

## 186.—CARE OF GOLDFISH.—QUERIES OF WILLIAM ROSENSTIHL, JR., WITH REPLIES.

By JOHN A. RYDER.

I have an aquarium with goldfish, and there are several things that I do not understand:

1. The water I am using in the aquarium is from a well slightly tinged with alum. Will this injure them? I have been using the same kind of water for six months.

2. There collects on their mouths, back, and fins a white substance. What is it? And what is the cause?

3. Occasionally I take the goldfish out of the aquarium to clean it, and in putting the goldfish back with fresh-drawn water in the aquarium, at first they move off very lively; but in the course of an hour they commence to swim on top and seem to breath the air. This they will continue to do for nearly a whole day. Why is this? Why is it also that when coming to the top they blow out bubbles?

4. Day before yesterday I cleaned it. Yesterday and to-day there are two of the goldfish that go to the bottom, and rest perfectly flat on the pebbles in bottom. I have the aquarium in my store near a window. A little sun will strike it of an evening, and I have it arranged in this manner: A tin tank, holding 16 gallons of water, is raised about 24 inches above the level of the water in the aquarium and is connected with a lead pipe, coming under the aquarium, and a small pipe is extended from the lead pipe up through the center of the aquarium and the spray is thrown 3 feet high. Every day I have fresh water drawn. The aquarium holds 30 gallons of water.

5. I am feeding them on a food (which is specially prepared for them) of which I send you a sample.

6. Will these goldfish spawn in the aquarium? How should I treat them if they do?

7. There are two of them with their tails seeming to shed. What is the cause?

8. Is there anything I can put in the water to make them healthy?

UNION SPRINGS, ALA., *March* 14, 1883.

## REPLY BY MR. RYDER.

1. I do not think the alum in the water is good for the fish.

2. The accumulation of white substance may be from the water, or possibly may be fungus. The description is not definite enough to decide.

3. Fish will come to the surface when it is warm and snap the mouth as though for air. The air-bladder of the goldfish communicates with the throat or stomach, which accounts for the bubbles expelled.

4. When the fish lie on the side it is usually a sign that they are sick, or do not have enough pure water.

5. I do not know the nature of food used, or, judging by the sample, whether it is the best for the purpose.

6. The goldfish will spawn in an aquarium, but in order to give them a chance to deposit their eggs in a safe place, there should be a water-plant, upon which the females will discharge their ova, and to which they will adhere, and on which they will hatch out.

7. Those with the tails "seeming to shed" have probably had the skin abraded or injured by rough usage.

8. There is nothing that can be put in the water that will make the fish healthy. Avoid nostrums, but make the conditions of life normal to the fish and they will thrive. It has been the writer's experience with large goldfish that if there are enough of water-plants in a spacious tank, or even if the sides are merely coated with an abundance of microscopic green algæ, that they will take little food which they may be offered and live apparently in perfect health for years. Too many plants in the water are just as bad as none at all. The plants give off oxygen to the water, which is of advantage to the fish.

WASHINGTON, D. C., *April 13, 1883.*

#### 187.—EXPORTS OF FISH-OIL FROM NORWAY, 1878-'82.

By **FREDRIK M. WALLEM.**

[From a letter to Prof. S. F. Baird.]

As far as now known, the exportation of fish-oil (including whale-oil, &c.) has been as follows:

Years.	Liters.	Gallons.
1878 .....	11,900,000	*3,143,080
1879 .....	12,700,000	3,355,350
1880 .....	15,200,000	4,015,850
1881 .....	10,400,000	2,763,540
1882 (January 1 to October 31) .....	8,750,000	2,311,750

\* This is calculated on the basis of the United States standard gallon of 231 cubic inches, which contains 3.785 liters. The liter contains 61.028 cubic inches.

The proportion of cod-liver oil in 1882 was less than in other years, as the whale and other fisheries were more successful than usual. The quantity of cod-liver oil exported must be over 60 per cent of the whole, while the cod-liver oil for medical purposes (three grades) is at least 33 per cent. The price of this oil for medical purposes fluctuated greatly in Europe during the spring of 1882. At present the price of the best grade ("steam refined") is \$26.80 per barrel. During 1881 its average price was \$22.25.

BERGEN, NORWAY, *December 21, 1882.*