



A FRESH WATER AQUARIUM.

Every home which has a healthy growth of domestic life welcomes new elements of beauty and household interest. Most families keep flowers and plants; and their beauty and fragrance amply repay the trouble of raising or tending them.

Many others, perhaps, would gladly keep an aquarium, not only as an adornment, but also as a means of instruction and agreeable recreation, if they were sure they could keep its inhabitants in a healthy state. It may be that former attempts have failed, or exaggerated notions of the amount of care necessary have deterred them from venturing to keep an aquarium. I hope to show how simple an affair a fresh-water aquarium really is.

The elaborately decorative aquarium is too large a subject for this article. Nor shall I treat of tank arrangements in which it is necessary to maintain a flow of water.

An aquarium, as we shall here understand the word, is a self-sustaining collection, never requiring any other change of water than that which comes with the replacing of water which has evaporated, and which is, therefore, within the reach of every girl and boy.

A few words of explanation are necessary. Fishes breathe air as land animals do, but they extract the air from the water through their gills, absorbing the oxygen and exhaling carbonic acid. If kept in a confined water space, they soon use all the oxygen; the water becomes stale from the excess of carbonic acid, and the fish die.

All plants, on the other hand, absorb carbonic acid. They use the pure carbon to build up tissue, and they give out free oxygen. They further distil oxygen from water, taking up the hydrogen.

Now if we can establish a just balance, by growing plants in a tank which contains fish, we shall not have to change or aerate the water, for the plants and fishes will supply each other with life-giving elements.

Let the reader, then, get any kind of vessel which holds five gallons or more, and which will not contaminate water with any poisonous quality of its own. A wooden tub will do, but a glass tank is better, since it affords better means of observation.

A square glass tank is preferable to a round one, as the unequal refraction of curved glass distorts the view.

Whatever vessel is chosen, cover the bottom with about an inch of clean sand and pebbles, and pour in river, spring, artesian or well water through the nose of

a watering-pot, in order not to disturb the arrangements of the pebbles and sand.

Let the water fill the tank about two-thirds full, and let it stand a few days before introducing the fish.

If you have a microscope you will soon detect a rapid growth of minute plants. A green slime will cover the pebbles and the inner surface of the glass sides.

But do not be alarmed; this growth is just what you want. The slime is made up of the plants that will supply your fish with oxygen, and enable you to keep your tank for years without any trouble.

You will see thousands of small bubbles covering these plants and ascending from them. They are oxygen bubbles.

Furthermore, this green growth will prevent an excess of light, which is highly injurious to fish. You will, however, keep one side of your glass tank clean to facilitate observation. Tie a small sponge on a short stick, and use it exclusively to wipe the scum from this side of the tank.

Never put the tank in the sunshine, but choose a northerly aspect, with little direct light. For decorative tanks adorned with flowering plants sunlight is, of course, necessary, but our aquarium needs other management.

When dust accumulates a glass cover must be used; but it is better to remove the tank when dust must fly.

Hang a small thermometer in the water, and never let the temperature rise to sixty degrees nor sink below forty degrees. Fish stand cold better than heat; so beware of stoves in winter.

If your fish rise gasping to the surface, you will know that your aquarium is a failure. You must in that case either renew the water or aerate it; but with a little care you will never need to do either.

After plant life has flourished in your tank for a week, a microscope will show thousands of infusorial animalcules swarming through the water. You will learn that vegetable matter in water always induces these important growths. They serve as food for the smaller fishes, and, like plants, absorb carbonic acid and give out oxygen.

Now for the inmates. As a general rule, have too few rather than too many fishes. Allow a gallon of water to every fish less than four inches in length, if your plant growth is abundant. Fishes over eight inches long require eight gallons of water each, and ten-inch fish twelve gallons apiece.

Stock moderately at first, and with the increase of plant growth your tank will support more fish.

Minnows, small perch, goldfish and German carp look well and thrive in an aquarium. They are very hardy and easily tamed. If fed regularly they soon learn to take bread crumbs, out of your fingers, and allow you to stroke them gently.

Feed your fish twice a week with bread crumbs, white of egg, flies, spiders, small worms and ants; but do not give food in very cold weather, for then fish do not eat.

Always see that every fragment is eaten up, or else remove it at once; any decaying object will soon poison the water.

For the removal of crumbs, shreds of meat and any black growths, use a dipping-tube—a glass tube about half an inch in diameter, and open at both ends.

To use it, place your finger on the top of the tube, and thrust it down over the object to be removed; lift up the finger, and the water will rise in the tube, carrying the object with it. Bring it to the surface, place the finger on the top again, and lift it out.

Of course evaporation will lower the surface of the water, and every week the loss in this way must be supplied.

If, from some unexplainable cause, a fish appears to be sick, remove it to a shallow vessel containing sand and pebbles covered by a few inches of water, where it will rub itself against them and perhaps recover.

The ambitious student will have several small tanks to use in studying the habits of pond and brook inhabitants. Preserve-jars serve admirably for such work. Put pebbles at the bottom of each jar, and plant a few tufts of some growing water-weed. A few hours' work with a net at any stagnant pond or ditch will put the student in possession of water-bugs of all shapes and sizes, dragon-fly, gnat and mosquito larvae, caddis worms, polypts, newts and mollusks.

A good book on natural history will give details which may be verified easily; and these jars will not only serve as subjects of domestic diversion and interest, but will stimulate a spirit of inquiry, and bring within the view of the poorest student many of God's mysterious ways in nature.

Perhaps some readers will be disappointed because nothing has been said about decorative features. But it should be remembered that every piece of rock-work displaces a like amount of water, and makes it possible for fewer fishes to live in our primitive tank.

If the tank is large enough, some rock-work made of coke or pumice-stone, dipped several times in a thin batter of cement, may be put in. Cement the pieces together, and use your taste in making an archway, through which the fish will be glad to sport. Pockets may be made in this arch for the insertion of flower-pots. When the plants are in full bloom, set them into these pockets, and you will have a very pretty and effective piece of decoration.

This is the only way our aquarium for the beginner will submit to receive flowering plants. The constant care occasioned by the decay of parts of plants will not allow the young student to grow them in the water; but when he has successfully maintained a self-sustaining aquarium for at least six months, he may venture to introduce some aquatic plants, such as grow in ponds. Waterhyme, the yellow water-lily, and the various tank plants. Cover their roots with pebbles, and they will flourish; but do not let them choke up the tank. They blossom in early summer, and certainly add much to the beauty of a fresh-water aquarium.—*Youth's Companion*.

A YOUNG KNIGHT.

One dark evening in January, Mrs. Burns had had several little purchases to make before Sunday; and when she walked over to the store it was quite full of persons having similar Saturday errands.

A country store is not very bountifully supplied with clerks, and Mrs. Burns had to wait her turn. Then, after all her parcels were securely wrapped up, an old friend stepped into the store, about whose sick daughter Mrs. Burns wished to inquire, so when she came out she found the dusk had turned to darkness.

Not a star was to be seen, and the wind whirled round the corner and nearly took her off her feet. Her eyes were blinded coming out of the lighted store, and when she stepped down to the sidewalk, which was very uneven, she felt almost afraid to take another step. However, she drew her shawl about her, held her parcels close, and walked very slowly, feeling carefully for every step.

She had passed beyond the light from the store, when she heard footsteps; but she could not see which way to step to avoid a collision with the person approaching. She spoke,—"I can't see which way to go; but I'm here, do not knock me over."

It was then the knight showed himself. It was only Will Somerby coming down the street, with his freckled face and kind blue eyes, wearing his well-worn jacket and school cap in place of the knight's armor and helmet. When he heard the voice he stopped, for even his eyes found it not easy to see Mrs. Burns' black-robed figure in the dark.

"What is it?" he asked. "Have you missed the road?"

"Oh, no," said Mrs. Burns, "but I couldn't see you, and I was afraid you wouldn't see me, and that we might run against each other."

Will stepped close to her now, and though it was dark, he raised his cap.

"Isn't this Mrs. Burns?" he asked. "Let me help you. It is very dark. Take my arm, if you please," and before Mrs. Burns could realize what had happened, he had taken her bundles from her, and, leaning on his strong arm, she was being safely piloted home.

They soon parted at Mrs. Burns' doorstep. "I am very grateful to you," she said, as she stood in the doorway, relieving Will of her bundles. "It was so dark, and the sidewalk is so uneven."

"You are very welcome," said Will. "I'm glad I happened along," and he raised his cap. "Good night."

"Good night," repeated Mrs. Burns, and she closed the door as Will Somerby turned away. "He seems such a knightly young fellow, and I am sure he will go through life doing just such deeds."

Helping old women home does not sound very romantic, but only those who are truly knightly think of just such kind, courteous deeds. And is it not good to know that to every one of us such opportunities come? One does not need to be high-born, or highly educated, nor to have great belongings, nor even to do great deeds, to be accounted—and truly so—a knightly soul.—*Christian Herald*.

CATTLE AND MUSIC.

An English writer on the "Effects of Musical Sounds on Animals" has published some curious observations on this subject. A few of these relating to oxen and cows will be of interest.

Opposite to our house was a large field, in which some twelve or thirteen cows were put during the summer months. One day a German band began to play on the road which divided the house from the field. The cows were quietly grazing at the other end of the field, but no sooner did they hear the music than they at once advanced toward it, and stood with their heads over the wall attentively listening.

This might have passed unnoticed, but upon the musicians going away, the animals followed them as well as they could on the other side of the wall, and when they could get no farther stood lowing piteously. So excited did the cows become that some of them ran round and round the field to try to get out; but, finding no outlet, returned to the same corner where they had lost sight of the band, and it was some time before they seemed satisfied that the sweet sounds were really gone.

I have often noticed the power music has over oxen. The other day we had a brass band playing in our garden. In a field adjoining were four Scotch oxen.

When the band struck up, they were at the far end of a nine-acre field, quite out of sight, the field being very uneven. They set off full trot to the garden wall, put their necks over, and remained so till the tune was finished, when they went back to graze; but as soon as the music struck up again they came and put their heads once more over the wall. This went on till the band left, after which they ate little all day, and were continually lowing.

There are many anecdotes that show that the ox or cow has a musical ear. The carts in Corunna, in Spain, make so loud and disagreeable a creaking sound with their wheels, for the want of oil, that the governor once issued an order to have the wheels greased, but the carters petitioned that this might not be done, as the oxen liked the sound, and would not draw so well without their accustomed music.

THREE MISSIONARY SONS.

A Moravian mother was called upon by a Christian visitor with sad news. "Your son," said he to the mother, "is gone." "Is Thomas gone to heaven through the missionary life? Would to God that He would call my son John!" Well, John did become a missionary; and fell. And this time the committee were very sad; but, before opening their lips, the old woman anticipated the story, and exclaimed, "Thank God! Would that He would call my last son, William!" And William, too, went, and fell; when the noble woman exclaimed, "Would that I had a thousand sons to give to God!"—Oh! would that we had a thousand such mothers! Then would our ranks be full.