misfortunes. Let us pursue to the end the dismal litany. Once again the diabolic influence is strikingly impersonal.

"Mum, can I have one of those?" If mum or dad is in agreement, then a sum of money, rising upon the surge of the financial tide—say something between three and five half-crowns at the time of writing, will be expended toward securing the miserable extinction of one of the more worthy remnants of American development.

"What do they eat?" earnestly enquires the child who, incidentally, is probably the least diabolic link in this pathetic chain of events.

"Oh! Anything—we sell packets of turtle-food."

Once again, the proprietor or the assistant is merely stating what he or she believes to represent the facts. May we, perhaps, forgive them for not having encountered these facts? Desiccated *Daphnia* and dried flies are about as useful for maintaining healthy terrapins as a diet restricted to cornflakes would be to the child. "Baby" terrapins thrive upon a diet of living *Daphnia*, together with small water-snails, water-boatmen, caddis-fly larvae, may-fly larvae, dragon-fly larvae, may-flies, gnat-larvae, freshwater shrimps and tadpoles. They will also accept most smooth caterpillars and crane-flies.

These are, of course, purely natural resources which are not readily available to city-dwellers. Substitutes are, however, generally to be found; but do, please, beware of relying too extensively upon one particular food-form to the exclusion of all others. The weekly expenditure of a shilling will, I know, procure a writhing mass of *Tubifex* worms but this in itself is not the answer although it is an excellent stand-by.

The recommendations which follow may be taken as applicable to all young specimens of the aquatic chelonians, excepting the marine forms—the true turtles.

#### General Considerations

(1) Avoid over-crowding; two or three vigorous, healthy, individuals will provide adequate enough return for your care and attention; a dismal, dwindling dozen, too competitively engaged in scrambling for the choicest morsels to permit the survival of the least successful, is no credit to any enthusiast.

(2) Depth of water: The requirements of species vary a little in respect of this factor but the main consideration here is not to over-do it. All very small terrapins like really shallow water and are perfectly content with an inch or two.

(3) Temperature: This is a factor which varies more

widely and for this reason it will be referred to again under the specific notes which follow, but it may be generally observed that if the specimens have been feeding well upon a judiciously varied diet, no very high temperatures are required.

Healthy terrapins—even from really hot localities—customarily withstand considerable variations in temperature largely because many of them inhabit extremely shallow water; but immature specimens can never survive frost. Therefore, attempt to maintain an average temperature of around 70°F., but do not panic if the vicissitudes of the local electricity board defeat the capacity of your heater to cope with a sudden temperature drop. It takes quite a long exposure to water below 50°F. to harm well-fed active terrapins—even those from Florida and South America.

Apart from simple starvation, the most formidable killer in this country is pneumonia. The first indication that you may perceive of this infection is "bubble blowing". Of course, all aquatic reptiles blow bubbles from time to time when swimming under water, particularly when approaching the surface, but when a specimen reclines upon the "land" and continually produces mucus bubbles from the nostrils, then the prognosis is grim and immediate steps must be taken to deal with the invading pneumococcus.

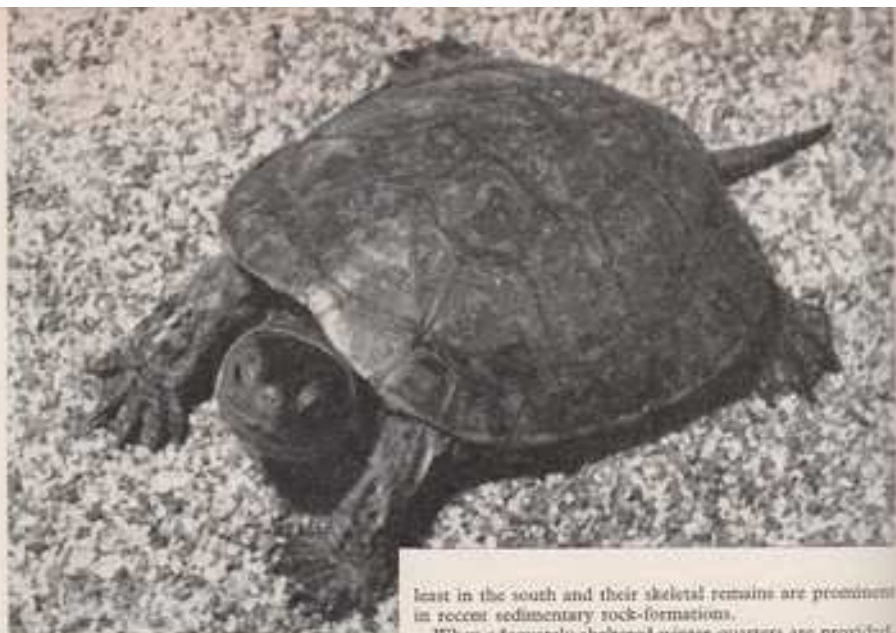
This condition is contagious and calls for isolation and any individuals who are involved must be removed at once from the primary tank and placed into one in which the temperature may be conveniently raised to 80°F. or even more, if necessary. If the afflicted creatures are not already moribund and were, prior to the attack, active and vigorous, you have an excellent prospect of effecting a cure.

Recovery from such an attack is often facilitated by oral administration of penicillin, but this calls for a considerable amount of persistence and manual dexterity in order to ensure that the pill actually finishes in the oesophagus and not in the trachea. The smaller the subject, the greater the difficulty which will be encountered in restraining the creature from retracting the head within the shield of the carapace and plastron and if the patient is sufficiently resistant to this enforced dosage, I usually conclude that it has enough strength left to fight off the encroachment of the pneumococci without recourse to these emergency measures.

The group that is most subject to respiratory ailments is that one which is known to the Americans as "sliders". The most commonly-imported of these being the already mentioned Painted Terrapin (*C. picta*) which, together with two nearly related genera, the map turtle (*Graptemys geographicus*) and the false map turtle (*G. pseudogeographicus*) are all very similar in their requirements. (Note the American habit of grouping all non-terrestrial forms under the all-encompassing term of "turtle").

Whilst we are dealing with the most freely obtainable of the new-world forms, it will be cogent to mention that these American terrapins customarily include a fair percentage of vegetable matter in their diets. They all take duck-wood and, for that matter, sometimes even lettuce!

Spanish  
terrapin  
(*Clemmys*  
*leprosa*)



Now let us examine the requirements peculiar to the more familiar terrapins of Europe. Strictly speaking, there are three of these, if we include the Caspian terrapin (*Clemmys caspica rivulata*). However, it is a matter of opinion, based upon purely taxonomical tenets, whether you recognize the two forms of *Clemmys* as separate species and I do not here propose to discuss their specific validities.

I do not think that the form *C. caspica rivulata* which is typical of Asia Minor and the Balkans, is likely to become available through the usual channels but its requirements are generally parallel to those of the more readily obtainable *Clemmys leprosa* from Spain and North Africa.

The third European entry is, without doubt, the most hardy of the lot. This is the well-known European pond tortoise or mud terrapin (*Emys orbicularis*), and it presents no special problems—save, perhaps, that of mere retention for they are great escapers. This aspect has reference rather more to the maintenance of outside enclosures, and to free-range individuals within enclosed gardens. They are extremely agile and will leave the water willingly in order to wander at large. Fences that they cannot surmount they will burrow under, and any attempt to restrain their roving proclivities by means of small-mesh chicken-wire, are destined to be defeated sooner or later unless an overhanging rim is provided around the inner-side of the enclosure.

This hardy terrapin ranges from North-west Africa, through Central and Southern Europe into Western Asia. It is well represented in Southern and Central Germany, and indeed ventures into North Germany but it is not common there.

It is scarcely strange that these reptiles do well here under natural conditions during the summer as, in times past, they were certainly in residence in these islands, at

least in the south and their skeletal remains are prominent in recent sedimentary rock-formations.

When adequately sheltered winter quarters are provided, this species may be allowed to hibernate outside. Remember, please, that hibernation is a reaction to consistent low-temperature, and that it is not seasonal in any other sense.

Reptiles do not attend upon their seasonal release from the competitive struggle for existence in the temperate zones. They merely re-act, quite impersonally, to the impact of frigid conditions. Their normal experience, in these circumstances is, that as the available food-supply diminishes because of the overall temperature drop, the lower bowel expels any detritus which may remain subsequent to the last meal taken, and that as there has been no renewal of the digestive cycle, no further reserves of energy (apart from the store of glycogen) remain to be tapped.

This "state of being" triggers off the seclusion-seeking reflex and, according to the specific (and purely genetically controlled) requirements, the individual reptile will recourse to the particular style of retirement which has, for millions of years, served to promote its species' survival.

For those enthusiasts who propose to induce the state of hibernation, this particular terrapin is ideal and it is evident by now that it would be a gross mistake to feed the subject right up to the moment of incarceration in the prepared winter quarters. If the specimen, or specimens, have been feeding well during the foregoing summer, it is merely necessary to discontinue feeding during the late autumn and when the average outside temperature has fallen below 45°F., to provide a suitable box, half-full of dead leaves, peat, or even damp newspaper, and to place the subjects therein on top of the offered material and then leave it to them to bury themselves.

When they have done this (remember that they may prove somewhat intransigent at the outset but sooner or later, if escape from the confines of the box is prevented, they will react quite automatically as the stimulus is excited) all that remains is to pack them away in a cool place and leave them undisturbed.

# The gold-line catfish

by Philip Bratley



*Corydoras aeneus*. Is *C. auratus* a sub-species of this popular scavenger?

THE *Corydoras aeneus* is a very popular and useful scavenger which has been imported in large numbers during the past few years. The *Corydoras* family inhabits the northern half of South America and is found in large numbers in Brazil.

When the family was first discovered it was known as *Panzerwels*, meaning plated or armoured catfish. Since then these fish have been known as Brazilian catfish, Mailed catfish and *Gesundheitspolizei* (by the German aquarists), meaning the sanitary squad.

The coloration of *Corydoras aeneus* is very similar to that of *Corydoras aeneus*, the main difference being that in *Corydoras auratus* a prominent gold line stretches from just behind each eye to the caudal peduncle. The basic body colour is bronze, gradually changing to light cream on the ventral side.

The colour similarities have led to the proclamation by some of the American ichthyologists that *Corydoras auratus* is just a colour variation of *Corydoras aeneus* and should therefore be regarded as a sub-species of the latter. Although this theory is also supported by the similarity in behaviour of the two fish, there is still much speculation as to the validity of the theory.

The *Corydoras* are easy to keep because they are hardy and will eagerly accept almost any food. They are very peaceful whilst at the same time they are rarely attacked by bigger fish because of their armoured protection. This consists of hard plates which replace the scales present on most other fish. The *Corydoras* could really be regarded as the *Armadillo* of the fish world.

Breeding these fish is much easier than most people think and I find it surprising that so few have been bred.

I am convinced that it is essential to begin with young fish and rear them under standard conditions which are hard water, a temperature of 72°F to 74°F, and a well planted tank with plenty of loose mulm on the bottom. The mulm is very important because it harbours food for which the fish search—this ensures the development of strong barbels.

I conditioned the fish by feeding them on *tubifex* worms, whiteworms and chopped earthworms. The pair are kept separate and after two or three weeks the female becomes more robust than the male. This is the best method of sexing the fish although some people claim the sexes may be distinguished by the shape of the dorsal fin, the female's fin being rounder. In practice, however, I find this method is most unreliable.

As the spawning time approaches the female takes on a reddish hue on her ventral side. The pair are then placed together in a clean tank about 18 in. x 12 in. x 12 in. in size. Spawning usually takes place within two or three days at a temperature of about 78°F. The eggs measure almost 2 mm. in diameter and are an opaque white colour. They are laid in groups of four to five and may total three hundred to four hundred per spawning. Even when *vallisneria* plants were provided my pair always laid over 80 per cent. of the eggs on the side of the tank near the water surface. Some of the eggs are usually laid just above the water surface.

I removed the parents although they do not appear to damage the eggs. It is good practice to add a little methylene blue to prevent fungus from spreading and to supply aeration which oxygenates and circulates the water.

At a temperature of 78°F the eggs hatch in less than three days and the fry soon begin to look for food. This may be provided in the form of liquid fry foods and very fine grade dry foods made into a paste which sinks quickly. The young have hearty appetites and many are lost through underfeeding. They grow rapidly and lose their shyness after two or three weeks. When a month old they are able to eat micro-worms, two weeks later they will eat grindal worms.

#### CORRECTION

All about tropical fish advertised in the December issue at 84s. should read 85s



## our readers

Readers are invited to express their views and opinions on subjects of interest to aquarists. The Editor reserves the right to shorten letters when considered necessary and is not responsible for the opinions expressed by correspondents.



# write

Address letters to The Editor, *The Aquarist*,  
The Butts, Half Acre, Brentford, Middlesex

### Varying Fish Prices

LATELY I have observed in the pages of your magazine, articles and readers' letters, complaining about the price of fish foods. From advertisements in the magazine, offering tropical fish for sale, it would appear that the British aquarist has cause for complaint on this point as well.

Here in Germany, nearly all fish travel the same path to the aquarist as they do in Britain, though obviously their journey will be a few hundred miles longer or shorter depending upon whether they come east or west. But prices vary wildly! Some examples follow (I have converted from DM's to £+d at the standard rate of 1s. 8d. = 1 DM).

Gr. Britain	Fish	Germany
14s. 0d. pr.	<i>Aphyoseion australe</i>	7s. 6d. pr.
3s. 0d. pr.	Standard Guppy	10d. ea.
7s. 6d. ea.	<i>Apistogramma ramirezi</i>	2s. 0d. ea.
3s. 6d. ea.	Neon Tetra	2s. 0d. ea.
10s. 0d. ea.	<i>Corydoras Julia</i>	4s. 10d. ea.

I can supply many more examples if required. Some fish, such as Harlequins, Penguins, most Barbs and most characins are similar in price here as in England. The only fish I know of which is dearer here is the Siamese Fighter, but only by a few pence.

Who is to blame for the vast difference in prices over here?

Yours faithfully,  
B. LEIGERTON,  
Cpl. R.M.P.

### Example

RECENTLY I attended the annual open show of the East London Aquarist Association, held at the School in Ripple Road Barking on 15th October, 1966.

Here I found a show with a difference; thirty-eight furnished aquaria with nine clubs competing; all the entries were of breeding classes and these were not in the usual classes of species, but in difficulty-of-breeding classes.

Completely absent were single fish. The show secretary told me: "Our annual show is for aquarists and if a person has bred one good fish, he or she should have four. There is no fun in showing a fish that has been bought."

And having had time to think about it, I feel I must agree for singles can always be shown on ordinary club night

table-shows, which I suppose are held.

What a pity some of the other London shows don't try something similar; it would certainly put a brake on the single fish Pochunter.

All the very best East London, and may your next show be bigger and better.

Yours sincerely  
MRS. L. ENGLAND,  
Dagenham, Essex.

### Know Your Fish

AT the recent Kingston A.S. Open it was announced that a F.B.A.S. Diploma was to be awarded for the best killifish or egg-laying toothcarp. Accordingly this class attracted 37 entries, first place going to a fish entered as *Fundulus clypeatus* with 91 points also meriting a F.B.A.S. Gold Star.

The judge for this Class was Mr. A. Brown of the F.B.A.S. and I do not dispute his authority to judge fish. What I must quarrel with is his authority as a judge of fish. The fish entered as *F. clypeatus* was in fact *F. heteroclitus* and these two fish are as similar as a Tiger Barb is to a Cherry Barb.

If Mr. Brown had been in any doubt as to the correct identification of the fish he could have asked for the assistance of the other judges present, members of the British Killifish Association, or the assistance of the Kingston A.S. Show Secretary who is also a member of the B.K.A.

The fish benched was at the most 3 in. in size, a magnificent specimen for *F. clypeatus* but compared with the 6 in. of *F. heteroclitus*, only a tiddler. Thus if one assumes 20 points maximum for size it is hard to justify 91 points being awarded.

I would suggest that the day is not too distant when the B.K.A. stages its own section at Open shows as at the recent Midland A.S. Show and as the various Guppy Federations do now.

The days when the egg-laying toothcarp class consisted of a *linnaeus* or Florida flag fish with an occasional Lyretail are over. Judges must appreciate this and either keep up to date fishwise or not attempt to judge fish they obviously know nothing about.

Yours faithfully,  
JOHN OPEN,  
London, S.E.22.

THE AQUARIST

### The "Midland Open"

IT has been my pleasure, together with countless others, to attend for several years now (both in the capacity of exhibitor and visitor) the Annual Show of the Midland Aquarium and Pool Society held in August of each year at the Bingley Hall, Broad Street, Birmingham.

It was with regret, therefore, that I learnt recently of the resignation of their excellent Show Secretary, Mr. J. Edwards, due to professional and family commitments. I would be very grateful if, through the medium of your widely-read publication, I might extend, principally on behalf of my Society, but no doubt on behalf of many enthusiasts throughout the British Isles, our sincere best wishes to Mr. Edwards for his future good health, happiness and prosperity, and trust that the "Midland Open" will go from strength to strength.

Yours sincerely,  
M. J. PARRY,  
Show Secretary,  
Newport A.S.

### Calling New Members

OUR club has now been going since May and we have built up a keen membership of about a dozen people. Sometimes this number drops at our meetings and it becomes hard to keep the interest going with too few members.

Therefore we ask if possible, through your magazine, for aquarists or prospective aquarists who live in the Rushampton, Putney, Barnes, Richmond or Wandsworth areas to contact me as acting secretary as our former secretary Mrs. V. Sinden has resigned through illness.

We now meet fortnightly on Wednesday evenings at the Rushampton Tenants Association Club in Pleasance Road Putney.

Hoping you can help us in increasing our membership.

Yours Sincerely,  
J. A. WALLER,  
London, S.W.15.

### Blanket Weed

I FEEL that other aquarists may benefit from an unfortunate incident which happened to me recently. Blanket weed a fine cottony substance that grows over plants in an aquarium, is well known for the strangling effect that it has on the plants. Less known is the fact that it can be a danger to fish.

I lost a yellow platy in a community tank through its becoming entangled and unable to get out.

It is more so a danger in the breeding tank: I lost some baby mollies in a tank of mine. I suppose they must swim into it and be unable to withdraw as the threads catch in their gills. It may be possible to lose a large part of a brood in an overgrown tank.

Yours sincerely,  
YVONNE BONTRAS (11),  
Ealing, London.

### More about pH

IN P. S. Mackinnon's letter (*The Aquarist*, October 1966) he states that "the pH stands for the potential hydrogen in a solution" but I venture to suggest that this is neither correct as an explanation of the letters themselves nor truly descriptive of the conditions evaluated. One may hear the letters pH translated as percentage of hydrogen, palpable (i.e. certain or obvious) hydrogen, particular (i.e. special, separated or dissociated) hydrogen and now Mr. Mackinnon's potential hydrogen, yet I think it will be found that as explanations of the letters themselves we are

permitting our insular prejudices to reign supreme, for all assume that the letters represent English words. My belief that this is not so rests upon the authority of John Sankey (*A Guide to Field Biology* 1958), who states that the author of the term was S. P. L. Sorensen (in 1909) and that the letter p of the symbol is the initial letter of the German word "partialdruck", meaning partial pressure.

From this it would appear to follow that, in rendering these letters into English and in order to provide some kind of explanation of the meaning underlying pH evaluation, it would be best to accept the expression "particular Hydrogen".

I have not yet been able to establish the work indicated by the reference S. P. L. Sorensen (1909) and would be interested to know if any reader can enlighten me on this point.

Yours sincerely,  
H. J. VOSE, London, S.W.16.

P.S. In the final paragraph of the letter mentioned above it is stated that acids in solution ionize to yield hydrogen ions (H+) whilst alkalis yield Hydrogen ions (OH-). Is this a misprint for "... whilst alkalis yield Hydroxyl ions (OH-)"?

### Calling all Betta breeders

MAY I through your magazine help an American pet friend who is desperately searching for Betta breeders in England with a view to sending fish to America by an exchange or buying process.

His letter reads: "I would be especially interested in Black/Yellow split tail or clear fin type Bettas. I am also interested in good red-blue-green fish."

His address is: Robert de Orio, 2, Washington Square, Larchmont, New York.

Yours Sincerely,  
M. E. PERRY, Leicester.

### Price Increases Explained

IN recent weeks we have received several letters from aquarists complaining at price increases effecting our "Vivo" water rejuvenator and our White Spot Remedy.

The general tone of these letters suggested that we or their dealers "were out to make a fat profit". To be fair, the increases were admittedly large enough to create this impression and doubtless there are many users who may have had similar thoughts.

For the justification of dealers and ourselves we would like to explain the circumstances. These two products are made up in tablet form to our formulae by Britain's largest manufacturing chemists. They have supplied us for some 10 years at prices which have remained unchanged until April this year when they advised increases approaching 200% arising from the use of certain ingredients now in world scarcity.

Our immediate reaction was to examine means of minimising the effects of same, but it was mainly from reduction of our own margin that we were able to prevent the increase from doubling our previous prices. In fact, we absorbed over half of the increase.

Unfortunately, at that time we were notified by Customs and Excise that "White Spot Remedy" was to be treated as a medicine and therefore subject to Purchase Tax. This added 9% to the retail price.

In conclusion may we say that we have had very few price increases over a period of 20 years, most prices having remained at the same level as when introduced, thanks to increased productivity. We prefer it this way. Unhappy customers do not lead to good business.

Yours faithfully, for and on behalf of  
SINGLETON BROS. (ELECTRONICS) LTD.  
V. J. Singleton, Director.

# Three new killies for the aquarist

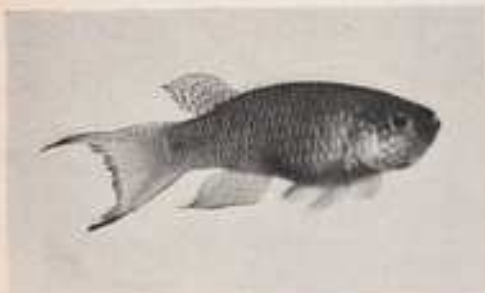
by T. Payne (Photographs by T. and K. Payne)

THE British Killifish Association, an association that deals solely with the care, breeding and preservation of species of Tooth-carps, has, since its formation just over twelve months ago, and through its members, imported many new and interesting species never before seen in this country. Some of the species have only been known by ichthyologists and collectors, the description having been taken from preserved specimens and these finding their way to museums throughout the world, only to be forgotten and never introduced to aquarists.

Now, through the B.K.A., many of these have come to light and are being bred by aquarists in different parts of the world; many, in fact, are firmly stabilized by people in this country, such as *Epiplatys anulatus*, *Aphyosemion*



*Aphyosemion apurreli*



*Rachovia brevis*

bodied variety. The pelvic fins are large and paddle-shaped as the fish buries its eggs in the soft mud at the bottom of pools in parts of Venezuela.

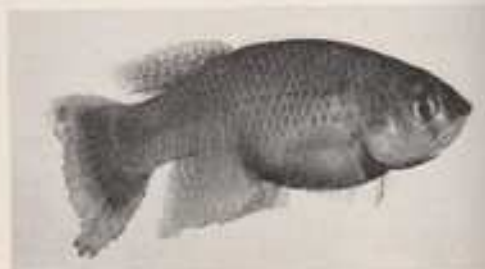
As these are annual fishes, in the wild they live for around eight months, but in the aquarium they are being kept for well over twelve months or as long as one would keep the normal livebearers and the like. They will take most living foods and do not demand too high a temperature being quite happy at 65°F to 72°F. Growing to three inches, this species differs from its relative *Austrofundulus nyeri* which comes from around the same areas.

***Aphyosemion spurralli***. Discovered by Dr. H. Spurrall and classified by Boulenger 1933. Discovered as far as is

Continued on page 222

*exiguum*, *Rivulus peruanus*, *Procatopus nanaensis*, *Rachovia brevis* and many many more. Three most interesting that come to mind are *Austrofundulus transitii*, *Aphyosemion spurralli* and *Rachovia brevis*.

***Austrofundulus transitii***. A South American annual is widely used as a mosquito control species introduced to waters that dry up during the hot seasons. This species is being propagated by members in the United States and members in the Midlands. As with most Killies, the male is the most colourful; the basic body coloration is pale blue, with a darker blue mottled pattern, the most striking colour being in the caudal fin. This fin is large and powerful, with extensions and it has a broad band of brilliant red, as red as one sees in *Labio bicolor*. This is a short deep



*Austrofundulus transitii*

## Ambitious landscaping programme



The river-pond flowing from this source to the large lake which is over 150 yards long

**A**N ambitious ten-acre landscape gardening scheme which included the construction of the largest inter-connected, lined ornamental lakes ever made in this country has just been completed at Ambassador College near St. Albans, Hertfordshire. The undertaking included contouring the ground (involving the transplanting of several fully-grown trees and shrubs) the laying of lawns, the formation of rock outcrops and the construction of waterfalls, rockeries, roads, paths and a stone footbridge.

Ambassador College is a residential ecclesiastical college and the work was commissioned by the Governors to provide a suitable background for the students for recreation and contemplation. The scheme, which transformed what was virtually rough scrub land into a gracious and appropriate setting for the College, was designed and carried out under the supervision of Mr. F. W. Vanstone, Managing Director of the well-known landscape architects, Vanstones (Much Hadham) Limited of Codicote, near Hitchin, Hertfordshire.

### PREPARATION OF THE SITE

It was necessary to prepare the site very much in the same way as for cutting a major road through rough countryside, excepting that it was desired to preserve several fine trees and ornamental shrubs which lay in the course of the lakes. The work of site clearance began last year, using large earth-moving equipment, including a D.8 Caterpillar and Scraper and a B.D.T. Drott for grading. The grass was first stripped off and some 12,000 cubic yards of topsoil were removed and put to one side for contouring the ground at a later stage. The trees and shrubs were removed with expert care, ready for

transplanting in their new positions. For excavating the centre of the lakes, a 22 R.B. Power Shovel and Dragline were used.

### THE LAKES

The major feature of the scheme is the series of inter-connected lakes. These are at three different water levels, covering a total area in excess of 3½ acres and containing approximately 4 million gallons of surface water. They are fed from land drainage and circulation is by means of an Alcon pump. An underground pipe and drainage system carries overflow water to a nearby stream. From the source, in wooded ground, the water flows, over a series of miniature rapids, into a river pond, whence it is carried underground into the largest lake, which is over 150 yards long and has a maximum depth of 14 ft. From this lake, it flows under a stone footbridge and over a waterfall into the smaller lake.

During excavation for the water course and lake basins, more than 40,000 cubic yards of earth were moved, and redistributed to provide a pleasantly undulating landscape. While earthmoving was in progress, 140 tons of specially selected Westmorland stone were brought to the site and were used in the construction of the footbridge, rockeries, waterfalls and river-bed and at the sides of the rivers and lakes to create a natural effect.

### THE PROBLEM

The main problem in the construction of the lakes was the fact that the site was on highly porous soil. Some

Continued on page 221



# The Junior Aquarist

Zebra fish

## A look at Danios

by M. J. Parry

THE Danio family is popularly represented in the aquarium by 6 species: the Zebra fish (*Brachydanio rerio*), the Pearl Danio (*Brachydanio albolineatus*), the Spotted Danio (*Brachydanio nigrofasciatus*), the Leopard Danio (*Brachydanio frankei*), the Giant Danio (*Danio malabaricus*), and *Danio devaris*, a species which as yet, does not seem to have been endowed with a common name. The family is native to Burma, parts of India, the Malay Peninsula and Sumatra, where they inhabit both standing and fast-flowing waters with high oxygen content. They are strong, active, amiable and graceful fishes, continually on the move. Two pairs of barbels (somewhat indistinct) are present.

The Danios are exclusively surface-swimming fish, taking their food from the same level. In their native haunts flies, mosquito larvae etc., form the greater part of their diet, though such foods may be replaced in aquarium captivity by the normal finely-ground brands of dried food, which they readily accept. Chopped *tubifex*, whiteworm etc., form additional acceptable foods, and as a supplement to *daphnia*, will do much to keep the fish in good health. Life span can, under good conditions, be anticipated as upwards of 1½ years.

Information on the procedures and necessities for the successful spawning of the danio family will not be regarded by the experienced aquarist as being sensational or necessarily progressive. The breeding of the Zebra fish (*B. rerio*) in particular, however, is looked upon as being a stepping-stone and the next rung on the ladder above the breeding of the common livebearers before the attempting of any of the more difficult species of egg-scattering or egg-dropping fish.

Although the family are ready breeders it will be found a wise policy to separate the chosen pair to isolated aquariums for a period of approximately 7 days, where they should be conditioned on such foods as *daphnia* (in particular), chopped *tubifex* and whiteworm and, if possible, shredded earthworm. Sexes are identified by the plumper appear-

ance of the female over the slimmer male.

Two methods for the successful spawning of the Danio family are commonly used, a tank sized 12 in. x 8 in. x 8 in. being ideal with both methods. Undoubtedly the most popular method is one using glass marbles, placed in two layers and evenly distributed over the aquarium bottom. No aquatic vegetation will be found necessary.

Both fishes should be introduced into the breeding tank late in the evening in order to rest before the rigours of spawning which usually occurs around dawn of the following day. The actual spawning act is denoted by wild skirmishes around the aquarium, the male chasing a fleeing female who at intervals of between 30 seconds to 2 minutes, expels her eggs which are immediately fertilized by milt ejected by the male. The semi-adhesive eggs pass between the crevices of the marbles and become safe from the parents who are avid egg-eaters. Upon termination of spawning, which will be evident from the much slimmer body of the female, both parents should be removed. Hatching occurs within 36-48 hours, the fry becoming free-swimming on the fourth day upon which the first feeding of infusoria (or a suitable substitute) should be given. This, in time, should be replaced by other fry foods including brine shrimp nauplii, micro worm, finely sifted *daphnia*, etc.

The alternative method of breeding Danios is with a set-up similar to that used for breeding barbs or characins, the aquarium being thickly planted with such plants as *cabomba*, *nitella*, *Elodea densa*, etc. (See—Fishes of the Characin Family, *The Aquarist*, March, 1956).

## Siting your aquarium

by B. Whiteside

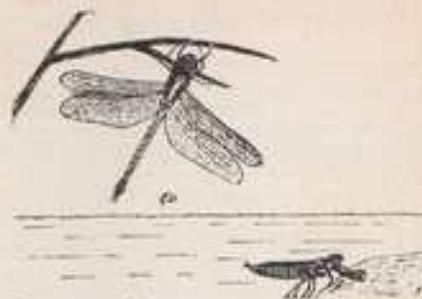
THERE are probably two main factors which govern whereabouts your aquarium will be placed in the house. The first is the most suitable place for the aquarium as regards access to water, electricity, etc. The second factor depends upon where other members of the aquarist's family will permit the aquarium to be placed.

Having kept aquaria indoors in many different sites, I

finally settled for placing them in a corner of a room beside a window. In this position the tanks do not receive direct sunlight, hence electric lighting can be controlled exactly. I have found that a movable mirror placed opposite to the window can be used to direct the sun's rays into aquaria through the front glass. Although light entering the tank from the front is unnatural, it is a cheap method of lighting aquaria on a sunny day. One disadvantage is that the sunlight loses some of its quality after having passed through the window pane, being reflected by the mirror and passing through the front glass of the tank. Its advantages are that plants tend to grow towards the front glass, thus being better displayed to the aquarist, and some fish, e.g., neons and cardinals, are seen to advantage when lighted from the front.

Finding a place on which to put such items as fish food, or pump, etc., is solved if a tank is placed beside a window. Such items can be placed on the corner of the window sill and are concealed by the curtain. As the photograph shows, the only part of the external aeration system visible is the air line coming from beneath the curtain. Notice that the ends of the tanks are covered with flaps of paper hinged at the top. This allows the tank to be viewed from the side when needed, but keeps stray sunlight out of the tank and also prevents stray light from the hood from distracting the viewer at night.

Should you not have a convenient window sill on which to place your air pump you could probably make, or have made cheaply, a useful little holder consisting of a piece of bent, light metal sheeting—preferably aluminium. This is hooked over the top edge of the tank frame and can be placed at the side or back of the tank, whichever is least conspicuous and provides enough room.



## *Anax imperator*

by F. Wilmott

**A** LARGE and very handsome creature, the Emperor Dragonfly is a credit to the interesting order of the Odonata.

In common with the other members of its order the nymph (the immature form) of *Anax imperator* is completely aquatic, for it breathes by extracting its oxygen requirements from the water. When the time comes for the nymph to change into the imago (the mature insect) it crawls out of the water and becomes an air-breather.

Probably the most remarkable thing about the nymphs of this order, however, is that they have all evolved a contrivance which is known to naturalists as a "mask". This mask, which bears at its end strong claws, is shot out very quickly by the nymph when it wishes to seize its prey—which is usually faster moving than the nymph itself.

Many species of dragonfly are very strong flyers and hawk-like in their attacks on their prey but, contrary to the belief of some people, no British dragonfly has a sting and it does not bite any creature larger than the insects on which it feeds. It is true, though, that if held between finger and thumb a dragonfly will bend its body forward as if attempting to sting, and it is not surprising that many countryfolk used to believe that it was in fact capable of stinging. It is also quite understandable that they should not be keen on letting the dragonfly settle the matter one way or the other!

The dragonfly nymph, in common with *Dyrisco marginatus* and its larva, can well be visualised as one of the tigers of the half-hidden world of the water insects.

I have noticed that the larger species of dragonfly often keep to a regular "beat" when patrolling to and fro in search of their prey. Also that they will return to the same perch (or one very close to it) when they require a rest.

### Win a complete tropical fish tank or £15 voucher

Do you keep aquarium or pond fish, frogs, snakes, terrapins or lizards? If the answer is yes, why not enter our competition and submit an article on how you keep your pets? The essays will be judged in three age groups i.e. those between 8-10 years, 11-13 years and 14-16 years on the 28th February, 1967.

For full details write to:

The Aquarist and Pondkeeper (Entry Form), Buckley Press Limited, The Butts, Half Acre, Brentford, Middlesex.

## Our experts' answers to tropical fish-keeping

Many queries from readers of "The Aquarist" are answered by post each month, all aspects of the fancy being covered. Not all queries and answers can be published, and a stamped self-addressed envelope should be sent so that a direct reply can be given.

Will the following fishes (in single pairs) flourish in an 18 in. by 12 in. by 12 in. tank: neon tetras, checker barbs, dwarf gouramis, flame fish and combtails?

The species listed above will live on peaceful terms with one another with the exception of the combtail. This fish is pugnacious by nature and you would be well advised to remove it from your small tank before it does harm to its occupants.

I have just bought several young *Corydoras paleatus* catfish. How can I distinguish males from females?

The sexes can be distinguished (in well-grown fish) by the beaver body (anteriorly) of the females, and the more pointed dorsal fin of the males.

Is it true that a container in which apple snails (*Amudonia*) are kept is always breeding with *Ichneumon*? Also, what is a satisfactory range of temperature for these large snails?

Provided that the snails are well fed on lettuce leaves and similar greenstuff, the water in which they are living usually contains *Ichneumon* in plenty. A temperature range of 72°F (22°C) to 75°F (24°C) is about right.

Is the firemouth cichlid (*Cichlasoma maculatum*) suited to life in a community tank?

When this species attains about 3 in. in length it is advisable to keep it out of a community tank housing smaller fishes, especially those slender enough to tempt its hearty appetite. But in a large tank stocked with fishes near enough its own size it usually behaves itself very well.

Please give me some information about the loach called *Betta loach*.

This greenish to bluish sided loach is native to Thailand. It attains a length of about 3 in., is peaceful, and flourishes best at a temperature range of 72°F (22°C) to 78°F (26°C) in a well-planted tank containing softish, neutral to slightly acid water. Almost any fish food, alive or dried, is readily accepted. So far as we know, *B. loach* has never bred in captivity.

I have just bought a very lively fish called a flying fox. Please give me some information about its requirements in the way of food, maximum size, and behaviour in a community aquarium. Also, which part of the tropical world does it occur in the wild?

The flying fox (*Hipaltorhynchus hallepensis*) is not faddy about its food but thrives best on a diet of tiny worms, gnat-larvae and shredded red meat. If live food is in short supply, then a dried food containing dried insects should be used. It attains a length of about 6 in. in the wild state and half this size in the aquarium. It will live at peace with other fishes and is found in the natural state in Thailand, Sumatra and Borneo.

Can you please tell me the scientific name, country of origin, and general requirements of an anabantid known as the sunset gourami?

The sunset gourami, or honey gourami, is scientifically known as *Codonotus albonotatus*. It was first introduced into this country from its native northern India about three or four years ago. It is easy to feed on any small live or dried food, flourishes at a temperature range of from about 72°F (22°C) to about 80°F (27°C), and, in fact, requires nothing special, except a well-lighted and well-planted aquarium and companions (if placed in a community tank) as peaceful as itself.

Is it true that frog or toad tadpoles can be kept alive in a tropical tank to eat soft algae?

It is true that tadpoles can be kept in a tropical tank to mow down growths of mossy algae.

We have a beautifully set up tropical aquarium in our lounge which we intend to paint and rewire in the near future. How can we keep the paint fumes from harming the occupants of the aquarium?

Seal the aquarium with folds of well-damped newspaper placed between the cover glass and the frame. Keep the room well ventilated and do not use any artificial aeration while the smell of paint is still present.

I read in a book that the fry of barbs grow space on phytoplankton. What is phytoplankton?

Phytoplankton is the term used to describe minute vegetable organisms that float in the water. These tiny "greens" form the food of cyclops, and the like, which are sometimes referred to as zooplankton.

I have six loaches of the genus *Betta* living together in perfect harmony in a 24 in. by 12 in. by 12 in. tank. Would a pair of paradise fish introduced into this tank do the loaches any harm?

Strictly speaking paradise fish do not make good community fish. We advise you to keep them out of the loaches' tank.

I have just bought a small Madagascar lace plant. Please give me some details as to this plant's basic requirements.

The Madagascar lace plant needs clear, soft acid water maintained at a temperature in the mid-seventies (°F). Its roots should be spread in a compost of non-calcareous sharp sand, or fine grit, mixed with some yellow loam and peat. Partial shade is recommended not only because the plant likes a soft light but because a bright light always encourages algal growths to form on the network of veins.

I have tried to keep different species of *Corydoras* catfish in my community tank, but after about six months they always go into a fairly rapid decline and die. Please can you tell me how to keep these delightful little fish alive?

In all probability your catfish die from starvation. In a community tank, most if not all the food introduced is gobbled up by the other fishes before it reaches the bottom. So to guard against the slow starvation of bottom-feeders, especially those species that prefer to feed in a fading light, or after dark, it is essential to introduce chopped earthworms, live *Daphnia*, whiteworms, and the like, after the other occupants of the tank have settled down for the night.

My mains water is heavily chlorinated. What can I do to make it suitable for aquarium use?

Heavily chlorinated water can usually be rendered quite harmless by stirring it vigorously in a non-toxic container (a plastic or heavily enameled bucket) and then leaving it to stand outdoors overnight.

I should like to keep a baby terrapin in my large tropical aquarium. What species are likely to live and do well in captivity?

The ordinary red-eared slider (*Pseudemys elegans*) and the painted terrapin (*Chrysemys picta*) will grow like mad and make knowing pets if you feed them daily from the end of a forceps with pieces of red meat, tiny or chopped earthworms and tiny strips of white fish. But when they reach a carapace length of 2½ in. or more they will become a danger to your fish. *C. picta*, in its larger sizes, is a glutton for food, and will tear a really large barb to pieces. Terrapins are best given a tank to themselves. The minimum temperature for baby terrapins is about 66°F (19°C), and they need a rock or a thick tangle of floating vegetation to sprawl on under a bright overhead light.

What thickness of glass should I use to glass an aquarium frame measuring 48 in. by 12 in. by 12 in.?

Provided you use polished plate glass, a thickness of ½ in. will prove amply strong enough.

## Coldwater fish-keeping answered by A. Boarder

In my pond I have some plants of *Eloche crispus* and Water Hawthorn. Will they come up next spring if left in the pond all the winter?

Both these plants are hardy and should grow again in the spring. *Eloche crispus* is now known as *Lagarosiphon major*.

I recently set up two cold water tanks and bought some fantails and orandas. I now notice that some of the fishes have small white spots on their fins and they are mooping. What is the trouble and the cure please?

From your description it appears that the fishes are suffering from an attack of white spot disease. It is not easy to cure coldwater fishes, as the trouble is caused by a small parasite which develops under the skin of the fish and when this is complete it drops from the fish, encysts on the bottom and fresh free-swimming parasites emerge from such cysts. The development is hastened by warmth and so in cold water this will take much longer than if the tank was a heated tropical one. The parasites cannot be killed whilst they are under the skin of the fish and so the best way to attack them is when they are free-swimming before they find a host. Various chemicals have been used and one of the most popular is Methylene blue. However, it is possible to clear the fishes of the pests by a process of removing the fishes from one tank to a fresh, clean one every day. This means that the cysts are washed away before the new parasites hatch out. Over a period this method clears the fishes.

My pond fish are suffering from a bad attack of gill flukes and fish lice. How can I rid the fish of the pests?

The fishes should be immersed in a solution of a quarter teaspoon of Detrol to a gallon of water. You must only leave the fishes in for five minutes and watch them all the time and remove them immediately if they turn over. They will soon recover when returned to fresh water.

I have a large plastic pool in my garden with 50 golden orfs and the water is very green. Will any form of filtration clear the water?

The pond, 20 yards by 10 yards, is a large one and so filtration would be a major problem. As the pool has not been made very long it is probable that the water will mature and become clearer shortly. Most ponds clear well once the colder weather sets in. The algae which forms in the strong light often dies down at the approach of winter. A good crop of healthy water plants usually helps to keep the algae from getting out of hand.

I have a flourishing pond with various types of goldfish. I have been feeding them on all forms of fish food, dry and live. I have now been informed that I should stop all feeding for the winter. I have consulted several books and they vary in their advice. Do I stop all feeding and if I do when do I restart?

The feeding of fishes depends on several factors. In a pond, on the number of fishes in proportion to the amount of water. Also on the sizes of the fishes as well as the temperature of the water. Again if the water does not contain plenty of oxygen the fishes will not be able to eat and digest their food properly. As the water gets colder at the approach of winter the appetites of the fishes will decrease and they need less food. In a well planted pond it is possible for goldfish to go through the winter with no artificial food at all. However, this does not mean that they will not eat, as I have had fantail goldfish take garden worms when there is ice on the pond. Any food eaten during very cold weather is likely to take longer to digest than when the water was warmer. In most winters there are spells when the temperature rises considerably and at such times it is possible to offer a small amount of food. I suggest that broken garden, or white worms only, are offered. Watch to see that any given are eaten and never give more than they will eat in a few minutes. As a general

rule it will be found that they are not interested in food when they are very sluggish but only when they move around, apparently in search of food.

I bought four goldfish about four weeks ago and they appeared healthy. I had trouble with my tank and when I was repairing it I moved my fishes about. Since returning them to the tank I have noticed what I think to be fungus on parts of them. Was this caused by moving?

The fungus was probably caused by careless netting or handling of the fishes. These are covered with a protective mucus which if broken or deranged can allow the spores of the disease to enter the skin of a fish. The usual salt bath treatment should soon cure the fishes but be careful in future when moving them around.

I have recently built a concrete pond and have tried twice to keep goldfish in it but they have died in a day or two each time. What can be the reason?

There may be lime in the water from the fresh concrete and this could be dangerous. If the water came from copper pipes this could also be a danger. However, this copper question is not an easy one to account for as many pondkeepers have to use water from copper pipes and appear to get by without trouble. On the other hand I have had specific cases where fishes have been killed when water has run continuously through copper pipes, especially new ones. If one has to use water for fishes from copper pipes it would be well to run off any water which may have been in contact with the copper for some time and then use the fresh which only passes over the copper rapidly. If no copper has been in any way to blame then empty your pond, scrub it round with a stiff broom, refill and leave for a few days. Then repeat the process and the new water should be safe for fishes. Remember the deeper the pond the less will be the concentration of lime in the water.



Water-hawthorn



# The Veiltail goldfish

by A. Boarder

THE Veiltail is considered by many aquarists to be the most handsome of the fancy goldfish. A well-shaped and coloured fish is extremely attractive but unfortunately very few good ones are seen at exhibitions these days. For a few years after the last war it was possible to come across several very fine specimens and I well remember when judging at some of the Priem Barnet shows seeing some splendid specimens.

It is rather a mystery as to where all the fine stock has gone and it may be that breeders are uncertain as to what standards to breed to, as there have been differing types described by various changes in classification. The Veiltail should have a body approaching a sphere; that is, it should be much deeper than that of the Fantail, which has an egg-shaped or oval body. The deeper the body the better is the specimen but some of those often seen have a hump-backed appearance due to the fact that the head does not flow into the body without a severe break in the curve.

The outstanding feature of this fish is the tall or caudal fin. This should be broad, at least as long as the rest of the fish, falling into graceful folds, like drapery. The edges of this fin should be as straight as possible, not forked as in the Fantail. It should be completely divided and the anal fins should also be double. The dorsal fin should be erect and at least as high as the depth of the body, and broad. The pectoral and pelvic fins should be long and pointed.

The colour of the calico type should be as for the

shubunkin; blue, violet, yellow and brown with a scattering of black markings. A scaled type is recognised and can be entirely rich red or chrome yellow. A variegated type is also recognised and is to have two or more colours in pleasing pattern, whatever that might mean.

I do not agree with these standards for the Veiltail, as I consider that all exhibition fishes should be calico and not visibly scaled. The standards of the Federation of British Aquarist Societies state that the Veiltail must have a caudal fin which is flowing and falling like drapery. How is it possible to obtain a scaled type of fish to have such a finnage? The whole make-up of a scaled fish is including stiff types of fins and it is not possible to get heavily scaled fish with soft, flowing finnage. In my opinion the Veiltail should always be calico and never scaled. I would like to see the Fantail exclusively scaled and not calico as is often seen these days. Such fishes are so often the results of mis-shaped Veiltails and as such are throwouts.

Under the 1947 standards the points could be altered so as to reward the special features asked for in the Veiltail, for instance 35 points could be given for the caudal fin alone and with this I am entirely in agreement as after all this is the outstanding feature and should be rewarded so much. The body had 20 points for the scaled type and 15 for the calico, whilst the colour for the former had 10 points and the calico 20.

Continued on page 20



A beautiful specimen of a Veiltail goldfish.

## Around the aquariums

by Mike Sheedy

**A**N attractive and interesting exhibit recently established in the Marine Hall of the Aquarium at the London Zoo, takes the form of a miniature coral reef, where live corals are displayed for the first time along with various species of gay marine tropical fishes and sea-anemones. These animals are notoriously difficult to establish in aquaria and success depends largely upon having a balanced population of the species which live in close association with one another.

Two examples to be seen in the tank of marine animals which live in harmony with one another are the gaily coloured, blue and orange Anemone or Clown Fish which swim freely amid the waving tentacles of their "home" sea-anemones, and the blue and black Cleaner Wrasse, which "dances attendance" on the other fish in the tank, picking off loose particles of skin, food waste and parasites from their bodies. The tentacles of the sea-anemones are studded with sting cells which are lethal to other small fish and it is believed that the Anemone-fish avoids this hazard by producing a mucus secretion preventing the anemone from discharging the sting-cells.

Other fish in the exhibit, which all came from Malaysia, are the strange-looking orange and white striped long-nosed Butterflyfish, the deadly Stonefish and the Pygmy Cardinal Fish, so called because of its striped and spotted markings.

★ ★ ★

Six baby Rat-Snakes have been hatched "behind the scenes" in the Reptile House in an improvised incubator at the London Zoo. It is the first time that this non-venomous species from the U.S.A. has been hatched at the zoo, and the youngsters, which are now about one month old, are doing well and growing rapidly. When hatched from the white parchment-like eggs they each measured about 8 in. in length and the largest now measures nearly 14 in., and will grow to between 4 ft. and 5 ft.

★ ★ ★

Aquarists living in or around the Sheffield area might like to know that John Hutchinson, The Walkaround Pet Stores, The Wicker, Sheffield, has now started to import tropical plants direct. Over twenty varieties of different plants are now on sale to the public.

★ ★ ★

Two anacondas have arrived at Bristol Zoo and brought a feeding problem, for anacondas are notoriously difficult to feed, and these are only babies about two feet six inches long.

It will be up to the keepers in the Reptile House to tempt the babies with mice. As the anacondas grow they will go

onto a diet of dead rats. Finally, when they are full grown they will have to be tempted with dead goats.

To add to the difficulties, anacondas are bad tempered and prefer to laze about in water. But Bristol Zoo have plenty of experience on which to draw. They once had an anaconda that held the zoo record for a hunger strike. It went without food for 18 months.

★ ★ ★

Calling into the Knaresborough Zoo the other day, I found a fine Reptile House which already houses a fine collection of snakes, turtles and the usual smaller reptiles, including many species of lizards. Many other animals and birds which are usually to be seen at zoos are on view here and the collection is very good. The zoo is set in the Conyngham Park, Yorkshire's famous beauty spot, and the admission prices are adults 3s. 6d., children 2s. 6d.

★ ★ ★

King Taufa'Ahau Tupua IV named Tonga's new tortoise



The clown fish

Tumalila II. It was donated by the National Geographical Society to replace the one which recently died aged about 200 years.

★ ★ ★  
An American Chicken Snake has recently been presented to Whipnade Park and is now on view in the Children's Zoo. Nearly five feet long, it is yellow-brown in colour and of very docile disposition.

Chicken Snakes are valued in America for the great numbers of harmful rodents they destroy, but persecuted in the locality of chicken farms because they also eat young chickens and chicken eggs.

★ ★ ★  
A pair of young Hawk-Billed Turtles has been given to the London Zoo by eleven-year-old Miss Margaret Hatton of Bushey Heath, Herts., and her sister Barbara. Margaret and Barbara recently returned to this country from Aden and they brought the turtles back as pets but decided that they could be better cared for at the Zoo.

The turtles which measure 6 in. and 8 in. long are at present living behind the scenes in the Reptile House. Their home is a glass tank containing about 1 ft. of water, with a rock in the centre just in case they should want to leave the water, and with a sunshine lamp overhead. They are fed on strips of fish and liver, together with a little lettuce and are becoming very tame. They should eventually go on exhibition in the Aquarium where there are adult Hawk-Billed Turtles on view measuring some 2½ ft.

The Hawk-Billed Turtle is a marine species living in tropical and sub-tropical seas. Its name is derived from the hook-shaped upper jaw, and it is from this animal that "real tortoiseshell" is obtained.

★ ★ ★  
Bristol Zoo leads the world's zoos as top of the wishing-well collectors for the World Wildlife Fund. More than £3,000 has been collected in Bristol's wishing-well during the last three years. Now congratulations have been received from Mr. Ian S. MacPhail, Director General of the fund, and writes "Bristol is by far the leading zoo wishing-well in the world."

★ ★ ★  
During the Spring a "Zoo Quest" competition was held at the London Zoo for Boy Scouts and Cubs, and some 2,000 scouts and 14,000 cubs took part. The competition took the form of a questionnaire for scouts and a questionnaire for cubs, and all the questions could be answered by observing the animals at the London Zoo and studying the information panels and scientific labels which are displayed throughout the Gardens.

The first, second and third prizes in each section will be presented in the Member's Restaurant at the London Zoo by Mr. L. E. Springer, T.D., J.P., the Headquarters Commissioner for Scouts, and after the ceremony the

prize-winners will meet "Toto", the six-year-old African elephant.

The first prize in each section is a year's free membership for the group of the Young Zoologists' Club, together with four books on mammals, birds, reptiles and fishes of the world. The second and third and consolation prizes are all books on animals.

★ ★ ★  
During my travels all over the British Isles showing Sir Robert Fosssett's group of lions, many readers of *The Aquarist* came to see me and had a chat with me. I am always glad to meet readers during my travels and it's nice to know so many enjoy reading my notes. Now I am back at home for the winter months here in Rotherham and will have more time to answer the many letters I receive from readers from all parts of the globe. I should like to wish you all every good wish for 1967. God Bless You All!

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## Chlorophytum

by D. M. C. Jones

**T**HE *Chlorophytum elatum variegatum*, or Spider Plant, is an easily grown plant which seems to do well under a variety of conditions. It has long, grass-like leaves which are striped with green and cream.

Although this is a tolerant plant it will look its best if kept in a brightly lit position. If the light is not good enough the variegation on the leaves will tend to fade. The plant prefers a warm temperature and a humid atmosphere. It needs plenty of water and regular feeding during the summer months but it should not be fed, and watering should be reduced, during the winter.

The *Chlorophytum* looks its best if used as a hanging plant. In the summer small unisecuring white flowers are produced on the ends of long stalks. The flowers are followed by little plantlets. The weight of the plantlets causes the stems to bend over and hang down gracefully. These plantlets can be planted in small pots placed around the parent plant. In a short time the small plants will have formed their own roots. When this happens the stem connecting them to the parent plant can be cut. As an alternative the plants can be propagated by dividing the roots in the spring and potting up the separate plants in smallish pots using John Innes potting compost No. 2.

This is one of those plants which grows so rapidly and can be propagated so easily that once you have acquired one specimen you have only to give it reasonable care and it will grow, multiply and decorate the fish-house for many years.

THE AQUARIST

## Ambitious landscaping programme

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sort of lining was obviously necessary in order to conserve the water but it was thought that a conventional concrete lining would prove unsuitable because of the danger of cracking, due to ground movement. Various alternative materials were considered and tested and were rejected as being either uneconomic or unsuitable for this particular site.

### TUFLINE BUTYL

The material eventually chosen was Tufline butyl sheeting, manufactured by Nairn Building Products, a division of Nairn Williamson Limited of Kirkcaldy, Scotland. This material, which is being extensively used for the lining of reservoirs and other water conservation applications, is made to comply with a specification endorsed by Esso Chemicals Limited and has a tensile strength in excess of 1,400 lb. per sq. in. and elongation of 500 per cent. It is capable of sustaining, without damage, the abrasive action of loose stones and other matter and the enormous pressure of the weight of water, even at its maximum depth of 14 feet.

The sheet is completely impervious, has an almost indefinite life expectancy and is resistant to attack from agricultural chemicals. Tufline retains its elasticity at extremes of temperature and is capable of standing up to the roughest handling. Another advantage was that it

was economic in price, easy to install and could be easily repaired with a patch in the unlikely event of mechanical damage through mischance.

### FORMING THE LAKES

15,000 sq. yds. of Tufline were used for the whole project, in the form of prefabricated sheets measuring up to 80 ft. x 70 ft. The sheets were simply laid direct upon the earth of the excavated basins and water course and bonded together on site with cold adhesive and 4-in. butyl tape, forming a homogeneous and completely water-tight lining to the beds and side walls. When the lakes and water course were lined, the edges of the Tufline were laid flat in an anchorage channel and the top soil brought up and piled on to them and down on the reverse of the bank. These were later sown with seeds or turfed, to prevent erosion on the land side and to provide a natural setting to the lakes.

Another important advantage of using Tufline sheeting was that it has no detrimental effect on marine or plant life. Several months ago the large lake was stocked with trout and these, as well as the many water plants and shrubs, are flourishing. It is hoped to put black swans on the lake in the near future.

The whole project took thirteen months to complete, from the moving of the first cubic yard of earth to the planting of the last shrub and now remains as a permanent tribute to the skill and imagination of the experts who planned it.

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## The Veiltail goldfish

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Under the latest pointings there are 30 points for body, 20 for fins, 20 for condition and deportment and 40 for type and colour. From this can be seen that the very important finnage including the caudal, dorsal, pectoral, pelvic and anal, are only allowed 20 points altogether, so what can be left to award the caudal fin after all the others have been pointed?

Some aquarists are uncertain as to whether to concentrate on shape of body, finnage or colour. The possibility of so pairing the fishes that one of the parents has an exceptionally

well developed body whilst the other has very good finnage could produce a good fish which could be paired to one with the necessary colouring. This is a slow task but anyone who has had experience at breeding any of the fancy goldfish knows that this can be a very long job although a very rewarding one if a few good specimens are produced. It seems that many breeders have been working with fishes which are very pale in colour and some of those seen on the show bench have practically no colour at all, being just a washed out silver and almost transparent. I do not think such fishes can be expected to produce the well coloured fishes so desired. It may take several years for a breeder to produce a really fine strain.

## Three new killies

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known in the regions of the Ivory Coast, it inhabits small streams or brooks. It has proved to live quite a lot longer than most of the genus and breeds readily. Grows to about the same size as the more common *Aphyosiom nigerianum* (three inches the adult male, a little smaller, his mate). A very colourful fish and not too fussy with regard to water conditions. The general outline is similar to *Aphyosiom australe*, which has extensions also to the caudal fin, but it is a thicker set fish. Basic body colour is bright blue and this colour is most static; red markings throughout the body and extending through to, and into, the fins. Dorsal fin is short; the caudal is large and powerful with fine extensions which are red which stands out well on the blue background. The *Sparvelli* have been spawned without difficulty on peat fibre. The eggs hatch without drying in just over a month. Some members have difficulty in raising large numbers of fry, but this, I feel sure, will be overcome with more experience with the ultimate aim of producing numbers for the preservation of Killies, as so many are being killed through insecticides being sprayed in mosquito infested areas.

*Rachovia brevis*. This annual from Northern Columbia

has proved of great interest to breeders in this country. As the fish ages it attains more beauty. This cannot be said for most fishes we have in our collections to date. The species is very variable in colour according to the conditions under which it is kept. In bright conditions (under bright lights) the fish takes on a bright orange glow with a net-pattern of blue. Under breeding conditions with a peat base (this is the medium used for spawning) the male takes on a beautiful metallic green sheen, but the rich orange to blood-red nose still stands out like a male tiger barb.

This variety has long flowing extensions to the caudal fin and differs from its relative the *Rachovia hummelinki* which has none. The eggs have to be dried for just over three months, like the soil-spawning *Neokabanchius*. The fry grow rapidly on a mixed diet of brine shrimp and micro worms and reach spawning size in just over six weeks.

These, I am afraid, are only brief notes of some of the interesting happenings within the Association. Many more species have come to light; many interesting species have been obtained in egg form; others have come as breeding pairs from overseas and these have spent as long as 17 days in the post without ill effects, a truly remarkable side to this hobby of ours.

## Your air pump

by B. Whiteside

HAVE you got good service from your present air pump? The vibrator air pump which I have been using for the past fifteen years has certainly given me complete satisfaction during that period. My wooden cased pump cost, as far as I can remember—being only a child when it was bought for me, about 30s. In what seems to me to be a long time, it only once had to be sent to the makers for a minor overhaul. Of course it sometimes had to have a new rubber diaphragm fitted but I consider it to have given very good service.

In the past year or so it has been becoming very noisy and its air output has been dropping slowly. The usual adjustments were no longer having much effect and I had to admit that the old pump had served its useful life in the home, where its noise was becoming unbearable, although it could still serve a useful purpose in the fish house where noise is not so important.

Having tried out a few of the cheaper new pumps, I found them to be almost silent, although their output was not enough to operate four undergravel filters and the one external filter, which I wanted one aerator to operate. I finally decided to purchase a new 50s. pump with a plastic case, air control and removable rubber base. On examining the machinery of the pump at the dealer's shop, I was

surprised at its simplicity compared with my old pump. I must admit that I was a bit dubious about the praise which was given to it by my dealer.

On getting my new pump home, I fitted a plug and got it on immediately. The lack of noise compared with my old pump amazed me. It was almost silent. I still had reservations until the air line to my five filters was fitted and the air output nearly blew the fish out of the tanks. I adjusted the air pump regulator to a suitable level and the noise from the pump was very slight indeed. I then tried suspending the pump from a stout rubber band and the only sound which was heard was the air bubbling in the water in the aquaria. I ended by fitting a switch into the pump's electric lead.

Whenever I now enter the room, I can hardly believe that the pump is operating. Compared with my old noisy aerator, I consider my 50s. to have been well spent.

If your pump has given you years of good service and has now reached the stage of sounding like a motor lawn mower, why not consider a change. Modern methods of production for a growing market have produced, at a reasonable cost, compact reliable and almost silent air pumps which produce more than enough air for the average aquarist's needs.

Obituary to  
**W. G. PHILLIPS**

by Jim Kelly

THE aquatic world, and the Guppyphiles in particular, were shocked to hear of the death of W. G. Phillips on 14th October.

Regular readers of *The Aquarist and Pondkeeper* will remember the two-page spread in the July 1962 issue when, under the title "George Guppy" this remarkable man and his hobby were described.

His name was known all over the world as Guppy expert, judge, author and experimenter and his connection with the hobby goes back to the turn of the century when, as a youth of 17, he joined his first fish club.

His rise to fame came in the years prior to the last war when, as one of the early members and officers of The Guppy Breeders' Society, he became their first Judge. In the post-war years he continued his active association with the F.G.B.S. and accepted the Presidency of the Fancy Guppy Association at its formation in 1960, a post he held until his untimely death.

A prolific letter writer, he was keen to apply his knowledge of all things aquatic and many are the editors of club bulletins that have blessed his contributions to their club Journals.

His home, "Goodwood House", situated in the

pleasant London suburb of Harrow, was a "Mecca" for aquarists everywhere; from the beginner to the "big guns" in the piscatorial field, no one seeking advice about the hobby was turned away.

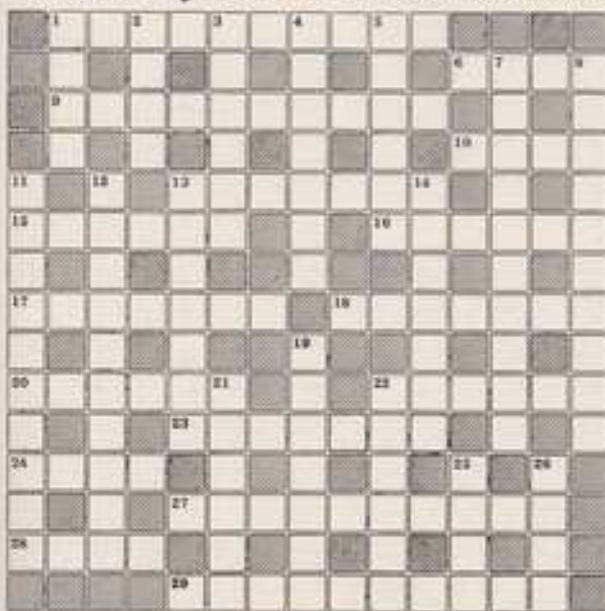
The Federation of Guppy Breeders' Societies honoured him with a Fellowship and the Fancy Guppy Association have stated that W.G.P. was their first and would be their only President, a fitting tribute for all the work he has done spanning three decades for these two specialist groups.

To his widow, Helena, we offer our condolences and sympathy. At his funeral floral tributes from his friends in the hobby were in abundance as were the presence of representatives of the hobby.

As a footnote to the article "George Guppy", the author stated that W.G.P. had one further ambition, to judge a fish show after his eightieth birthday. This ambition he fulfilled and just two short weeks before his death I was privileged to witness his presentation of the prizes at the Radlett Section, F.G.A. Autumn Show.

As an old friend, his passing will be deeply missed. At 84, his activity left me, at half that age, breathless. The one consolation is that the wealth of information his writings bequeathed to the hobby are timeless.

**The AQUARIST Crossword** Compiled by L. BRADLEY



**CLUES ACROSS**

- See 12 Down (10).
- When you see it you tend to be precariously positioned (4).
- Make a good container for carrying home fish purchases (7, 7).
- Do potatoes with this have a mean streak (4).
- He takes fish keeping a stage further than a community tank (7).
- Fishes for yaks with red and blue (6).
- Sign (8).
- Name for ladies (7).
- Laugh at an overweight M.P. in Middlesex (7).
- Backer of Horses (5).
- To be all right amiships ends up in the courtyard (10).
- Hour, etc. (anag.) (7).
- Behind 22 down (4).
- I'm most able, to make a chemical change in living matter (10).
- and staple (4).
- Resistance (10).

**CLUES DOWN**

- Needed to keep the aquarium glass clean? (4).
- Crust like in the case of *Sagittaria natans* (3).
- Animals found in hotter surroundings (6).
- Carlans (7).
- Start up one's aquarium in the open show (6).
- Takes place inside it down (10).
- Home of *Betta splendens* fry (10).
- Could this fish be the rearing place for fourteen pounds (5, 5).
- Not sailin' (anag.) (10).
- Fifty get in the ship, boatie and get a fish (7).
- Could be found among 22 across (3, 4).
- O region (anag.) (4, 3).
- Withdraw (6).
- Problems as used many years ago (6).
- 90 to 1 on this animal (4).
- See about one thousand! No, one duck (4).

Solution on page 180

# News from AQUARISTS' SOCIETIES

THE Gosport and District A.S. activities for November included two Slide Shows. One by courtesy of Hendon was accompanied by a taped commentary and dealt with subkeeping in general, the other was given by Mr. Mason of Portsmouth covering the breeding of Kribia, and included some fine slides of eggs incubating inside a shower pot. Mr. Ryder of Portsmouth kindly consented to judge the monthly table show, results of which were: Barbours 1, Mr. Polington (Barbours); 2, Mr. Taylor (Hendon). Chubias: 1, Muzer Parnum (A. Orsaspina); 2, Mr. Bates (A. Parnum).

THE results of the annual events of the Hedge and A.S. were as follows: Purified Aquaria Competition (Schools) 1, Mr. K. Farrar; 2, Mr. W. H. Taylor; 3, Mr. and Mrs. J. Lougher, Junior; 1, and 2, Master A. Davis. First Goldfish show for the points (see A.V. egg-layers): 1, Mr. J. Sanders; 2, Mr. D. Souganary; 3, Master R. Taylor; 4, Mr. D. Souganary; A.V. Livebearers: 1, Master R. Taylor; 2, Mr. J. Sanders. Winner of Points Cup: Mr. D. Souganary. Anyone interested in joining this Society should contact myself at the address at Helms: Mr. W. H. Taylor, 14 Clarendon Avenue, Purfield, Near Bideford, Gloucesters. Telephone: Abergavenny 580.

THE Headon and District A.S. recently highlighted the end of a most successful year with their Annual Dinner and Dance and Annual General Meeting. Thus a wonderful evening was had by over 100 members and guests and the prizes won by members at the table show throughout the year were presented to them by the Guest of Honour, the very well-known authority and judge Mr. Harry Towell.

At the previous Annual General Meeting the Chairman Mr. John Thomas was unanimously re-elected and the club is very grateful to him for the tremendous interest and enthusiasm he brings to this important position. The Secretary, Derek Woodhead and Show Secretary Roy Sturry were also re-elected unanimously and these officers too deserve the Society's congratulations. Other officers stand as follows: Treasurer: Mrs. Sylvia Gillies; Press Secretary: Mr. Barry Abbott; Librarian: Mr. Bob Cook, P.R.O.; Mrs. Ing Carter; Honorary Officers: Mr. Bob Nuttall, Floor Members: Mr. Eric Sheppard and Mr. Alec Hastings.

New members and visitors to the meetings are always welcome and information can be obtained from the Secretary, Derek Woodhead of 16, Eldon Road, Houslow, Middlesex.

THE Junior Section of the Heywood and District A.S. held a Junior Open Fish Show for children between eight and sixteen years old and it is probably the first time in this country that there has been a show catering for these ages only. Originally there were only to be four classes for entering, but due to the very large response these sections had to be split, finally giving a total of 17 categories.

The awards went to children from all over the North West of England, and the winners were: Ages 8-11. Schoolfish: 1, and 2, S. Birch; 3, A. Wood; A.O.V. Livebearers: L. J. O'Brien; 2, A. Wood; 3, S. Birch. Barb: 1, and 2, S. Birch; 3, S. Logan; A.O.V. Egg-layers: J. T. Preston; 2, A. Wood; 3, S. Logan. Gold-wash: 1, 2 and 3, S. Birch. Section Winner—J. O'Brien. Ages 11-15 years. Gold-wash: 1, and 2, P. Hodgkinson; 3, T. Harlin; A.O.V. Tropical: 1 and 2, P. Hodgkinson; 3, T. Harris. Section Winner—P. Hodgkinson. Ages 15-18 years. Platy: 1, A. Withers; 2, and 3, W. Booth. Guppies: 1, K. Ribchester; 2, A. England; 3, P. Wood; A.O.V. Livebearers: 1, W. Booth; 2 and 3, K. Ribchester. Catfish: 1 and 2, W. Booth. White Clouds: 1, 2 and 3, L. Withers. Gourami: 1, A. Middleton; 2, A. England; 3, S. Hodgman. Barb: 1, A.

Johnson; 2, P. Wood; 3, W. Booth. A.O.V. Egg-layers: 1, E. Barlow; 2, A. Johnson; 3, P. Wood. Gold-wash: 1, 2 and 3, K. Ribchester. Section Winner—W. Booth. Mr. J. Collins, the well-known F.N.A.S. judge, judged the fish and commented on the very high standard shown. The novelty class, which was open to all children was won by Master T. Golden with a terrapin. Due to the success of the Show and the very large response, it is now hoped that this will become an annual event.

THE Annual general meeting of the Alresborough A.S. was held on 1st December, and there were 29 present. The following officials were elected for the year 1967. Chairman: Mr. R. Hampson; Hon. Secretary: Mrs. B. M. Helm; J. The Green, Hall Lane, Handforth, Leith; Hon. Treasurer: Mr. Ivon; Show Secretary: still vacant. Committee: Mr. and Mrs. Harris, Mrs. Dutton; Miss J. Helm, Master P. Kirby, Mr. Lancaster. Auditors: Mr. Helm and Mr. Midwood.

A ballot was taken for the Member of the year Trophy—which was retained by Mr. R. Hampson, for the second year running. A very interesting tape recording, sent by one of the returning members, Sgt. R. S. Holman, who is stationed in Cyprus, was heard, and afterwards the tape was left running at the meeting to record the remarks of the members to send back to Sgt. Holman.

In the draw for the Xmas Balls Nos. 178, 1068 and 858 had no names so please contact the Secretary.

The Annual awards were presented to the following Specified Class: 1, R. M. Helm; 2, E. Walker; 3, R. Hampson. A.O.V. Class: 1, R. Hampson; 2, J. Dickinson; 3, R. M. Helm. Novice A.O.V.: 1, P. Joyce; 2, J. Whistly; 3, P. Ivon. Junior: 1, Paul Kirby; 2, Peter Dickinson; 3, Master Campbell. Home furnished aquaria: 1, K. Emma; 2, P. Joyce; 3, R. Lancaster.

THE Erith and District A.S. held their Annual General Meeting recently when the following officers were elected: Chairman: Mr. B. Clatney; Vice-Chairman: Mr. A. J. Elliott; Secretary: Mrs. S. Roberts, 55, Rowan Road, Bertholmeath, Kent; Treasurer: Mr. O. Lodge; Committee: Mr. A. Harding, Mr. B. Cox, Mr. R. Roberts, Mr. Huckle. The Meeting was held the first and third Wednesday in each month, at the comprehensive Hall (near Clock Tower) Bertholmeath, Kent. All new members can be assured of a warm welcome, and should contact the secretary.

RECENT meetings of the Southend, Leigh and District A.S. have been enthusiastically received and the President at the Annual General Meeting, Officers elected were: President: A. J. Mason; Vice-President: V. C. Pickett; Secretary: M. J. Willis; Treasurer: D. M. Chaswright; Librarian: Mr. Noble; Magazine Editor: P. P. Capon; Committee members: J. Barron, T. King, C. Ward. On the same evening as the A.G.M. two table shows were held. Best Fish of the Year: 1, A. J. Mason (Flying fish); 2, B. Dunn (cherry barb); 3, C. Ward (Sciencaria); 4, V. C. Pickett (molica barb). Breeder's Table Show: Egg-layers (L. Dunn (Rosaura)); 2, B. Dunn (Northbrook-china guppy); 3, E. Thompson (roy barb); 4, P. P. Capon (Tain barb). Livebearers: 1, B. Dunn (Guppy); 2, D. M. Chaswright (Platy). At the previous meeting a table show was held for a purified Mini-tank, the results were: 1, E. Thompson; 2, P. P. Capon; 3, J. Barron; 4, S. Norris.

MEETINGS of the Mid-Herts A.S. are held at Roe Hill House, Bishop's Ris, Hatfield, on the first Friday every month. Further meetings are now held at Pann Books (near of) Holywell

Hill, St. Albans. In the New Year all meetings held at Pann Books will be the third Tuesday in the month. Meetings commence at 8 p.m. sharp.

All aquarists are invited to some interesting evenings. Previous meetings included lectures with slides on Barbs, Aquarium Plants, pH and hardness of water, Diseases and treatment of fish, Live Foods, Table shows, visits to breeders establishments, British Aquarist Festival and Breeds Convention.

At the last table show the judge was Mr. G. H. Jennings of P.R.A.S. who adjudicated as follows: Barb: 1, D. Lelliot; 2, W. Davidson; 3, J. Cooper; 4, E. Jones. Channa: 1, M. Stockwell; 2 and 3, T. Mahoney; 4, D. Lelliot. Best Fish in Show: Dave Lelliot, Tiger Barb.

AT the November general meeting of the Tadworth and District A.S. the members were entertained with a slide show produced by Highland Water Gardens, Rickmansworth, Herts., and was on five join. Also during the evening the first issue of books from the newly formed library was made to members, the first librarian being Mr. Les Hand. It is hoped to spend £175 on books every year. The hon. secretary is Mr. E. Seal, Rowingarth, Corn Lane, Tadworth, Staffs.

AT the November meeting of the Pontefract and District A.S. members were given a lecture and slide show by Mr. R. Hampson of Alresborough. The main theme of the show was on American societies and the types of aquaria and fishes kept by the Americans.

A number of new members were made welcome and the society now has double the members it used to have. There were three classes in the monthly table show, the results being as follows: Breeder's Egg-layers: 1 and 2, B. Mortimer; 2, D. Cohen. A.O.V. 1, J. Thompson; 2, T. Traylor. Touch-ups: 1, B. Mortimer; 2, D. Cohen; 3, G. Goble. Mr. R. Hampson was the judge and Mr. B. Mortimer won the trophy of the month.

RECENTLY the members of the Nottingham and District A.S. were delighted to have Mr. Leggs from Belle Vue as the guest speaker. Throughout the evening Mr. Leggs held his audience spellbound with accounts of his many and varied experiences as a paraclete both "fishy" and otherwise. Mr. Leggs, through his immense interest and enthusiasm in something that lives in or around water opened many avenues of thought that had never occurred to members before. A vote of thanks was given by Mr. Odham on behalf of all the members to Mr. Leggs for one of the most interesting lectures the Society has had in recent years, and expressed the hope that it would be only a comparatively short time before they had the pleasure of being entertained by him again. This sentiment was heartily endorsed by the entire meeting. Results of the table show: Goldfish: 1, Mrs. C. Hill; 2, E. Riley; 3, P. Newman; A.O.V. Goldfish: 1, C. Hill; 2, K. Riley; 3, A. Goodfife. Home Aquaria Competition: 1, Mrs. Bullerman; 2, Mrs. Goodfife; 3, Mr. Bullerman.

A GOOD attendance at the Uxbridge and District A.S. enjoyed an illustrated lecture by Dr. List on his experiences while judging at two international shows, one in East Germany and the other in West Germany. The same evening the table show in the breeders class was held. Mr. Staines was called upon to judge four entries in the livebearers and ten entries in the egg-layers. The only prize in the livebearers went to Mr. Branton whose black swordtails scored 82 points. First prize in the egg-layers class was won by Mr. Pann with his ruby barb 84 points, second and third prizes going to Mr. P. Dunn who scored 83 points for his black fly gourami, and 83 points with amonocera amonocera.

At the previous meeting many members brought along cactus plants, and Mr. A.

Baker gave a most interesting lecture on these exhibits. As a result of this talk a number of the country are going to try their hand at cactus growing. Mr. B. Baker has, owing to his business commitments, resigned from the post of assistant secretary.

THE first annual general meeting of the Lythams A.S. was recently held and the following officers were elected for the ensuing year: Chairman, David Baker; General Secretary, William C. Matthews; Show Secretary, Donald Thompson; Assistant Show Secretary, Eric Willet; Treasurer, Myra Matthews. Mr. Ben Kelly has consented to become their first president. Many aquarists need no introduction to Jim Kelly, suffice to say, what better man to steer the Society to a more solid and lasting existence.

The Society completed the first year of its existence by exhibiting a stand at the British Aquarist Festival at Little Venice, Manchester. The stand was in the form of a water mill, complete with revolving water wheel, which attracted many favourable comments from the general public and other exhibitors.

It was made in its entirety by the members of the Society and contained 14 tanks exhibiting members' fish, both tropical and cold water. New members will be most welcome at any of the meetings, which are held on the first and third Wednesdays each month at 7.45 p.m. in the Church Hall, Albert Street, Lytham. Further details may be obtained from Wm. C. Matthews, 47 Dodney Drive, Lee, Nr. Preston, telephone number: Preston 26549.

The November Table Show for Barbs and Molliés attracted a good entry and was judged by Eddie Crockett of Blackpool Society, who spoke a few words on the fish exhibited and asked for a new Society the standard of fish was very good. The results were as follows: Molliés: 1 and 2, William S. Matthews; 3, Allan Scott; Barbs: 1, Allan Scott; 2, Keith Willett; 3, William C. Matthews. The Society will be holding their first Open Show on Sunday 11th June, 1967 at the Lawlish Pavilion, Lytham.

ALTHOUGH the Eastbourne A.S. has been running only for some ten months it now has a membership of twenty. Meetings are held once a month and have included various Slide Shows, lectures on setting up and glazing Aquariums, Reef Foods, Fish breeding, marine aquarists, competitions and Table Shows have been a feature at such meetings.

Outside activities have kept members busy, and these have included marine collecting trips, a visit to McLimes Aquarium, supporting the Eastbourne Summer Show with a furnished Aquarium exhibition, and more recently the large Aquarist Show at the Town's Aquarist Show which created a great deal of interest among the visitors there. Meetings are held at the T.A.C. Club in Seaside, Eastbourne, and anybody interested in joining the Society should contact the Secretary, Mr. C. George, 6 Hunt Road, Eastbourne, Sussex.

THE second open table show of the Stone A.S. proved a great success, and during the judging the large crowd of visitors were entertained by a colour slide lecture on Killifish and Fish-bone layouts for these fish. The Judge Cup for the best in show went to Mr. K. J. Harvey with an exceptionally fine Killifish—Crownfish hybrid. The date for next year's Show, has been provisionally fixed for 15th October.

The Show results were as follows: Plants A.S.: (Aquarist) 1 and 2, G. Baskin (Stone); 3, K. J. Harvey (Stone). Breeders Livebearers (Tropical): 1 and 2, Mr. and Mrs. Delves (Atherton); 3, L. Hand (Tarnworth). Breeders Egg-layers (Tropical): 1, T. Payne (Stone); 2, L. McCourt (Gorton & Openshaw); 3, L. Douce (Atherton). Plants Livebearers: 1, Mr. and Mrs. Delves (Atherton); 2, B. Sealy (Gorton & Openshaw); 3, R. Howell (North Staffs.). Fish Egg-layers: 1, Mrs. O. Fox (Rugby); 2, A. W. Spencer (Atherton); 3, E. Price (Gorton & Openshaw). Guppies: 1, F. J.

Saunders (Northampton & Dist.); 2, P. Reynolds (Swillington); 3, H. Dawson (Macclesfield). Plants: 1, G. Hodgkinson (Gorton & Openshaw); 2, P. Underwood (Leamington); 3, Mrs. O. Fox (Rugby). Breeders: 1, L. Hall (Atherton); 2, R. Sealy (Gorton & Openshaw); 3, Mr and Mrs. Delves (Atherton); 4, Misses 1 and 2, G. Roberts (Widensbury); 5, K. Stables (Swillington); 6, Mrs. A. G. Scott (North Staffs.); 7, L. T. Payne (Stone); 8, A. W. Spencer (Atherton). Denise W.C. M.M. Rascals: 1, A. Peck (North Staffs.); 2, P. Reynolds (Swillington); 3, L. Brough (Stone). Trophies: 1, Mr. J. Harvey (Stone); 2, L. Douce (Atherton); 3, T. Payne (Stone). Fishers: 1, P. Reynolds (Swillington); 2, E. G. Lousley (Stone); 3, A. W. Spencer (Atherton). A.O.V. Aquarists: 1, F. E. Woodall (B.K.A.); 2, P. Hodgkinson (Gorton & Openshaw); 3, G. Roshin (Widensbury). Barbs (Under 5"): 1, L. McCourt (Gorton & Openshaw); 2, Mr. and Mrs. Hay (Gorton); 3, G. Hodgkinson (Gorton & Openshaw). Barbs (Over 5"): A. Peck (North Staffs.); 2, R. J. Harvey (Stone); 3, B. Taylor (Stone). Goldfish (General): 1, E. Leggett (Gorton); 2, J. Logan (Gorton & Openshaw); 3, P. Reynolds (Swillington). Goldfish (Large): 1, L. Hand (Tarnworth); 2, H. Cape (Widensbury); 3, K. H. Harvey (Stone). Characins (Under 3"): 1, W. Knight (Stone); 2, D. Highfield (Widensbury); 3, A. Peck (North Staffs.). Characins (Over 3"): 1, R. Price (Gorton & Openshaw); 2, T. Dobson (Leamington); 3, T. Underwood (Leamington). Labrets and Sharks: 1, L. Hand (Tarnworth); 2, D. Highfield (Widensbury); 3, L. Brough (Stone). Corydoras Catfish: 1, Mrs. O. Fox (Rugby); 2, G. Shubby (Gorton); 3, C. Leggett (Atherton). A.O.V. Catfish: 1, J. Lee (North Staffs.); 2, L. McCourt (Gorton & Openshaw); 3, T. Dobson (Leamington). Laches: 1, G. Roshin (Widensbury); 2 and 3, D. Highfield (Widensbury). A.O.V. Frogs: 1, D. Highfield (Widensbury); 2, Mrs. O. Fox (Rugby); 3, P. Reynolds (Swillington).

AT the November meeting of the Clingford and District A.S., an illustrated lecture was given on species of tropical fish by several of the club members. The meeting was a very successful start to the year, with an excellent table show resulting as follows: A.V. Egg-layer: 1, Mr. W. Chambers, (Synodontis spec.); 2, Mr. T. Sumner, (Dofol Barb); 3, Mr. T. Sumner, (Sisonis Dofol); 4, Mr. W. Dunn, (Spanner Barb); A.V. Livebearers: 1, Mr. W. Dunn, (Yellow Mollie); 2, Mr. L. Curry (Yellow Guppy); 3, Mr. T. Sumner (Yellow Mollie); 4, Mr. L. Curry (Red Sweettail). New members are very welcome, and anyone interested can obtain details from the secretary, Mr. N. T. Hunter, 39, Mansfield Hill, Clingford, London, E.4.

THE Table Show at the end of November by the Merseyside A.S. was the last of the season, and resulted in Mr. Fred Meads being awarded the annual trophy for the highest points gained in Society Table Shows. The Best Fish in the Show was a very fine A. Agassizii belonging to Mr. Bob Newcomer. Congratulations to Mr. J. Newman on gaining his first ever open show Card at Macclesfield A.S. At a recent meeting the members enjoyed a showing of the Rank Organisation film—River of Life. This fantastic film of nature's life cycle was an eye opener to many, after the sensitivities of a rather old professor had been overcome. The monthly Newsletter will be published under a new title in the New Year, and will be known as the Mersey Beacon, a name suggested by Mr. Gordon Howard, Secretary of the Blackpool and Fylde A.S. The Society will be pleased to exchange monthly bulletins with any society, anywhere in the world. The New Office is Tom Waples, Jr., 31, Newton Park Road, Newton, West Kirby, Cheshire.

The next meeting of the Society is the A.G.M. on Monday 9th January in which all aquarists on Merseyside are invited. Meetings are held on alternate Mondays at 8 p.m. in the Montrose Athletic and Social Club, 4 Richmond Terrace, Liverpool 6.

#### NEW SOCIETY

AFTER a lapse of three years an Aquarium Society was recently re-formed at Chorley under the title of Chorley and District A.S. There was a very encouraging attendance at the inaugural meeting when the following officers were elected for the first year: Chairman: D. Ince; Vice-chairman: Miss M. Christie; Secretary: W. Lacey; Table Show Secretary: D. Ware; Treasurer: H. Gregson. It was decided that meetings should be held on the first and third Wednesday of each month at the Community Centre, Chorley, commencing at 7.30 p.m. Any person interested is invited to attend any of the meetings or contact Mr. W. Lacey, 11 High Close, Chorley.

AT the October Meeting of the Mersey A.S. the guest speaker was Mr. Patterson of Liverpool, his talk dealing with Marine Aquaria: both Tropical and Cold. This was well received by the members present. The judging of members' home aquaria has now been completed, the results being as follows: 1, Mr. W. Paulis; 2, Mr. W. Smith; 3, Mr. G. L. Thompson. The seventeen tanks judged were of a high standard and gave the judges a difficult but not onerous task. At the first November table show for large and dwarf cichlids, writh and loaches the principle winners were: Mr. A. G. Main, Mr. B. Stewart and Mr. W. Smith. The leading positions in the table show trophy are as follows: Mr. G. Scott, 82 pts; Mr. J. G. Main, 60 pts; Mr. B. Stewart, 55 pts; Mr. R. Appleton, 51 pts; Mr. A. Thompson, 51 pts; Mr. J. W. Rawlings, 51 pts.

THE Dudley and District A.S. held their Annual General Meeting and prize distribution recently, when Mr. Davison presented the following awards: 1st. First and 2nd. Vichery, Highest Points Shield, to be held for six months each; J. Vichery, Action Trophy for best fish; Mr. B. Payne, The Robin Shield for Highest Number of nerve points and Dudley Aquatic Award for best marine fish. Class winners were as follows:—N. Newman (Judge your own and Dundee), D. Frost (Furnished Aquaria, Rabbits, Plants, Livebearers), J. Peden (Basic Cold Water, Characins), G. Rothin (British Native, Guppy Female, Barbs, Breeders Livebearers), Mrs. J. Croft (Guppy Male), G. Northall (Novice Guppy Male, Novice Guppy Female), J. Vichery (Loaches, Corfish, Anabantids, A.O.V.), A. Edwards (Cichlids Breeders Egg-layers), Mrs. B. Payne (Novice Livebearers). Officers elected were—Chairman, J. Vichery; Secretary, R. P. C. Hadley; Treasurer, S. Croft; Show Secretary, D. Frost; Asst. Show Sec., A. Roberts; Librarian, Mrs. J. Croft; Public Officer, N. H. Newman; Committee: J. Peden, D. Dunn, Mrs. G. Smith, Mrs. J. Newman.

#### Crossword Solution

W	I	L	L	O	M	S	S	S	
I	E	E	T	A	T	T	L	I	M
P	L	A	S	T	I	C	B	A	C
E	F	E	H	G	S	C	A	B	
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C	I	M	E	T	A	B	O	L	I
H	A	S	P	D	C	L	O	E	



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Uno Regal—25, 40, 60, 75, 100, 120, 150, 200w. 8 4	20 x 10 in. £2 2 5	Montrose Floor £1 1 0	Spare bags 5 for 4 0	Ph. testing kit 27 4
Ex Ex Flexible—100w. only 19 4	24 x 12 in. £2 18 11	Montrose Floor £1 4 0	MISCELLANEOUS	OTHER FISH FOODS
Elephant—35, 40, 50, 60, 75, 100, 120, 150w. 18 4	BOW FRONTED BOOKCASE SETS	Mini Pump £1 7 0	Hydro Apex Sealer 2 0	Colorilla Meal 2 6
Revo—35, 50, 75, 100, 150, 200w. 18 0	36 x 15 x 12 in. £19 17 4	Fairy Pump £1 8 0	Hydro Leak Stopper 1 3	Wheat Germ Flakes 1 3
Wizard—25, 40, 75, 100, 120, 150w. 8 4	48 x 15 x 10 in. £32 0 0	Star £2 0 0	Agastrop 1 0	Shrimp Meal, Medium 2 3
COMBINED HEATER & THERMOSTAT	BOW FRONTED WITH PLAIN STANDS	Jnr. Zookako £2 2 0	WINDMILL	Turtle Food, Large 2 2
Ex Ex Dual-On-Off—100, 150w. £3 1 4	24 x 15 x 12 in. £12 10 0	Zookako £2 14 0	Windmill Dip Tube 3 4	Small 1 2
Ex Ex Precac-Flaxi 100, 150w. £3 4 10	30 x 15 x 12 in. £18 0 0	Silents £3 0 0	Hydro Bakraparts sediment remover 12 in. 3 8 15 in. 4 4	Infusoria Powder 3 4
Interpac Submersible 100, 125, 150w. £4 15 4	36 x 15 x 12 in. £24 0 0	Blas (twin outlet) £5 0 0	Windmill Automatic Syrphon 4 4	Conditioning Goldfish Food Large 2 0
Uno Popular 15 0	TWO TIER STANDS	Nylon clamps 1 0	Windmill Dip Tube 3 4	Glow Tablets (10 tabs) 2 6
Uno Prec/Neon 12 4	18 x 10 x 36 in. £1 17 4	Tubing clamps 1 4	Hydro 3-in-1 scraper per ft. 3 8	Liquid small fry Live- bearers 2 4
Uno Inside Control 15 0	18 x 12 x 36 in. £2 1 4	T-pieces 1 0	Windmill Dip Tube 3 4	Baby Food Egg-layers 2 4
Uno Outside Control 18 0	24 x 12 x 36 in. £2 7 4	3-way pieces 1 3	Hydro 3-in-1 scraper per ft. 3 8	Brine Shrimp Food 6 6
Uno Comet Top 15 0	30 x 12 x 36 in. £2 15 0	Small adding diffuser stone 1 2	Windmill Automatic Syrphon 4 4	Miracle Freeze Orifid worms 4 0
Uno Comet Top/Neon 17 4	30 x 15 x 36 in. £2 2 4	Spone with 12 in. stems 1 8	Windmill Dip Tube 3 4	
Ex Ex Floner 10 0	36 x 12 x 36 in. £2 18 0	Square diffuser stone with stem 1 10	Hydro Bakraparts sediment remover 15 in. 4 4	
Ex Ex Major 15 0	48 x 12 x 36 in. £4 5 0	Diffuser stems 12 in. 15 in. 5 4	Hydro 3-in-1 scraper per ft. 3 8	
Ex Ex Senator 28 0	VICTOR ALL OVER SHADES	P.V.C. flexible non- toxic air tubing per ft. 3	Windmill Automatic Syrphon 4 4	
Elephant Standard 18 0	18 x 10 in. £1 2 4	Rubber air tubing per ft. 3	Windmill Dip Tube 3 4	
Elephant Key Set 18 0	18 x 12 in. £1 8 0	P.V.C. air tubing 40 ft. coil 7 4	Hydro 3-in-1 scraper per ft. 3 8	
Revo Top/Control 28 4	24 x 12 in. £1 7 4	Hydro regulator valve 40 ft. coil 7 4	Windmill Dip Tube 3 4	
Wizard 10 0	30 x 12 in. £1 12 4	Hydro gang valves 3 4	Hydro 3-in-1 scraper per ft. 3 8	
Wizard/Neon 12 4	30 x 18 in. £1 17 4	Air Line Valves 3 4	Windmill Dip Tube 3 4	
Wizard/De-Luxe 18 4	36 x 12 in. £2 0 0	AIR PUMP SPARE PARTS	Hydro 3-in-1 scraper per ft. 3 8	
Neon 18 4	48 x 12 in. £2 12 4	Fairy Diaphragms 1 2	Windmill Dip Tube 3 4	
OUTSIDE FITTING THERMOSTATS	48 x 15 in. £2 7 4	Fairy Air Chambers 1 9	Hydro Bakraparts sediment remover 12 in. 3 8	
Springfield £1 5 0	ARBE PLASTIC AGARIUMS	Silents 2 9	Hydro Bakraparts sediment remover 15 in. 4 4	
Constax Q.R./Neon £1 5 0	Bow fronted 18 x 12 x 11 in. £8 5 0	Montrose 1 4	Seac Tonge 4 4	
Constax J.L./Neon up to 1,000w. £1 14 0	30 x 12 x 11 in. £9 17 4	Kawa Diaphragms 1 4	Planting Strips 1 9	
Sik-Stat £1 2 0	34 x 15 x 12 in. £12 17 6	3 for 3 for Heater Holders 4 6	Windmill Heater Holder 1 4	
THERMOMETERS	36 x 12 x 14 in. £16 19 0	RUBBER SUCKERS	Heater Brackets 2 0	
Ex Ex Dumpty 4 4	36 x 15 x 14 in. £22 10 0	Koob type 3 0	Uno Uni-clip Heavy Spacer Knobs 1 8	
Hydro Spirit 3 0	FANTASY GRAVEL	Shank type 4 0	Spare Knobs for heater holders 3 0	
Flowing Spirit 2 4	Mottled Lavender, Mottled Green, Mottled Red, Mottled Primrose, Mottled Blue, Gloss Black, Matt White. 3/- per 1 lb. p. & p. 2/4	Double sided 4 0		
Uno Blue Line 4 4		Hydro Plastic 8 0		
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Spare Chumy Kings "Windmill" Outside Fitting 12 6				

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