



Cast-Iron
Beauty

An Antique J.W. Fiske Aquarium

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photographs by the author

Can you imagine an aquarium and stand that is more eye-catching than the tank's inhabitants? Leave it to Victorians to come up with something so remarkable, and to make it out of a material that has lasted for over 100 years: cast-iron. And I thought my first aquarium—a 1967 Metaframe 10-gallon tank with a slate bottom—was an antique!

In fact, aquarium-keeping was all the rage a century ago. The last quarter of the Nineteenth Century was a period marked by intense interest in the natural world, with the well-to-do of Britain and America avidly collecting butterflies, seashells, exotic plants, and fish. Coincidentally, this was also the golden age of cast-iron, and enterprising iron works companies were soon producing ornate aquaria, which they offered in catalogs alongside fountains, urns, and garden furniture.

Among the best of the time was the J.W. Fiske Iron works of New York City. Fiske produced a line of aquariums that incorporated parts that were also used for fountains; the result was something like a birdbath with an octagonal aquarium built on top of the basin and with a fountain in the center. The panes of glass were fitted in grooves cast into the basin and top frame, with asphaltum (tar-like roofing cement) used as sealant. This was 100 years before silicone, and with such an inadequate sealing material and over 15 linear feet of submerged joints, these tanks must have leaked constantly, and were likely more common in the garden than in the home.

Something I Had to Have

Until a few years ago, I had no idea these amazing aquaria existed, but an interest in antiques and the expanding universe of the Internet brought my ignorance to an end. I saw a picture of one listed at a live online auction in Pennsylvania, and I drove up to check it out. I had never seen anything like it—the casting of the three herons and plants on the base were remarkably detailed.

The octagonal tank on top clearly needed work, but I was up to that task. What I wasn't up to was the final sale price of over \$10,000!

Nevertheless, I was hooked—I had to get one of these things at a more affordable price, and began searching the Internet on a regular basis. I discovered that Fiske aquariums were the rarest and most elaborate, but also the most expensive, with “retail” prices of the few I found ranging from three to five times the price at auction. There were other period octagonal aquaria produced by the J.L. Mott or W. Adams Iron Works Companies, but these were much simpler versions, and yet they also fetched \$3000 to \$8000 at auction.



■ The author's antique J.W. Fiske cast-iron aquarium, pre-restoration.



■ The open-topped octagonal construction of the J.W. Fiske aquarium allows for both side and top viewing.

Quite a Bargain

Finally, after two years of searching, I got my prize. A J.W. Fiske aquarium fountain was offered through the Internet

catalog of a well-known auction house near Boston. The online photos showed a rusted base, with no glass panes and the remaining pieces—including the signature plate reading “JW FISKE 21&23 BARCLAY

ST NY PATD JULY 16 1875”—heaped in the basin. Despite past experience, and an auction house estimate of \$3000 to \$5000, I registered for the auction, logged on from my home computer, and prepared to lose once again. But to my amazement, I was the only online bidder, and after only 13 bids, won the lot at a price below the low-end estimate! And what a score, because only nine months later, a smaller version of the same aquarium sold at an auction in Mt. Morris, New York for nearly \$13,000 (the auction house estimate for that one was only \$1500 to \$2500).

A Lengthy Restoration Process

After a grueling 35-hour trip, my rusty treasure was safely in its new home, ready for restoration. This process took several weeks. The rust was not a problem; rust on cast iron is usually very thin and can be easily removed, and the iron surface smoothed with fine sandpaper. More difficult were the layers of old paint that obscured much of the detail of the casting. For this I used a solvent-based stripping agent, which required multiple applications and removals with a brass brush before I was down to bare iron.

View from the TOP

The very image of an aquarium today conjures up a rectangular box with a lid. Though this might suit our modern ideas and our box-shaped rooms, an aquarium can be round or octagonal or any other shape that modern glass, and in particular acrylic, can create.

It could be said that the modern closed-top aquariums prevent viewing the fish and plants from above, a view that pond keepers enjoy all the time. Watching the fish and the rippling water from above can be very satisfying. Antique aquariums were often designed to be viewed primarily or even exclusively from the top.

Lighting

The open aquarium uses suspended (pendant) lights to take the lights out of the way. These are used by plant enthusiasts for the more powerful halide bulbs that run too hot to be kept close to the water surface. They are suspended from the ceiling by hooks and need to be hung at the correct height so that the light falls directly into the aquarium, not spilling into the room itself.

A newer option is to use a fixture that attaches to either side of the aquarium. These are not so convenient if you have plants growing out of the tank, but they look superb on a marine aquarium. Some have moon lamps for nighttime

viewing, which can add greatly to the enjoyment of the aquarium in the evenings—and in some marine species can stimulate spawning. Most have a fan for cooling. Splash lenses protect the lamps from corrosion.

A cover can still be placed across the top of the aquarium, but the true open aquarium leaves the top exposed. This way the floating leaves of the plants, and in some species their emersed leaves, can be seen, and the fish can be viewed from above. Some aquarists even grow plants up and out of the aquarium. Many terrestrial or bog plants will thrive with their roots in an aquarium.

What About Evaporation?

In a small room an open-top tropical aquarium can adversely affect the overall humidity of the room, leading in some cases to dampness and windows running with condensation. However this is not a problem in a larger room or where ventilation or humidity convectors are used.

One of the biggest factors is the difference in temperature between the aquarium water and the temperature of the room itself. If the room is unheated, water vapor will condense out. In an averagely heated room this will not be noticed, and the slight increase in humidity often feels beneficial in a dry, centrally heated room.

Some of the grooves in the pedestal had accumulated paint ½ inch thick. To the iron surfaces that would not be submerged, I applied a coat of spray primer, followed by a coat of low-gloss black spray paint. To the surfaces that would be submerged, I applied a coat of spray primer followed by a two-part black epoxy that was made for swimming pools.

Next, I loosely attached the vertical supports for the glass to the basin with bolts, and then carefully fitted eight panes of ⅜-inch-thick glass into the grooves of the basin and the upper frame after first filling the grooves with black silicone sealant. Once the panes were all installed, silicone was applied to each of the eight corners to seal the glass to the vertical supports.

The central column in the basin is a hollow, truncated cone of faux rockwork that I recently discovered was an alternative fountain design available from Fiske—it once supported a foot-tall cast-iron boy holding an umbrella. At some point since 1875, the boy and umbrella had been removed from the column and lost or sold. I took advantage of the hollow cavity in the column to house the pump and stainless-steel submersible heater, running the electrical cords to each up from the pedestal through holes in a



■ A side view of the re-conditioned aquarium, complete with fish, plants, and driftwood.

glass plate sealed into the central bottom of the basin. To the top of the column, I attached a replica of one of the shallow dish-like fern stands that sit on each of the eight corners of the octagonal tank. Water from the pump inside the column was plumbed through a “T,” with a small

trickle diverted to a hole in the dish at the top of the column, and the bulk of the flow plumbed out a hole in the side of the column into a length of flexible ball-socket tubing directed to generate a circular flow around the perimeter of the octagonal tank.

Remember topping off the aquarium to replace evaporation is not the same as a water change. Any toxic constituents do not evaporate, and adding straight tap water will only gradually add to these, over time leading to a dangerous level that can severely affect your fish. A regular schedule of water changes with properly conditioned water and adequate filtration and monitoring will prevent any problems before they build up.

If the tank needs topping off in between, use water that has been through a reverse osmosis unit, distilled water, deionized water, or rain water (if from a pure source).

Jumping Fish

Some fish like to jump, and it is obviously upsetting to find a fish dead on the carpet. Some fish are more likely to jump than others, and in an open-top aquarium it is best to avoid well-known jumpers. Remember that while surface-dwelling fish like hatchetfish and swordtails are quite prone to leaping from the tank, benthic (bottom-dwelling) fishes like loaches and eels are also generally poor candidates for an open aquarium, as their habit of sliding up and over obstacles in their path can take them right up the side of the tank and out over the rim. Snails may also crawl out, and in the marine aquarium, crabs are master escape artists.

Some fish may also jump when first added to an aquarium or in the first few weeks as they adjust. A temporary cover can

be used for a few weeks if this likely to happen. Also, a mass of floating plants (this can be reduced later if required) helps to shade the fish and can reduce jumping. A well-planted aquarium also helps by providing shelter and reducing the effects of sudden movements inside and outside the tank. Fish may also jump at feeding time, when they can get very excited. On the other hand, an open aquarium makes feeding a fascinating experience, seeing the fish schooling and feeding from above.

Gluing a strip of glass or plastic around the edge of the tank about 2 inches (5 cm) wide will prevent most jumping problems, as will a full rectangular cover with a large rectangle or circle cut in it.

An Ounce of Prevention

An open top helps exchange of gases between the water surface and the atmosphere. This also means, if running an open top aquarium, you, your family, and any visitors should avoid such things as smoking and spraying chemicals into the air. And of course you should be more careful not to drop things into the aquarium. But really, these are all sensible precautions for any aquarium. The open-top aquarium is also not recommended around inquisitive cats!

The disadvantages and extra precautions aside, once you have seen your fish living from the top, it adds a whole new dimension to your fishkeeping. — Phillip J. Brown



■ The finished product!

Setting Up

Using the old-fashioned concept of an undergravel filter, I filled the bottom of the basin with a 3-inch black gravel bed and covered it with shallow black trays filled with sand suited for aquatic plants. To illuminate the tank, I installed a single 50-watt flood halogen bulb in an unobtrusive conical fixture about 2 feet above the top of the central column. I collected some dead, waterlogged cypress knees from a local swamp for additional submerged structure. Then, after discovering that the

tank holds about 45 gallons, I stocked it with a collection of planted and floating aquatic plants, followed by a (mostly) peaceful community of discus, angelfish, flame gouramis, tetras, danios, rainbow sharks, peccos, and snails.

A Rust Problem

Cast-iron is a reactive metal, and one problem I have had since setting up the tank 10 months ago is rust. The original epoxy coating on the submerged basin and column began developing blisters of

rust within a few months of filling the tank. While this did not seem to harm the fish or plants, the ruptured blisters were unsightly. I emptied the tank, removed the epoxy coating on the basin and column, and replaced it with coatings of primer and black paint, followed by a thick coating of flowable silicone sealant. I thought this was the ultimate solution, until I recently noticed that even this surface was beginning to blister, although none had yet ruptured.

Concerned about continued problems with rust, I contacted Mr. J. Scott Howell, VP and General Manager of Robinson Iron, Alexander City, Alabama, one of the few iron works left in the United States to manufacture cast-iron fountains. He recommended a three-part coating system that I will try within the next year: a pre-primer of zinc-rich urethane, followed by a primer of epoxiline, then a final coat of acrylic polyurethane. While this system may work for freshwater setups, I would never recommend a saltwater system for one of these tanks.

An Advantageous Setup

There are many advantages of this octagonal tank design. The shallow depth and broad top invite viewing from above as much as from the side, so that floating aquatic plants are more apparent. The annular arrangement formed by the central column results in a "racetrack," and water flow can be directed to follow this path, producing a stream to which fish and plants naturally orient themselves. With these advantages combined with the striking beauty of the aquarium itself, why are these so rare? In my correspondence with Mr. Howell, he indicated that Robinson Iron has the Fiske patterns required to reproduce these aquariums, and that they would be significantly less expensive than the antiques recently sold at auction.

Maybe it's time for a cast-iron revival?

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