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Public Aquariums and Marine Aesthetics

Nola Semczyszyn

Abstract

Given the inaccessibility of the marine environment, the closest many of us come to viewing it is at public aquariums. Aquariums also provide us with rich aesthetic experiences, but it is not clear whether we appreciate the marine environment at aquariums. I present the dilemma of aquarium appreciation as an inconsistent triad: 1) we treat aquariums as places to appreciate marine environments, 2) aquariums are artifacts, not natural objects, and 3) nature and art should be appreciated differently. I argue that aquarium displays are scientific models of marine environments with aesthetic, educational, and scientific aims. My solution to the dilemma involves accepting the paradox and modifying 2. By appreciating displays as the kind of artifacts they are, we are better able to appreciate the marine environment.

Keywords

aesthetic acquaintance, aquariums, environmental aesthetics, models, scientific representation

1. The challenge of aesthetics under the sea

Humans have always been fascinated by the beauty and mystery of the ocean. It is expansive and changing, potentially hostile, but necessary to life. In many ways the depths that inspired stories of sirens and sea monsters remain unknown. We are only beginning to understand the global rhythms of the oceans, how they affect climate, and the extent of human effects on marine ecology. While we know little about familiar species such as whales, new and strange life forms are cataloged every year as specialized vehicles allow us to explore deeper waters. The cold, darkness, and pressure make the underwater world as foreign to us as space, and nearly as inaccessible.

Appreciation of the marine environment thus presents a number of challenges to philosophers interested in environmental aesthetics. Most people do not live near the coast, and even those of us who do cannot spend long periods under water. Learning to scuba dive is time consuming and expensive, and the gear still allows us to spend only a short time at any depth. Standing on the shore and looking into the pools left by a receding tide or gazing out at the water watching for the splash that signals a seal or a whale, we are aware that another world lies below the ocean surface and that it is beyond the access of our air-breathing bodies. With all of these limitations on our perceptual experience, is there any way to appreciate the beauty of the underwater world or does its inaccessibility place it outside the realm of aesthetics?

In this article I investigate one of the ways in which people have tried to make the marine environment accessible to experience: through public aquariums. However, aesthetic appreciation at the aquarium raises its own challenges. In

what follows, I introduce the dilemma of aquarium appreciation for environmental aesthetics as an inconsistent triad, and consider how it might be resolved. At stake are the display practices of aquariums, beliefs about the difference between art and nature, and theoretical commitments in aesthetics. All of these are problematic, but none of them is easy to give up.

In a recent paper, Tom Leddy argues that the appropriateness of our aquarium appreciation can depend on how aquariums treat nature as art in the context of display.^[1] I do not think that this adequately addresses the problem. Examining each claim of the triad shows that debates over the context of display, aesthetic acquaintance, and the permissibility of aesthetic judgments for art and nature are all central to creating the dilemma. I argue that the inconsistency can be explained away once we have a richer account of the kind of artifacts that aquarium displays are. Aquarium displays are scientific representations that provide us with firsthand experience of marine specimens. Given what aquariums displays are, appreciating them as artifacts allows us to appreciate marine environments.

1.1. Public aquariums and marine appreciation

In the twenty-first century most public aquariums are not-for-profit marine science centers focused on education and conservation. Like zoos, natural history museums, and botanical gardens, they are collection-based institutions for informal learning. Historically these institutions have been places for both scientific practice and public education.^[2] Aquariums not only teach visitors about marine science and conservation, they also allow them to experience the beauty and mystery of the underwater world through public display of their live collections. No longer filled with walls of tanks arranged taxonomically, today's immersion-style exhibits transport visitors to humid rainforests, sun-dappled reefs, and through deep ocean twilight. Display tanks are contained units arranged in exhibits that feature numerous tanks and focus on specific marine regions or environmental issues. Designers harness the beauty of marine ecosystems in displays crafted to inspire visitors to learn and care about the oceans. Exhibits use pictures, texts, and interactive elements not only to interpret the display tanks and educate visitors, but also to pique our interest and generate empathy and wonder.^[3] Visiting aquariums is meant to be aesthetically rewarding, even as it is educational.

For many of us, aquariums are our first, and sometimes only, glimpse at the world below the ocean surface. By most accounts, public aquariums are treated as places to see, learn about, and appreciate the marine environment. The question aestheticians should ask is, "Are they?"

1.2. Aquarium appreciation: the dilemma

As I sketched above, aquariums purport to offer aesthetic appreciation of the otherwise inaccessible aquatic world. Viewing practices treat the aquarium as places where we can appreciate the flora, fauna, and seascapes that make up the marine environment. If aquariums do what they are constructed to do, then the following claim is true:

1) Aquariums are places to aesthetically appreciate marine environments.

However, even with a great deal of self-deception, we are never tricked into thinking that aquariums are natural environments. We are aware of the tanks, and that we and the fish, invertebrates, and mammals exist in different environments. Immersion is not meant to inspire delusion. Aquarium displays are human artifacts designed to house living creatures and to elicit certain responses from visitors. Assuming a basic distinction between nature and artifacts, the following claim is also true:

2) Aquariums are human artifacts, not natural environments.

While we might applaud the aesthetic merits of the architecture of the aquarium, such as the quality of the displays, the lighting, decoration, and other features of the aquarium as a constructed environment, the central focus is the contents of the tanks that are designed to be beautiful and inspiring.

If what we see at the aquarium is appreciated as if it were nature and yet is not nature, then we need to explain what makes it acceptable in this case to appreciate something X as if it were Y. That we treat aquariums as places to appreciate nature and know that they contain artifacts is at odds with the dominant view in aesthetics that artifacts and nature are appreciated differently. Environmental aesthetics came about in response to differences between nature and art and artifacts that affect how they should be appreciated.^[4] While there are many live debates about what (if any) the aesthetic differences are, there are reasons to maintain two distinct approaches.^[5]

Since most of our aesthetic theories and 'models of appreciation' have developed in accounts of art and other artifacts, many rely on features of artifacts that are not shared by natural objects.^[6] These include intentionality, genres and media, artistic expression, and traditions of critical discourse. Partially in response to the exclusion of nature from aesthetic theories, environmental aesthetics has also developed around differences between nature and art that are taken to impact how and why it should be appreciated.^[7] Nature surrounds us and we engage it with all of our senses; it is not 'framed' into clearly bounded objects of appreciation. Unlike art, nature is not intentional and the perceptual features of the natural world *in situ* are not shaped through human forces.^[8]

To appreciate nature 'as nature' or 'as natural' is not just to perceive one more thing about it. Those who accept distinct approaches to the aesthetics of art and nature often limit *appropriate* or *correct* judgments to those that involve appreciating something 'as what it is' or 'on its own terms'.^[9] Artifacts and natural items are different kinds of things, and each is thought to place certain demands and constraints on the viewer that shape accounts of the aesthetic. This can be in virtue of the viewing attitude we adopt,^[10] the perceptual features we experience as salient,^[11] or by normative constraints on our appraisal.^[12]

Although the separation between art and nature in aesthetics is not universally accepted, calls for a unified aesthetic theory are still widely regarded as challenging a theoretically relevant distinction in aesthetics.^[13] Despite widespread debate over the conditions that are necessary and sufficient to appreciate both art and nature, a third claim is generally accepted.

3) Aesthetic appreciation of artifacts and built environments is different from appreciation of nature and natural environments.

Here we have the dilemma. We have independent reasons to accept each of claims 1 through 3, but they are mutually exclusive: any two together entail the denial of the third. It follows from accepting 1 and 2 that we can appreciate the marine environment at aquariums despite this environment's not being a natural one, but this is inconsistent with accepting 3 as it conflates natural and artifactual appreciation. The conjunction of 2 and 3 affirms the artifactuality of aquariums and the need for distinct appreciations of artifacts and nature.

However, it follows from this that aquariums should be appreciated as artifacts in a way that is at odds with 1.

Finally, accepting 1 and 3 entails the denial of 2. If we accept that aquariums are places to appreciate marine environments, and think that nature and artifacts should be appreciated differently, it is inconsistent to hold that aquariums are artifacts.

Although there may be reasons to challenge each of the above claims, there is no obvious solution to the problem. However, since aquariums seem to be the closest we can come to an aesthetic appreciation of the marine environment, this dilemma should not be left unresolved. In the following section I examine various solutions and the arguments that have been given for rejecting each of the above premises in turn.

2. Appreciation at the aquarium

2.1. Objects, objectification, and appreciation

There are a number of reasons why one might take the truth of claims 2 and 3 above as reasons to reject 1. To appreciate nature as nature it is not enough that we appreciate something *as if* it were natural; it has to have come about by natural forces. Since aquariums are products of human artifice, we are wrong to appreciate them as products of nature. Not only do their intentional features make an aesthetic difference; they lack features relevant to appreciating the marine environment. If the balance of forms and textures, or the harmony of colors that make an aquarium display delightful, are taken as deriving from natural forces rather than human design, this changes not only how the tank appears but also the kind of pleasure we take in it. For instance, we can appreciate how well or poorly crafted a tank is only if we take it to be an intentional artifact. A tank that appears unbalanced, garish, or bland is more of an affront if we recognize that these features are intentional and could have been otherwise.

Though a display might share some visual properties with the natural marine environment, there is no reason to think that

aesthetic properties are transitive between two objects that look similar but are different. A photograph of a blighted landscape can be aesthetically meritorious from how it depicts that landscape, and a painting might have no aesthetic merits as a painting despite depicting a stunning environment. Even if many perceptual features are shared between a marine environment and a display tank, it does not follow that aesthetic features are also shared. This is particularly important with nature, where it is not clear which perceptual properties are the aesthetically relevant ones.

A second reason to reject 1 is that aquariums entail an object-based model of appreciation that is inappropriate to nature.^[14] To display a natural object separated from its original context is to ignore “what it is” and treat it like an artifact, focusing attention on its surface features in isolation.

Viewing nature in this way changes its context and thus the aesthetic properties we perceive it as having. At best it can be appreciated formally as an abstract sculpture. To many environmental aestheticians this object model is not appropriate for nature appreciation. It treats nature as something it is not, and in doing so it denies aesthetically significant differences between art and nature.

On a weaker reading of this charge, aquarium appreciation is considered trivial. Aquariums are just spaces to showcase visually interesting species of marine creatures. This fails to emphasize appreciation of their visual features as expressing natural processes, and also encourages easy and passive appreciation of the things we already find appealing. Equating sensuous beauty with value furthermore stresses the conservation of the exotic and formally attractive, while neglecting more mundane creatures or environments.

On a stronger reading, aquarium displays make a spectacle of nature in a way that is actively incompatible with respectful viewing. Putting living things on display treats them as objects that we can use however we like with no value beyond pleasing our gaze. It casts appreciative viewing as an act of dominance that reinforces an attitude of human superiority over the rest of nature.^[15] This changes both how things appear and the nature of the pleasure we take in viewing them by infusing aesthetic appreciation with the pleasure of domination. This is problematic. It seems incompatible with the disinterested attitude taken as necessary for aesthetic experience, and even if one rejects disinterestedness, it is unclear whether this kind of pleasure should be characterized as aesthetic and not something else.

2.2. *The importance of acquaintance*

One way of resolving this dilemma in favor of aquariums is to deny that the artificiality of aquariums interferes with visitors’ ability to appreciate the marine environment. Wollheim maintains that a central tenet of aesthetics is the *principle of acquaintance*.^[16] This holds that firsthand experience of aesthetic objects is required for aesthetic evaluation or belief.

While there is some debate over the possibility of aesthetic testimony, our aesthetic beliefs are most often deemed to be legitimate when they do not rely on any intermediary.^[17]

One reason to consider appreciation at the aquarium incompatible with appreciation of the marine environment

itself is that we have firsthand experience of the artifact, the display tank, and not the natural environment itself.

However, aquariums, as well as other collection-based institutions such as zoos and botanical gardens, *do* offer firsthand experience of their living collections. One could argue that it is the collections and not the tanks that are the objects of appreciation. And so, unlike nature documentaries, paintings, and other artifacts, aquariums do not violate the principle of acquaintance. If acquaintance is satisfied and the objects of our appreciation are the displayed flora and fauna instead of the composite display tanks that house them, then the artifactual nature of aquariums need not be in conflict with appreciation of the marine environment for what it is.

Additionally, this seems to fit our viewing practices: appreciative viewing at the aquarium is treated as appreciation of nature. After all, we are actually seeing seahorses, anemones, and other creatures in the tanks.

People visit aquariums for the fish, invertebrates, and other species on display. Display tanks are treated as invisible because they are filled with living specimens, which are the things visitors go to see. Visitors might notice the design of the tanks, the craft of signage and interpretive panels, and their contribution to the overall quality of the exhibits, but it is not the aesthetic qualities of the tanks that are the focus of appreciative attention here. Acknowledging the role of acquaintance is important in describing our viewing practices, but treating displays as invisible does not entail that they have no effect on our experience. Visitor studies at zoos have shown that naturalistic habitats change viewer perception of animals, and that such immersion-style displays, those that remove visible barriers between humans and animals, reduce disrespectful attention-seeking behavior in humans.^[18] Since display styles can affect attitudes and behavior, denying their effect on experience is untenable.

We see living collections, but we see them in tanks lit by artificial light, with artificial surge, and among landforms shaped by humans. Display tanks are often “naturalistic” because they are constructed to replicate the appearance of a marine habitat, but they are not natural. Displays often showcase multiple species within these naturalistic habitats with interpretive texts that ask us to watch for certain behaviors, such as camouflage, that require interaction between species or with the environment. In these cases we are to appreciate the environments, not only individuals or individuals as constituent parts of the environment. Acquaintance can only account for appreciation of the individual flora and fauna, but our appreciation is often of the “scene” and of the individuals as members of species.

Another problem with acquaintance is the *ontology argument* raised by critics of zoos. Captive animals, they argue, are no longer like individuals in the wild. The feeding, resting, mating, growth, grooming, and other behaviors of captive members of species X are altered in response to the artificial environment to the point that the individuals lose features essential to Xs in the wild. Though captive individuals may resemble members of species X, they are so altered by captivity that they become transformed into *pseudo-Xs*,

sharing only superficial features with their wild cousins. *Pseudo*-Xs are not natural animals. They are something different, artifacts created by the zoo.[\[19\]](#) If animals, perhaps even plants, are transformed into artifacts by the process of captivity, then our acquaintance with live collections should not be mistaken for acquaintance with nature. Since they do not express the same perceptual features, our aesthetic appreciation of an X and a *pseudo*-X are different. Any account of aquarium (or zoo) appreciation has to find a way to meet or mitigate the ontology argument in order to establish *ex-situ* appreciation of animals.

3. A proposed solution: appreciative pluralism

In a recent discussion of aesthetics and aquariums, Tom Leddy argues that the prohibition against appreciating nature and art in the same category should not be absolute. Even though aquariums are not natural environments, this does not count *tout court* against their role in the appreciation of nature. In his discussion he offers an aesthetic pluralist analysis that supports a role for aquarium displays in an appropriate appreciation of nature.[\[20\]](#)

Leddy has two targets: those who think an original ecological environment is necessary for appropriate appreciation; and scientific cognitivists, who hold the view that the correct categories in which to appreciate nature are those of the natural sciences. In framing his discussion of aquariums, Leddy sets up the problem a little differently from me.

Aquariums are places people can go to appreciate nature. They pose a problem for scientific cognitivists, however, since aquariums are artificial environments. From the scientific cognitivist perspective, the best place to appreciate ocean flora and fauna is in their original ecological context. One might argue that putting flora and fauna on display in a science museum is treating them as though they were works of art.[\[21\]](#)

Leddy argues that not only is *in situ* viewing difficult in underwater aesthetics, but it alone does not guarantee appropriate appreciation, since there is no telling what people will get out of an experience. He takes the "object model of display" as what scientific cognitivists contrast with appreciating things in the context of origin, and develops the concept of "artification" in order to argue that aquarium displays can be based around artistic and not only scientific concepts.[\[22\]](#)

The artification of nature, seeing nature through art categories, is not a category mistake according to Leddy. It is one of many ways of coming to appreciate nature. Rather than accepting a "monistic" model of appreciation that condemns certain appreciative practices as aesthetically inappropriate, we should assess each case according to its own aesthetic, ethical, or evaluative merits and demerits. Seeing natural objects in art categories can be creative, and "metaphorical seeing" can yield deeper aesthetic appreciation. If aquarium displays "artify" and aestheticize nature, he argues, this does not immediately count against the seriousness of appreciation.[\[23\]](#)

Leddy evaluates two examples of artification in order to draw out an important distinction. The first is from an exhibit of jellyfish at the Monterey Bay Aquarium called "Jellies: Living Art," which featured a blown glass sculpture called *Seaform* by the artist Dale Chihuly.^[24] Leddy argues that this style of exhibit is not merely about seeing nature as art, but that it is also about coming to see both through their interactions. He says, "The curator probably wanted to get us to see how viewing the art works and jellies together may benefit our experience of each."^[25]

The second example is the stuffed animals and other kitsch in the aquarium souvenir shop that presents cute and sentimentalized versions of marine animals. Leddy contrasts these two examples in order to differentiate between what he calls "surface vs. deep artification."^[26] Surface artification draws on the superficial features of art found in the souvenir shop. "It treats things as art" argues Leddy, "but only with reference to surface features of art. Thus, it focuses on sensuous qualities, the decorative, the ornamental, and the stylish."^[27] By contrast, deep artification is that which "draws on features of art related to meaning, self-consciousness, reflection on one's culture, and exploration of the human condition."^[28] While both deep and surface artification can aestheticize non-art objects, they do so in different ways that can be more or less appropriate, enjoyable, and ethical depending on the situation.

3.1. Problems with Leddy's account

Artification is undoubtedly a useful development, but it does not solve the problem of aquariums. For one, Leddy is wrong to think that the dilemma of aquarium appreciation only holds for scientific cognitivists, since scientific cognitivists are not alone in accepting my claim 3, above. One can hold that nature and art should be appreciated differently without accepting that scientific categories are the only correct appreciative categories for nature. Naturalistic aquarium displays are still artifacts, and however much scientific information one is offered by a display, it fails to be a natural environment.

Leddy's account treats display tanks as vessels presenting natural objects whose sensory properties can be viewed in either artistic-cultural or natural-scientific categories. In casting "displaying nature" as equivalent to "treating it like art," Leddy characterizes the artifactuality of aquariums as equivalent to the weak reading of the object model of appreciation. The artifactuality of aquariums (and the dilemma) can then be explained away by rejecting the prohibition against appreciating art and nature in the same way. Emphasizing deep over surface artification can dismiss lingering concerns about appropriate appreciation and its connection to respecting nature. However, the artifactuality of aquariums is independent of the permissibility of appreciative categories.

Leddy accepts that aquariums are places where we go to view nature. Yet in his account aquarium displays and souvenir shop items both count as artifying nature, despite the fact that the displays offer us firsthand experience of live collections. Of the "kitsch" souvenir shop items he says, "It is artification in

the sense that non-art things, for example fish and sea-horses, are turned into something art-like through the medium of artistic representation.”^[29] Leddy faces a dilemma: either he tacitly accepts the distinction between art and nature that he claims to deny, or his account offers no clear role for live collections at the aquarium. If he thinks that by seeing sculptures, video displays, and art installations we can appreciate fish and seahorses without actually looking at fish and seahorses, then it follows that we can appreciate nature without an acquaintance with live collections.

While this conclusion might cheer opponents of live collections, it creates a problem for Leddy: it is not only at odds with viewing practices; it assumes a prior distinction between natural objects and artifacts. We have to conceptualize ‘seahorse’ as a certain kind of natural thing prior to experiencing the visual properties of the artified object as being related to seahorses at all. Leddy must either accept that aquariums are not places to see nature, or (insofar as “seahorse” is a natural history category) that some natural historical categorization is necessary for either deep or surface artification at the aquarium.

Yet, comparing display institutions can help determine the aesthetically relevant features of displays, and how artistic and scientific contexts differ in their treatment of objects of appreciation.

4. Contexts of appreciation and institutions of display

4.1. How aquariums differ from art galleries

Art galleries and aquariums both offer us firsthand experience of their collections. However, their viewing and collecting practices treat acquaintance and conceptualization differently.

Usually when we visit an art gallery we go to see and appreciate individual works of art. A gallery’s collection is made up of individual works, each with its own aesthetic value. We would not be satisfied if replicas or photographs replaced them because acquaintance with individual works is taken to be necessary for appreciation of works of art.^[30] We develop art historical categories through seeing many individual works and coming to note standard features. Though visiting art galleries also allows us to broaden or deepen our art historical knowledge and develop critical abilities, individual works are collected for their aesthetic value, not to help satisfy these other viewing purposes. This is not the case at the aquarium.

Aquariums do not mainly showcase individual creatures so visitors can appreciate their vivid, exotic, beautiful, or delicate features. Much aquarium programming focuses on species and habitats, not individuals. An otherwise empty tank might be the best way to get a close look at a fish, but this is precisely the kind of display practice aquariums have moved away from because facilitating acquaintance with individual creatures is not considered meritorious in a display. Naturalistic habitats are aesthetically relevant parts of the display that are not just constructed to please viewers but to simulate conditions sufficient for the animals to thrive. Seeing the individual creatures on display is not only meant to enrich our understanding and appreciation of those individuals but also of

the marine environment more broadly: from experiencing some seahorse's elegance, to recognizing the value of preserving seahorse habitat outside of the aquarium. This seems to require using individuals to stand in for their species in order to foster aesthetic generalizations.

Curatorship of exhibits at either art galleries or aquariums might emphasize certain perceptual or aesthetic features, or draw our attention to particular historical or ecological relationships. Whether display tanks are presented in ways that emphasize artistic or scientific concepts, the husbandry of the animals, the construction of the tanks, and the role of individual creatures in aquarium collections are all grounded in the marine sciences.

4.2. How aquariums differ from the wild

One of the ways in which the marine life that we see in aquariums differs from what we see in the wild is that the creatures in the aquarium are individuals, but they are also specimens. At the Vancouver Aquarium, all of the Beluga whales have names and their individual appearances, characteristics, preferences, and habits are part of how they are presented to visitors in both the exhibit signage and interpretative talks. However, they are not there merely to be appreciated as individuals. They are also studied, fed, cared for, and interpreted as beluga whales. Each whale is both an individual and an exemplar of the species whose defining qualities also constitute part of the interpretation. This is what it means to be a specimen within a collection-based scientific institution. Visitors are acquainted with each whale and learn to see the whales as both individuals and members of a species. To ignore the individuality of each whale and our acquaintance with it as such is to lose the basis for aesthetic appreciation; we might as well read a book about belugas. To ignore what individuals share is to ignore the educational and scientific mission of aquariums and the purpose of live collections.

In the wild we might not know what is typical of a habitat, what is necessary for the survival of the creatures that live there, or if what we see is evidence of environmental health or decay. In display tanks habitats are designed to both support and showcase marine life. They are constructed to exhibit typical features but are also idealized. Species are separated in order to avoid predation in displays. Habitats are often spatially condensed, exhibiting more biological density than one would see in the wild. Seascape features are chosen for their visual appearance and plants are arranged to achieve a certain look. The habitats are aestheticized, but only within the bounds of typicality for that type of environment, so their beauty must reflect that of its environment.

Although aestheticisation of marine environments may be part of aquarium practice, it is not primarily through artification or the object model of appreciation. It is based on marine biological knowledge as well as principles of display and interpretation developed for public science. The artifactuality of aquariums does not fit the classic distinction between nature and art. Aquarium displays are, rather, interstitial objects. Between nature and pure artifice, they are objects that demand a different sort of appreciative category that

accounts for their scientific, educational, and aesthetic criteria. Since aquarium displays are artifacts, they fall under prescriptions to appreciate them as products of intentional human practices, and to do so requires an understanding of their artifactuality. Accounting for aquarium displays in marine appreciation requires a precise theory of their artifactual kind. This should include the purpose they are designed to fulfill and what makes them successful artifacts of that kind.

4.3. Aquarium displays as scientific representations

Aquarium displays should be considered scientific representations of marine environments. They are representations because they stand in for the environment, so that seeing the display is meant to be like seeing the environment. The features of displays are constrained by and meant to reflect those of the target environment in such a way that, if the environment had been different, the display would also have been different. Displays do not present each and every feature of the environment they represent, they are interpretations. Accordingly, they present a certain understanding of that environment both by the properties they represent and those they leave out. As scientific representations, aquarium displays are best considered as physical models of marine environments that simplify, idealize, and exemplify the visual, ecological, and aesthetic properties of those environments. Considering aquarium displays as representational models clarifies their role in aquariums and their success conditions.

Modeling in displays aims to establish a kind of isomorphic similarity between the environmental conditions of the environments and those represented by the tanks, but this is not just based on appearance. The similarity between aquarium displays and the environments they represent is not merely at the level of visually appealing features but also at that of the underlying explanations for these appearances.

Display tanks are intended to be beautiful and educational but they also serve as research sites. Aquarium science has long been a way for scientists to understand species but they are also useful for understanding ecological interaction. Both in-house researchers and collaborators use aquarium tanks to understand the requirements of species and the balance of particular ecosystems. This is often an outgrowth of animal husbandry; however, it also informs considerations of merit in displays.

For example, the giant green anemone requires certain surge, light, water temperature, and nutrient conditions to thrive and to display its characteristic brilliant color. Good displays have specimens that are true to type and habitats that allow individuals to display typical features of the species. A giant green anemone that is pale and limp is not displaying its typical features, so it does not serve as a good exemplar of the species. This could be because it is idiosyncratically pale or because there is something inadequate in the habitat. A display that fails to show typical features or that fails to interpret idiosyncratic features fails in its purpose.

Although they may be idealized and crafted to be visually pleasing, aestheticisation cannot occur at the expense of accuracy. For this, reason mixing species that would not

coexist naturally is frowned upon in displays. So is adding fanciful ornaments, though some displays feature bottles and other human debris if those are frequently found in an environment.

In artistic representations of the natural world, accuracy is not so meritorious. Scientific or ecological accuracy is no more a merit in landscape painting than in abstract painting and can, in fact, count as an aesthetic demerit if it interferes with other aesthetic features. A landscape painting can be a good painting even if it misrepresents the scene or combines plants that would never co-exist. An aquarium display that mixed species might be beautiful but it would suffer demerits as a display. In other scientific representations, accuracy can count as a merit or a demerit. In biological drawings, accuracy must always be balanced against simplicity, since the purpose of these drawings is often educational. Natural history illustrations represent the typical features of species and computational models represent ecosystem relationships, but their accuracy does not also consist in sustaining life. The accuracy of aquarium displays is entwined with the typicality of the specimens they house and the environmental conditions that sustain them.

However, aquarium displays are not just models assessed on accuracy. Public display and education are also part of their function. If our appreciative attention takes displays merely as presenting individuals without considering that they are artifacts based on marine biological knowledge and practice, we miss the point that these are living creatures existing in a sort of community and serving scientific purposes. Even when an exhibit does not offer scientific information in the text, a good exhibit encourages meaningful visual engagement and conceptualization, not mere spectatorship. It should engage us with the individuals and the habitat but also afford new ways to think, imagine, and connect our experience with the broader environment. This adheres to principles of interpretation. The features that make aquarium displays successful as models in public institutions are close to what allows them to be objects for appropriate appreciation of the marine environment.

5. Artifacts for marine appreciation

At the beginning of this paper I suggested that the inaccessibility of the underwater world makes it problematic for aestheticians and that public aquariums purport to make the marine environment accessible to us. However problematic aquarium appreciation might be, displays are representations of environments that provide firsthand experience with the features considered to constitute those environments, at least insofar as they are understood by marine biological science.

This is not to say that scientific concepts are required to appreciate the natural world, but that the displays express years of research into the necessary components of an environment and experienced observation of these components. This captures not only the functional components of the environment, but the aesthetic features as well.

By appreciating the tanks as naturalistic models, we are able to appreciate the marine environment they exemplify.

Aquarium displays afford us visual access to environments. Though that access is limited and mediated, it is no more so than scuba diving or film. Furthermore, this mediation is not inappropriate for what we are experiencing. By preserving the essential ecological properties and interrelations of the environment, many of the aesthetic properties are also maintained. In the absence of other means to appreciate the marine environment, public aquarium displays offer us a non-trivial way of accessing non-accidental shared features of the environment based on extensive research, experienced observation, and measured typicality.

There are a few important caveats to make here. The first point is that not all species are equally suited to life on display and the needs of animals should be the priority.^[31] Leddy is right that we should be particularists about this matter. If an animal suffers from being on display, it will never be a good specimen. If the habitat is not sufficient for the animal to thrive and express itself, then it cannot be a good display. If an animal is displayed in such a way that it appears disrespected or undignified, this cannot offer viewers an appropriate aesthetic experience of the species.^[32]

Demonstration gardens, zoos, and other displays that cross boundaries between art and science or between nature and artifice challenge our notions of aesthetics and our appreciative engagement with nature. These displays teach skills in looking that are applicable to appropriate appreciation in any environment, natural or otherwise, and those skills are important and tied to perceiving the beauty of the natural world. This is scientific education that builds on visual engagement with an exemplary display and provides aesthetic training to our capabilities for appreciation. It gives aesthetic training that is applicable to our general appreciative capabilities.^[33]

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Endnotes

[1] Thomas Leddy, "Aestheticisation, Artification, and Aquariums," *Contemporary Aesthetics*, Special Volume 4, 2012.

[2] Theme parks that feature dolphin and whale shows have a different history. For a history of North American public aquariums see Jerry Ryan, *The Forgotten Aquariums of Boston*, published by the New England Aquarium and available

on their website: www.neaq.org

[3] See Freeman Tilden, *Interpreting our Heritage* (North Carolina: University of North Carolina Press, 1957). This book established interpretive principles that are still used across North America.

[4] Ronald Hepburn, "Contemporary Aesthetics and the Neglect of Natural Beauty," in *The Aesthetics of Natural Environments*, ed. A. Carlson and A. Berleant (Peterborough: Broadview Press, 2004), pp. 43–62.

[5] This is historically situated in Emily Brady, *Aesthetics of the Natural Environment*, (Edinburgh: Edinburgh University Press, 2003).

[6] Allen Carlson, "Appreciation and the Natural Environment," *Journal of Aesthetics and Art Criticism*, 37 (1979), 267–276.

[7] Ronald Hepburn, "Contemporary Aesthetics and the Neglect of Natural Beauty," in *The Aesthetics of Natural Environments*, ed. A. Carlson and A. Berleant (Peterborough: Broadview Press, 2004), pp. 43–62.

[8] Ronald Hepburn, "Contemporary Aesthetics and the Neglect of Natural Beauty," also discussed in detail in Allen Carlson, "Appreciation and the Natural Environment."

[9] Discussions about nature include: Allen Carlson, "Nature, Aesthetic Judgment, and Objectivity," *Journal of Aesthetics and Art Criticism*, 40 (1981), 15–27. Yuriko Saito, "Appreciating Nature on its Own Terms," *Environmental Ethics*, 20, (1998), 135–149. For comparison with art see Malcolm Budd, *The Aesthetic Appreciation of Nature* (Oxford: Oxford University Press, 2003) especially chapter 3, "Nature, Art, Aesthetic Properties and Aesthetic Values." Kendall Walton, "Categories of Art," *Philosophical Review*, 79 (1970), 334–367.

[10] Ronald Hepburn, "Trivial and Serious in Aesthetic Appreciation of Nature," in *Landscape, Natural Beauty and the Arts*, ed. S. Kemal and I. Gaskell, (Cambridge: Cambridge University Press, 1993) 65–80.

[11] See Walton, "Categories of Art;" Allen Carlson, "Appreciation and the Natural Environment;" and Glenn Parsons, "Nature Appreciation, Science, and Positive Aesthetics;" in *British Journal of Aesthetics*, 42 (2002), 279–295.

[12] For a variety of views on the normative side of aesthetic judgments of nature see: Emily Brady, "Imagination and the Aesthetic Appreciation of Nature," *The Journal of Aesthetics and Art Criticism*, 56 (1998), 139–147; Malcolm Budd, *The Aesthetic Appreciation of Nature*; Allen Carlson, *Nature, Aesthetic Judgment, and Objectivity*; John Fisher, "What the Hills are Alive with: In Defense of the Sounds of Nature," *The Journal of Aesthetics and Art Criticism*, 56 (1998), 167–179; Ronald Hepburn, "Trivial and Serious;" Glenn Parsons, "Nature Appreciation, Science, and Positive Aesthetics," *British Journal of Aesthetics*, 42, (2002), 279–295; Holmes Rolston III, "Does Aesthetic Appreciation of Landscapes Need to be Science-Based?" *British Journal of Aesthetics* 35 (4), 374–386.

[13] For discussion of this see Arnold Berleant, *Aesthetics and Environment, Theme and Variations on Art and Culture* (Aldershot: Ashgate, 2005); Arnold Berleant, "The Aesthetics of Art and Nature," in *Landscape, Natural Beauty and the Arts*, ed. S. Kemal and I. Gaskell, (Cambridge: Cambridge University Press, 1993) pp. 228–243; Thomas Heyd, *Encountering Nature: Toward an Environmental Culture* (Aldershot: Ashgate, 2007).

[14] Allen Carlson, "Appreciation and the Natural Environment," *Journal of Aesthetics and Art Criticism*, 37 (1979), 267–276.

[15] While little is said about aquariums, there is an extensive literature that examines the relationship between humans and animals at the zoo. On what I call the 'strong reading' of the object model see: Ralph Acampora, "Zoos and Eyes: Contesting Captivity and Seeking Successor Practices," *Society & Animals*, 13, 1 (2005), 69–88; John Berger, "Why Look at Animals?" *About Looking* (London: Writers and Readers, 1980), pp. 1–26; David Hancocks, *A Different Nature: The Paradoxical World of Zoos and Their Uncertain Future* (Berkeley: University of California Press, 2001); Nigel Rothfels, *Savages and Beasts: The Birth of the Modern Zoo* (Baltimore: Johns Hopkins University Press, 2002).

[16] Richard Wollheim, *Art and Its Objects*, 2nd edition, (Cambridge: Cambridge University Press, 1980).

[17] For recent overviews of the literature on aesthetic testimony see: Robert Hopkins, "How to Form Aesthetic Belief: Interpreting the Acquaintance Principle," *Postgraduate Journal of Aesthetics*, 3, 3 (2006), 85–99; Brian Laetz, "A Modest Defense of Aesthetic Testimony," *The Journal of Aesthetics and Art Criticism* 66, 4 (2008), 355–63; Aaron Meskin, "Aesthetic Testimony: What Can We Learn From Others About Beauty and Art?" *Philosophy and Phenomenological Research*, 69, 1 (2004), 65–91; Jon Robson, "Aesthetic Testimony," *Philosophy Compass*, 7, 1 (2012), 1–10.

[18] Eduardo J. Fernandez, et al., "Animal–visitor interactions in the modern zoo: Conflicts and interventions," *Applied Animal Behaviour Science*, 120, (2009), 1–8.

[19] Keekok Lee, *Zoos: A philosophical tour*, (Palgrave MacMillan, 2006). Versions of this argument also appear in Acampora, Berger, and Hancock's work mentioned in note 7.

[20] Thomas Leddy, "Aestheticisation, Artification, and Aquariums," *Contemporary Aesthetics*, Special Volume 4, 2012.

[21] *Ibid.*, Section 2.1.

[22] *Loc. cit.*

[23] *Ibid.*, Section 2.3.

[24] *Loc. cit.*

[25] *Ibid.*, Section 2.1.

[26] *Ibid.*, Section 2.5.

[27] *Loc. cit.*

[28] *Loc. cit.*

[29] *Ibid.*, Section 2.4.

[30] Complications arise with multiples and allographic rather than autographic works, but the fact remains that art galleries collect individuals for the purpose of appreciation of those individuals as individuals.

[31] Thanks to Ari Whiteman for pointing out the importance of this constraint.

[32] Though the complicated biological and ethical debates about captivity are beyond the scope of this paper, it is worth noting that the Monterey Bay Aquarium among others does not keep marine mammals in captivity for just these reasons.

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