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WHY REMEDIES MAY FAIL

Head of Aquarian Laboratories, Dr. David Ford, explains that so-called 'common' fish ailments may not always be what they seem

FARMING fish is an ancient art.

Hence treating fish diseases was also an art. I say "was", because all over the world, research units under the control of veterinarians and biologists are studying the problem as wild fish stocks run out and farming of fish becomes essential.

In England and Wales there are 12 Veterinary Investigation Units where the facilities and expertise are available to identify fish diseases. Northern Ireland has one unit and Scotland boasts an Institute of Aquaculture at the University of Stirling. The U.S.A. has many research groups ranging from the U.S.A. Armed Forces Institute of Pathology (who run a course on the pathology of fish diseases) to the annual symposium on diseases of ornamental fish by the University of Georgia.

The Eastern block countries have a long tradition of the study of fish diseases, especially parasitology; computer reference banks are cataloguing scientific papers from this source at a rate of several thousand annually.

The first British symposium on pet fish diseases was held at the Animal Studies Centre in Leicestershire in 1980, when experts from many countries gathered to discuss the subject over two days. (The proceedings were published, and details are given at the end of this article).

Despite all this research, the original "art" of describing and treating fish diseases has persisted in the popular literature. This has given rise to imprecise (but not necessarily inaccurate) descriptions of the diseases. This is why many so — called "Remedies" are not effective. Some classic examples are given below.

SYMPTOMS

A symptom (often misspelt sympton) is actually a manifestation of disease as felt and described by a patient, as opposed to a manifestation of disease apparent to the observer. Hence no animal can show symptoms — only signs.

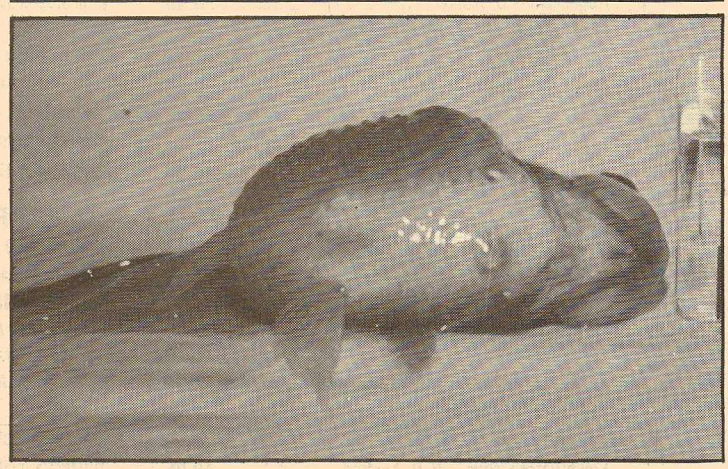
DROPSY

This condition is not a disease (although quoted as such in most popular fish books). It is a sign or manifestation of several quite different diseases, ranging from bacterial infection of the gut to heart disease. Hence there is no specific remedy to treat Dropsy.

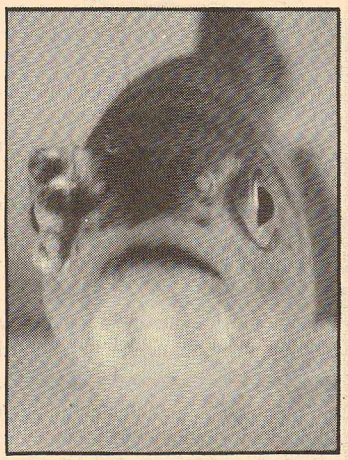
The well-known signs of Dropsy are swelling of the belly sufficient to raise the scales of the fish (the medical name is Ascites). Post mortem examination usually shows the body cavity to be simply full of water. This is due to the osmotic effect in freshwater fish. The fish has lost its ability to excrete the water due to impaired kidney function, in turn due to some other disease, parasite, or damage.

POPEYE

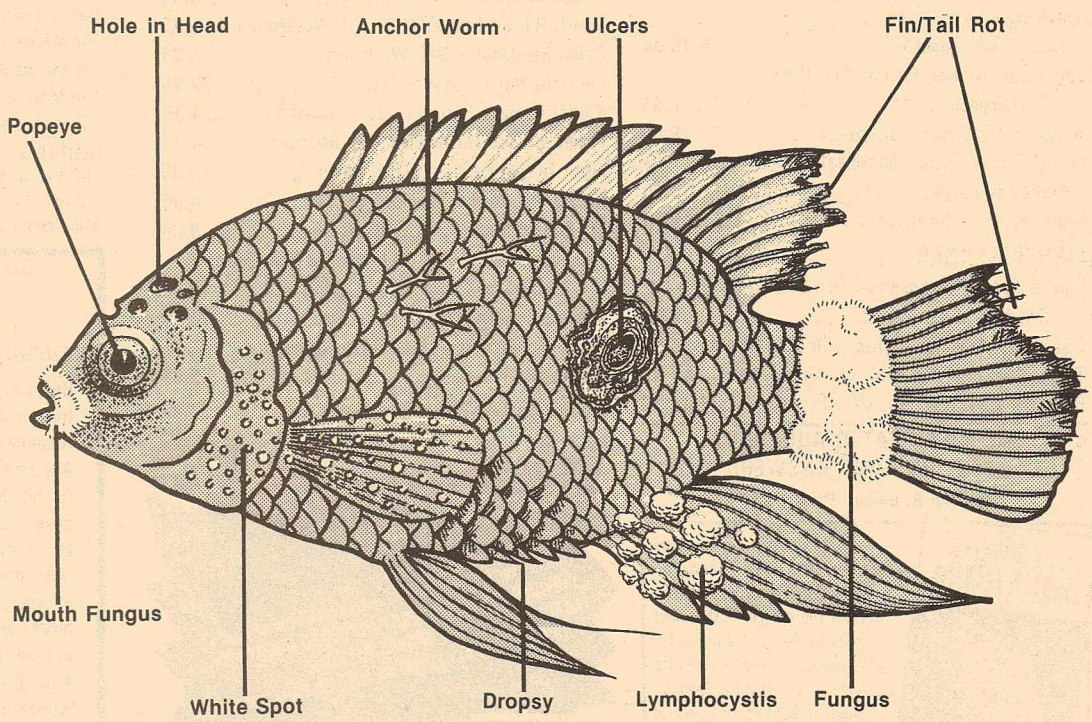
Exophthalmos is the correct name of this condition. Again it is listed as a disease in many books with (usually chemical) treatments. Certainly the eye itself may be infected and Almeida et al (1968) isolated no fewer than seven different micro -organisms from fish with Popeye.



A Goldfish showing the classic signs of dropsy — distended body and protruding scales. Dropsy is a manifestation of many different conditions, and rarely curable.



Exopthalmos *("Popeye") is a distressing looking condition, difficult to pin down to a specific cause.*



We hope none of you has a fish in this state. The diagram shows some of the commoner diseases and parasites that affect both tropical and coldwater species.

Cloudy eyes are the sign of a bacterial infection, perhaps triggered by poor water quality.

However, more often than not, there is no sign of a specific eye disease. The swelling is caused by water from another condition which, in turn, is due to some other distant disease.

MOUTH FUNGUS

This all-too-common complaint is called "Fungus" because it resembles the cotton - wool growth of Fish Fungus *(Saprolegniasis).* Ordinary fungus is a vegetable — like parasite that grows on the skin of the fish (and is easily treated by chemotherapy such as Aquarian Fungus Cure). The greyish, mould — like growths around the mouth are due to bacteria, not parasites, hence chemical treatment is not effective.

The bacterium is called *Flexibacter columnaris* (it used to be known as *Chondrococous columnaris).* These are gliding bacteria that form threads (hence the fungus — like appearance) and respond only to antibiotic treatment.

FUNGUS

As mentioned earlier, Fungus is easily removed by dipping the affected fish in a chemical stain such as Methylene Blue, Malachite Green or Acriflavine. The popular books let the subject end with such treatment — which is wrong, because Fungus is only a sign of some other, more fundamental, problem.

The spores of fungal parasites are present in all mature waters — usually *Saprolegnia thureti,* sometimes *Achlya prolifera.* Certainly you can remove these moulds from affected fish, but you cannot eradicate them from the aquarium or pond waters, so dosing the aquarium or pond is a waste of time and money.

The fungus gets a hold when the fish loses its protective mucus layer. This may be due to physical damage, or through general debility from disease or poor husbandry. In case of fungus infestation, always search for and treat the primary condition or disease. (Never handle fish, your hot skin peels away their protective mucus layer).

WHY SOME TREATMENTS FAIL

Many fish books list treatments for fish disease that are virtually untreatable. *Ichthyophonus for example. This amoeba — like organism (Ichthyophthonus hoferi)* is found in internal organs as a cyst (just visible with a magnifying glass). The cyst is the parasite surrounded by dead tissue — which protects it from attack, not only by the fish's defensive mechanisms, but also from any chemotherapy administered by the aquarist.

Tuberculosis is widespread in the ornamental fishes. Usually listed as "wasting disease", there is again no effective cure. At least six species of bacteria (Van Duijn 1973) are involved and one, *Mycobacterium marinum* that gives TB in coral fishes, is also pathogenic to man. It doesn't cause human TB, but does give ulcers — remember this when handling sick fish's aquaria. Disinfect the hands as well as nets and don't suck siphons!

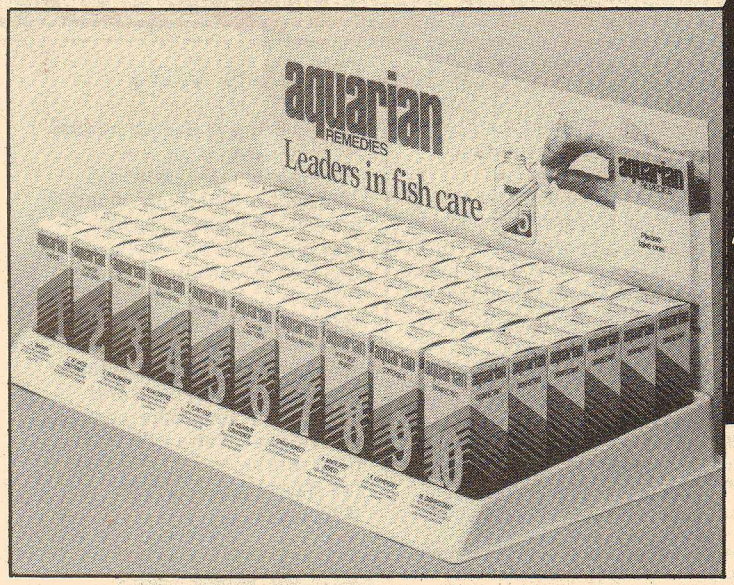
Flukes irritate fish, and their scratching gives the "flicking"action most retailers will recognise. Again, most books list chemical treatments that are effective in removing these external parasites. What they do not say is that there is rarely just one species present.

Whenever I have taken a swab from an infested fish and looked down the microscope I always see a mixture of all kinds of micro-organisms. Some lay eggs, to hatch out later when the treatment has apparently cured the problem. So always repeat any standard anti-parasite treatment about a week later to remove any newly hatched parasites, or the infestation cycle will just start - up again.

SOME EFFECTIVE TREATMENTS

So how do you treat diseased fish scientifically, rather than hopefully? First get to know the subject, and recognise the signs of specific diseases. The bibliography list books that describes these diseases.

For external parasites (be they gill flukes, body flukes, white spot, fungus, louse, etc.)



External parasites are easily treated with Aquarian Remedies 6, 8 and 9.

use your favourite commercial remedy such as the ten Aquarian Remedies — the chemicals are ready mixed, dose levels described and dispensing method supplied, so it's easy.

For bacterial problems (ulcers, mouth fungus, fin rot etc.) use antibiotics. Because of the Medicines Act (1968) these treatments are available only on prescription. Therefore, get to know your local Vet (see Yellow Pages) — even if he is not a fish expert, he will know who to contact for information (at the nearest VI Centre).

In my experience a good general purpose antibiotic is Terramycin. Pfizers' Animal grade Terramycin contains 55 grams of Oxytetracycline hydrochloride per kilogram, and dosage is optimal at 13 milligrams per litre of aquarium water.

One level teaspoon of this grade of Terramycin contains 200 milligrams of Oxytetracycline hydrochloride. Therefore, since the average 24 × 12 × 12" tank holds 50 litres, you need 13 × 50 which equals 3¼ teaspoons. (Substitute your own size tanks into that basic equation).

Predissolve the Teramycin by vigorously shaking with some water and pour into a bare aquarium, dispersing it well. The water will redden. Add an aerator to keep oxygen levels high and introduce the affected fish. One week should prove effective, but if the fish shows distress, remove him. If the water blackens, the Terramycin is breaking down and since the by-products are poisonous, the solution must be drained and renewed immediately.

Antibiotics should not be added to established tanks, especially with U/G filters. They can be used to treat all fish — freshwater, brackish or marine, coldwater or tropical.

REFERENCES

Almeida et al (1968) Tropical Fish Micro-organisms, J. Fish. Res. of Canada, Vol. 25, No. 1, 1968 pp 197 to 201. Van Duijn (1973) (see bibliography).

BIBLIOGRAPHY

Diseases of Fishes by C. Van Duijn Jnr. 3rd. Edition, Iliffe Books, London (1973) ISBN 0-592-00072-9 (This book is now out of print but can be found in libraries. It is the most useful of this group).

Textbook of Fish Diseases by Erwin Amlacher, translated by D.A. Conroy & R.L. Herman, TFH publications (1970) ISBN-0-87666-037-5.

Parasites of Freshwater Fishes by Dr. G. L. Hoffman & Dr. F. P. Meyer, TFH publications (1974).

Fish Pathology by Reichenback — Klinke, translated from German by C. Ahrens, TFH publications (1973). TFH also do a series of five books on **Disease of Fishes** by various authors — see their catalogue.

Waltham Symposium No. 3 "The Disease of Ornamental Fishes" can be obtained from Pedigree Petfoods Animal Studies Centre, Freeby Lane, Waltham-on-the-Wolds, Leics. at £3.50 post paid.

● Don't miss next month's FREE booklet on fish health, compiled by Dr. Ford and John Dawes, Aquarian's own experts