

November 1958

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# FISHKEEPING

*and Water Life*



DWARF GOLDEN BARBS (*Barbus gelius*)

## PRINCIPAL CONTENTS

Nigger Barbs or Black Rubies

White Cloud Mountain Minnows

Young Goldfish

Newly-imported Fishes

Clawed Frog

Outstandingly Colourful Annual Fishes



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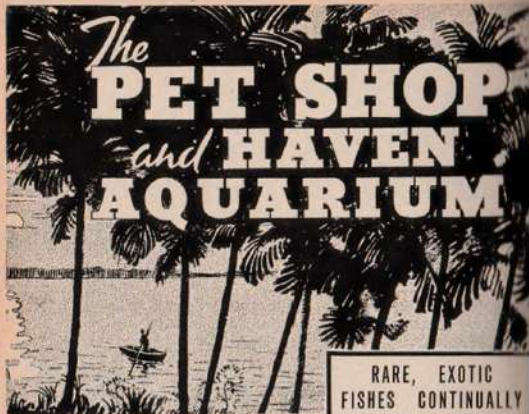
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VOL. 13 NO. 13  
NEW ISSUE  
NOVEMBER 1958

## FISHKEEPING

— and Water Life

### IN THE SWIM

Brine Shrimp History · January Exhibition  
Nature Artist · Study Society's New President  
Worms Across the World · Continental  
Film Programme · Plymouth Aquarium

■ Brine Shrimp pioneer. Alvin Seale, super-independent emeritus of the Steinhart Aquarium in San Francisco, died in July this year at the age of 87. We extend our condolences to his relatives.

It was Mr. Seale who first found that Brine Shrimps were an excellent food for tropical fishes and he presented the results of his work and explorations to the San Francisco Aquarium Society.

■ Olympia show. As foreshadowed in our August issue the Aquaria Section committee for the National Exhibition of Cage Birds and Aquaria in January had to consider the next show in a revised light at their meeting on October 15.

Whilst it was regretted that, for the next show, breeders' classes would have to be omitted the committee made every effort to ensure that the fish section would be as attractive as possible for the general public and the fishkeeping fraternity. The results of their decisions are shown in the classification printed on page 659. All societies south of a line from Barrow and Scarborough will have revised schedules by the time this issue appears and also individual exhibitors who have entered the furnished aquarium and miniature garden classes in recent years. It will be noticed that increased prize money is offered.

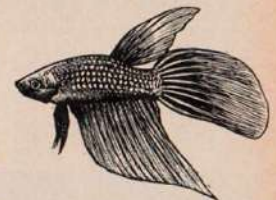
The usual classes for furnished aquaria are scheduled, plus the miniature gardens competitions, which came in for much favourable comment in 1958. There is also a class for

miniature furnished aquaria where exhibitors are asked to bring their own 10 x 8 x 6 in. tanks.

This style of miniature set-up aquarium competition has proved very popular when included in club programmes and, in January, it makes its debut at Olympia so, if you are short of plants but would like to try your skill in this most challenging field of show work, make an entry in Class A 5.

No heating will be provided for A 5 entries as no fishes will be permitted in these diminutive aquaria but top lighting will be available.

Write immediately for a show schedule and entry form if you are not on our mailing list and make your entry to the show office by December 1.



■ Artistry. The award cards of the relatively new Federation of Scottish Aquarium Societies are handsomely illustrated with Len Fullerton line drawings, one of which is reproduced here. Mr. Fullerton is a well-known free-lance nature artist and during H.M. The Queen's recent visit to Fife she was presented by the people of Newport-on-Tay with two of Mr. Fullerton's nature study water colours for the Prince of Wales and Princess Anne.

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A few years ago the Queen Mother's private Christmas card was of Trumpeter Swans drawn by Len Fullerton.

● **Study conference.** On October 4 the British Aquarists' Study Society staged its successful second annual conference in the Lecture Hall of London Zoo. A full report of the event appears elsewhere in this issue but it should be highlighted that Dr. F. N. Ghadially, the respected Sheffield fishkeeper whose articles appear regularly in *FISHKEEPING*, was elected President to succeed Mr. R. G. Mealand.

This is an honour not lightly dispensed by the society but Dr. Ghadially is a worthy recipient and successor to Bob Mealand.

● **Worm-wide.** In 1957 Julia Munday from Perth, Australia, was on a visit to this country. Her mother, an enthusiastic aquarist in Australia, was anxious to have a culture of Dwarf White (Grindal) Worms brought back to Australia and so Miss Munday got in touch with Frank Arnold of London, E.7, during her visit here.

He provided her with a flourishing culture. It was duly carried back to Australia and thrived for some time, but it died out eventually and Mrs. Munday was faced with the problem of replacing it.

She gave Frank Arnold's name to Dr. Linton, an Australian medical man who attended a conference in Brussels in May of this year and then was due in New York for

another conference. He broke his journey in Britain, bought a copy of *FISHKEEPING*, from it found Frank Arnold's address and decided to attend the E. London club's show on September 20, which was in Mr. Arnold's locality.

Sure enough, he met Mr. Arnold at the exhibition and was thus able to obtain another culture of the worms for Mrs. Munday. Mr. Arnold also provided a special container and food to last the journey home so that the worms could be kept in a flourishing condition.

● **Marine progress.** Reconstruction of the Plymouth Aquarium of the Marine Biological Association of the United Kingdom, reported last issue, is moving apace. By mid-October the old Aquarium had been completely demolished and foundations for the new one were being prepared.

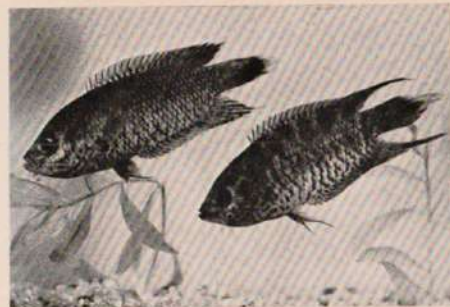
● **Film Congress.** Some 800 aquarists from all parts of the country attended the third annual film convention of Hendon A.S. on September 20. It coincided with the 10th anniversary of the Hendon club and, over in Britain, to share in the celebrations reported more fully on page 661, were 11 members of the Nymphae Society (Ghent, Belgium).

On the morning of the film convention a civic reception was given at the Town Hall to officials of the Hendon club and the Belgian visitors. The Deputy Mayor and Mayoress officiated.—L.W.A.



Civic reception at Hendon Town Hall prior to the Hendon A.S. film convention. Left to right: Deputy Mayoress, Town Clerk, Deputy Mayor, Mr. Creve (Nymphae club treasurer), Mr. Schoon (Nymphae A.S.), Mr. M. Carels (Convention lecturer), Mr. G. Richardson (Hendon's chairman), Mr. C. H. Wante (responsible for convention films, photography etc.) and Mr. J. Skipper (Hendon's President).

## AQUARIUM FISHES FROM CEYLON



The Combul (*Belontia signata*), a typical species of the rain-forests in Ceylon.

No. 6. RODNEY JONKLAAS (Ceylon) continues his survey of the aquatic flora and fauna of the tropical rain-forests

A FEW species of water plants occur in certain areas but not everywhere in the rain-forest regions. In the lower reaches it is *Blyxa*, the commonest water plant of the low-country, that flourishes. With it, is found *Najas*.

Some streams are literally smothered with the spectacular Giant *Aponogon* for which a specific name is lacking. This dark-green plant is often mistaken for a large *Cryptocoryne* since it has no rhizome but reproduces from long underground runners but the characteristic "shepherd's crook" inflorescence proves it to be an *Aponogon*.

In some forest streams genuine *Cryptocorynes* grow marginally and submerged in delightful profusion. The very rare *Cryptocoryne thalassifolia* is confined to a few jungle swamp streams in South Ceylon. *C. beckettii* is commoner and, in the wild state, some plants grow as high as eight inches.

But most of the plant cover afforded fishes in these streams comes from terrestrial plants and grasses which have intruded along the margins, and their finely divided roots form the usual spawning medium for the Barbs.

An average temperature for these streams would be 75 deg. F. In the deep forest, shaded from the sun, the water is cooler, as low as 70 deg. F., and in cultivated and de-forested land it rises to 80 deg. F. at times. The pH is always on the alkaline side and in the region of 6.9. The water is essentially soft.

The influence of minerals, especially iron ore, is often noticed in the higher, swamp streams where the finest bright red Cherry Barbs are found.

### Constant Conditions

Briefly, the jungle streams in the wet zone seldom or never suffer from severe flooding, never experience total or partial desiccation and a cessation of water-flow, and are more or less constant in their nature all the year round. As a result of the unchanging condition of these streams and small rivers, there has been no observed breeding season for the fishes found in them. The ideal conditions promote all-the-year-round spawning in regular and fairly limited quantities. There are no sudden appearances of large numbers of fry, nor are

there resting periods when only adults of any particular species are apparent.

Every single fish species observed displays adult and young forms at all times of the year. The beautiful adult Nigger Barbs haunt the clear, fairly placid and shady edges of the streams—the fry browsing in the dense rootlets of the still shallower margins.

Baby *Rasbora vaterivharis* shoal in dense clouds well apart from the adults which observe a fairly strict size segregation. Generally, the shallower the water the smaller the size of the fish and abundance of fry, with the sole exception of *Rasbora vaterivharis* and *Rasbora daniconius* whose fry brave deep pools, preferring them to very shallow spots where lurk the carnivorous and predatory Combul and Chaonans.

*Xenentodon caesiola*, the Gar, is a livebearer whose young are borne in small numbers where they lurk close to the surface and round about submerged bushes, dead tree stumps, etc., in deep pools. Cherry Barbs prefer very shallow swamps ditches with flowing water for their fry as do the rare Dwarf Paradise Fish (*Malpulatia kreteri*).

Combul spawn in secluded margins and guard their fry for some time, after which they speedily seek refuge in submerged roots and prey on still smaller fry. Chaonans seldom bother to protect their fry after they are born in very shallow, leaf- and root-filled ditches.

Panchax also prefer the shallow ditches for their fry but the adults like the margins of fairly deep and large pools, although they are never found in streams large enough to be termed "creeks".

Baby Garras, Loaches, *Danio malabaricus* and other Barbs seem to be reasonably immune from danger and are found in exposed pools in the company of quite large fishes but never in big shoals—rather just singly or in twos.

### Varied Diet

The majority of fishes in the tropical rain-forest locations are omnivorous; they eat insects, their larva, algae, refuse from human habitation and even jungle fruits. *Belontia*, *Malpulatia*, *Chaona*, *Ophiocephalus*, *Xenentodon* and the larger Barbs are carnivorous and eat fry, spawn and anything that moves. *Xenentodon* appears to be a strict fish-eater.

*Belontia* will, surprisingly, gobble bread in streams close to human habitations. The Loaches and Garras are mainly algae-eaters and vegetarian, but the Garras have an unpleasant habit of seeking food with their coarse sucker-mouths from the feet and skin of human-beings who venture in the pools. Some pools are impossible to swim or bathe in because of the voracious and ticklish Garra!

One very outstanding feature of the fishes of

the tropical rain-forests is their tendency to fade and change colour with any change in the water they live in. In the wild state I have observed that all the brightest fishes fade as soon as the water they inhabit is affected by rainfall which renders it temporarily turbid.

Freshly netted Nigger and Cherry Barbs fade into ghastly semblances of their former selves within minutes. In aquariums, unless they are given ideal conditions, the good colour is seldom shown.

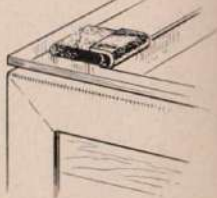
In order to get the best out of these fishes they must not only be provided with aquarium conditions as close as possible to those described in their natural habitat but also peace and quiet, freedom from unnecessary molestation, netting, excessive siphoning, etc.

It is then, and perhaps it might take weeks, that the colour is regained and the owner realises that the colour plates of these fishes has been seen are not exaggerations after all; on the contrary, they frequently scarcely do the fish justice.

## READERS' HINTS AND TIPS

### SUPPORTING A COVER GLASS

I HAVE found a very useful method of supporting a glass tank cover on an aquarium. Half-inch squares of cheap synthetic sponge are attached to the corners



of the frame by a short length of split rubber tubing.

This leaves just the right amount of air space between frame and cover, and the sponge cannot become stuck to the glass when it invariably falls into the tank if the cover glass is lifted.—(Miss E. Stooks, London, S.W.3.)

10s. 6d. is paid for each hint received from a reader and published in *FISHKEEPING*.

## BREEDING TROPICAL EGGLAYERS



Pair (male to the left) of *Cynolebias nigripinnis*. G. J. M. Timmerman photograph.

## OUTSTANDINGLY COLOURFUL ANNUAL FISHES

by D. B. McINERNEY

ON comparatively rare occasions there arrive in this country imports of "annual fishes"; these are species that in Nature complete their life cycle in one year. Most come from the tropics where they live in pools and streamlets temporarily formed by heavy, continuous rainfall in the monsoon or wet season. This water is naturally soft, but evaporating as it does through soil largely composed of rotted leaves, rushes, etc., it

passes through an acid humus not unlike peat, which further reduces the hardness and lowers the pH.

During the rainy season the parched rushes, bushes and trees spring into a short life, and growth is so rapid that many of the pools and streams are partially covered with dense vegetation.

With the end of the rains the blaring sun reappears but little of its powerful light at first penetrates the foliage, thus these pools remain well shaded and comparatively cool. It is in these waters, often clear but tinged a brownish colour, that such species as the Blue Gularis (*Aphysocentrus curuleum*), *Nathobonchius rachosi*, *Pterolebias peruvensis*, *Cynolebias bellottii* and *C. nigripinnis* live their condensed lives.

As they attain maturity the long dry season sets in, the tropical sun soon scorches the lush vegetation which dries and withers; the now browned rushes and leaves wilt, and fall into the water.

The pools, slowly seeping away, are left exposed and evaporation helps to diminish them more and more each day. The maturing fishes keep themselves in the lower strata of















A tadpole of *Xenopus laevis*. These little creatures can be fed on Infusoria and algae with the addition of a mash made from boiled nettles and spinach.

A tropical species, *Xenopus* is remarkably resistant to cold, and I have successfully kept it through the Winter in an unheated greenhouse with temperature well below 40 deg. F.

Normally it lives well if kept indoors between 60 and 70 deg. F., so that heated water is not essential. A coldwater tank of matured water would do quite well. Only the stronger aquarists should be planted, since *Xenopus* is an energetic swimmer and will soon uproot and damage any delicate plants.

#### Easy to Feed

Feeding presents no problem. To a basic diet of Earthworms and raw meat can be added almost any kind of small water animal. Even garden insects can be dropped in occasionally. To put it mildly, this accommodating pet can be used as the "dust-bin" of the collection. Needless to say, no other small water animal, fish included, is safe from its clutches.

*Xenopus* becomes very tame, and will soon rise to the surface for food taken from the fingers, even leaping half out of the water to secure an elusive meal. In Africa it serves a useful role in catching mosquitoes and their larvae. Occasionally it will wander from one water patch to another, so it would be wise to cover the aquarium in case it should attempt to leap out. It would then rapidly die from exposure in the dry atmosphere of an indoor room.

#### Method of Breeding

Normally the Clawed Frog does not breed naturally in this country. In the tropics it buries into the mud and aestivates during the dry season. With the onset of rain the mud stacks, or vats, quickly fill up, and within hours the frogs emerge to start breeding. This gave a friend of mine an idea.

He kept a pair of *Xenopus* in a half-filled

tank, fed them well for about a week, then suddenly added some water plants and topped up the water level with a rose spray to simulate a rain shower.

Within minutes the frogs had paired, and next day the tank was full of eggs sticking to the leaves and glass. It is a well-known fact that at exhibitions Clawed Frogs will often pair off due to the change of water and surroundings.

#### Movement of Tadpoles

*Xenopus* tadpoles are strange, transparent little creatures, which "hover" in mid-water, their bodies at an angle with the tail quivering rapidly. They are great feelers, that is, they strain microscopic life from the water as it passes over their gills. A good diet for these youngsters is plenty of "green water" containing algae and Infusoria. To this can be added some boiled spinach or young nettle leaves ground into a fine mash. As young frogs they may be given the usual live fish-foods such as *Daphnia*, *Tubifex* and White Worms.

*Xenopus* has deservedly been called the water clown of the aquarium world, because of its antics and curious attitudes. For this reason alone it makes an interesting addition to the hobby.

The Clawed Frog tadpole at a more advanced stage with limbs forming. G. J. M. Timmermans photo.



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## JAVA MOSS FOR DECORATION AND AS A SPAWNING MEDIUM

A useful aquatic plant which has yet to be seen in Britain

by G. BENL ('Isis', Munich)



Java Moss (*Vesicularia dubyana*) planted over trackwork in a decorative aquarium to soften the outline of the stone. This versatile plant is also reputed to be useful in breeding tanks.

ABOUT 25 years ago a small aquatic moss was discovered in the Zoological Institute of the University of Vienna, among a collection of plants sent from the Botanical Garden in Bogor (Java). A. Sieghalk proposed it by means of the leafy branches of the shoots, and distributed it under the name of Java Moss.

#### Hardy Species

In the years that followed the moss proved very hardy, making it an excellent spawning medium for fish. It can withstand temperatures of 50 to 86 deg. F. and grows under natural or artificial lighting, in a well illuminated or shaded situation.

When it is muddy the moss can be washed and even softly pressed out like a sponge. The water of the tank containing it should be more or less stagnant; too much movement, caused by aeration or filtration, should be avoided. The plant may be kept free-floating near the aquarium base (it is not a surface plant like *Riccia fluitans*) or fixed to a stone (preferably granite) when rhizoids will grow out and attach the moss to its substratum.

In recent years Java Moss has become well known among European aquarists. Now it is not only used in small breeding aquaria but in big community tanks for decorating rock backgrounds, etc.

#### Resemblance to Willow-moss

At first sight Java Moss bears some resemblance to the aquatic Willow-moss (*Frauxillula ovipyrata*). It can, however, be cultivated terrestrially, thus proving it to be an amphibian land-moss. Sporophytes with mature capsules have also been observed on submerged plants but it is uncertain whether the spores are able to germinate when fully submerged.

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## FRESHWATER PERCH

Small specimens make interesting aquarium occupants

by WILLIAM J. HOWES

(Photograph by the author)



THE Perch is a member of the Family Percidae, and being a fish of prey it has teeth in its mouth which is extremely large. It is equipped with two separate dorsal fins, is deep-bodied and slightly hop-backed.

The first dorsal is a spiny fin while the second is of soft rays supported by two spines. The imposing spiny dorsal fin bristles defiantly when the fish is in danger, and when attacking its prey. It is advisable, therefore, to use a net when handling a Perch for this sharp, prickly fin can be painful.

In general colouring the Perch is olive-green along the back, being darker in the dorsal region, and shading to golden-yellow on the sides and to white or silver on the underside. The spiny dorsal fin has a black spot at its extremity, while the fins on the lower part of the body are tinged with red.

When in good condition and colour the dark vertical bars on its sides are very distinctive and range in number from five to eight. Without doubt, the Perch is one of the handsomest of our native freshwater fishes.

In their natural habitat Perch have no need to gather in a shoal for the purpose of spawning for they are already gregarious, though a shoal may be joined by a few large specimens which are normally solitary.

#### Spawning Sites

Perch spawn during the Spring when, from March to May, the shoal moves to a stretch of shallow water where the bottom is of gravel or preference, but contains plenty of aquatic plants and reeds.

The eggs, covered in jelly, are laid in a long string or ribbon, the end of which becomes

fixed or entangled on some reed stem so that, as the female moves forward in a series of jerks, the ribbon of eggs is drawn from her body and the male fish exudes his milt over them.

By visiting a lake or pond, which is known to contain Perch, during the spawning period the adult fish may be seen spawning along the wooded edge of the water. If we take another look a day or so later the milk-white floating ribbons of eggs will be clearly visible. Due to this they suffer severe depredations from most other fish and many water-birds take heavy toll of them.

#### Survival of the Eggs

In spite of the many dangers, however, countless eggs survive and these hatch out in about two to three weeks, depending upon the temperature of the water. The Perch fry sink to the bottom where they remain for about four weeks.

Being of carnivorous habit the fry feed on live food consisting of insect larvae, worms, and the smaller crustaceans, etc. When they grow large enough to be capable of doing so the young Perch pursue and take small fish.

Normally the fry develop rapidly and in one year they attain a length of three to four inches. When three years old they start to spawn.

There are numerous lakes and ponds in this country which are swarming with tiny Perch, invariably these fish are of stunted growth. This is generally caused by lack of food. Interbreeding is, of course, another reason.

During the war millions of tiny Perch, averaging about 1 oz. each, were regularly trapped on Lake Windermere. These fish were canned in oil and sold as "Perchies".

The aquarist who wishes to keep a few Perch may go to his local lake or gravel pit and catch them quite easily. However, it may be preferred to approach an angling friend for he will often hook small Perch which are usually common in every kind of water, such as canals, lakes, reservoirs, gravel pits, and slow-flowing rivers.

Although there are many ponds full of Perch weighing a couple of ounces each, some waters hold two- to three-pounders! In fact the heaviest rod-caught Perch weighed over 6 lb. which, incidentally, is a record for the British Isles. It was caught at Bures St. Mary on the Suffolk Scour in January, 1950. This huge Perch was weighed on a spring balance which was subsequently tested for accuracy and found to have a 1.56 per cent error, so for record purposes the weight was given as just over 5 lb. 15 oz. No matter how well kept and fed aquarium Perch never reach that weight.

Although Perch make interesting and colour-

ful aquarium fish, they are best kept in a tank to themselves because of their predatory nature. Therefore, whether they are kept in an aquarium or garden pond, they need a good supply of animal food. This may consist of worms, maggots, shredded meat, and any live fish small enough to be swallowed.

#### Large Pieces of Earthworm

When feeding with Earthworms small ones can be cut in half. It is not usually essential to shred Earthworms for Perch, for they much prefer them large enough to be wriggling.

Large Perch will feed solely on Minnows and Sticklebacks. No other fish smaller than the Perch should be kept in the same aquarium. To display the Perch to best advantage it is as well to furnish the aquarium with clumps of *Vallisneria* and other tall-growing plants with similar foliage; this will accentuate their brilliant protective coloration admirably.



#### Paradise Fish

I would like to keep Paradise Fish (Macropodus opercularis) in coldwater aquaria. Could you tell me how to acclimatise them to the lower temperature?—J.M., Leeds 9.

Paradise Fish are quite hardy and can, in fact, be kept in outdoor ponds in summertime if the weather is warm, but we would not advise trying to convert them to coldwater fish. Their temperature range is between 65 and 85 deg. F. and they will breed at 70 to 75 deg. F.

Breeding is easy; the male builds the nest of bubbles at the water surface and looks after the eggs. The young hatch out in about 48 hours if the temperature is about 70-75 deg. F. It is advisable to remove the female when spawning is finished, and the male when the young are free swimming.

#### Illating Influence

I have two aquaria, both set up approximately the same, containing Platies, Red and Black Swordtails, Black Mollies, Guppies and two Corydoras Catfish. After being set up for three months one tank appears perfectly healthy but in the other I have had a few losses. All affected fish appear to show the same symptom, i.e. a ragged

Queries are answered free of charge by experts. They should be sent to "Fishkeeping", Dorset House, Stamford Street, London, S.E.1, with a stamped addressed envelope for the reply. All queries are answered direct but a selection is published here.

tail which seems to be closed to a point in some cases. I have watched closely but have seen no sign of chasing. In this tank, all fish (with the exception of the Mollies and Corydoras) spend the majority of their time in relatively dark corners near the bottom.—P.W.N., Farnborough, Sussex.

It is difficult to diagnose the trouble you are having in one of your tanks but, from the description you give of some of the fish spending most of the time in dark corners, it would seem that there is a bully in the aquarium.

Swordtails are notorious for bullying not only their own kind but other fish as well. If this is happening it would account for the other fish being frightened to come out into the open; therefore they would not get their share of food at feeding time and would waste away. It may be that only one of the male Swordtails is the culprit. We suggest you keep the Swordtails in a separate tank for the time being and see if the condition of the other fish improves.

#### Root Pruning

I have recently obtained some Cryptocoryne plants but the roots are too long for the gravel. Would it be wise to cut off an inch or so?—A.G., Hither Green, London, S.E.13.

It will do no harm to root prune your Cryptocorynes. If your gravel is about 2 in. deep you can cut back the roots to that length. The roots should be cut with scissors, not broken off with the fingers. In fact the plants will benefit by this treatment.

Fishkeeping, November 1958





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