Shipwreck Architecture:
A Speculative Hauntography

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Abstract

'Shipwreck Architecture' draws a connection between cosmotechnics, surrealism and object-oriented ontology, using an architectural design framework as a departure point. The introduction connects the tragic aspects of Yuk Hui's cosmotechnics to the tragic pairings created by figurative surrealists René Magritte and Salvador Dalí, and to the object-oriented project of shipwreck hauntography. This trajectory of ideas is then projected onto a creative project: a speculative history of shipwreck architecture, where the cutting edge of biological research is extrapolated into a technological future when the distant aims of today's technology are ancient history; when the first generations of grown buildings are preserved as ruins; when giant decommissioned carbon-capture factories drift like ghost ships across lakes of their inky waste, when

people remember shipwrecks, caused by the hazards of rising sea levels, later exposed by sinking sea levels and converted into hotels and theatres; and finally, when these theatrical memories provoke such nostalgia that shipwreck architecture would be replicated and fabricated.

Keywords

Speculative architecture, speculative history, ecological thinking, surrealism, object-oriented ontology

Tragedy

There is a contemporary tragedy that beguiles us. It is a braid with many strands. Yuk Hui begins *Art and Cosmotechnics* by positioning tragedy as an ethos of art.[1] Here, we offer further evidence in support of a tragic art ethos, one that builds creatively from Hui's cosmotechnics and from philosophies of tragedy, surrealism, and object-oriented ontology, while using an architectural design framework as a departure point.

When Hui speaks of tragedy, he means it in both Aristotelean senses of *catharsis* and *hamartia*. Catharsis is understood by most Aristotle scholars as that familiar aesthetic experience of emotional release facilitated by certain narratives; in particular, catharsis is the purgation of pity and fear experienced while witnessing tragic art.[2] Hui notes especially the cleansing aspect of catharsis, a dissipation of anticipation and expectation.[3]

The second Aristotelian concept Hui values as an ethos of art, and the more important for our case here, is the tragically fated flaw, *hamartia*: the red nose, the strong yet vulnerable heel, the smoky gasses from our many fires. For all but the most hearty and masochistic, the tragedy of our selves and our all-too-singular culture can only be approached with the sweet promise of redemptive

cosmotechnical salvation. In the reactionary spirit of an abject rejection of even the most necessary pain, let us begin with a childish American story, and then bravely walk forward.

In 1939, an important year in the history of surrealism, a copywriter for Montgomery Ward named Robert L. May premiered a children's book featuring the fictional character Rudolph, the red-nosed reindeer. According to Western Christian cultural tradition, on Christmas Eve, Santa Claus flies on a gift-laden sled pulled by a dozen or so levitating reindeer. In May's book, one of these reindeer, Rudolph, became the group's tragic figure.[4] In 1948, May's brother-in-law and American songwriter Johnny Marks condensed the story into four memorable Christmas carol stanzas. The story, in all its forms, follows the same pattern. The reindeers who pull Santa's sleigh coalesce into a group against Rudolph, who they ridicule because of his strange physical characteristic, his glowing nose. When a change in the environment makes Rudolph's unique trait useful to the group, and he acquiesces to the group's request, the trait that was at first ridiculous becomes venerable.

Though notably gentler than a Greek tragedy, all the tragic components are woven into May's story. Consider by comparison the tragedy of Achilles. Achilles was dipped into a sacred river by his mother, held only by his heel, granting him superhuman abilities. The swift Achilles was one day offered a choice: carry on living with your family, watch your grandchildren prosper, and be forgotten forever, or travel with Agamemnon and fight against the Trojans where you will die and your name will be remembered forever. Achilles chose the tragic life, using his skill to excel in battle before dying following an incapacitating wound to his heel.

Rudolph's story would be more tragic in the Greek sense if, on that foggy evening, Rudolph died from a wound to his bright and shiny nose, moments after saving his fellow reindeer, and heroically rescuing Santa from mortal danger. In the imagined Greek version, the character's arc ends with a transformative, redemptive death. In the contemporary Christian version, the only thing to die is the other reindeer's labelling of Rudolph as an outcast. Rudolph and everyone else lives on, transformed, more accepting of others' differences. One can easily understand the tragic story of Jesus of Nazareth as situated pivotally between these two examples: its morbidity and darkness are a product of having been written in a Greco-Roman cultural context, and yet it anticipates some contemporary Christian mores of transformation, redemption, blessings and enlightenment.

Popular renditions of Rudolph's song typically add vocal responses at the end of each line, hence beginning: 'Rudolph the Red-Nosed Reindeer had a very shiny nose (like a light bulb). And if you ever saw it you would even say it glows (like a light bulb)'. And while the song varies, this repeated retort 'like a light bulb' recurs, giving it some prominence. Indeed, Rudolph himself may stand in as an animal analogy of the incandescent light bulb, an invention only a hundred years old when Rudolph was born, and available to the public to light their own homes for only sixty years. With each decade, the technology of the bulb's components was improved, making bulbs brighter and more useful, ending the era of burning whale oil, tallow and beeswax for light and warmth, unaware of the effects of making electricity at such scale.

With these popular examples in mind, Hui moves Aristotelian tragedy beyond a personal concern to a cosmotechnical one. Defining cosmotechnics as 'the unification of the cosmos and the moral through technical activities', he elsewhere explores nature and culture, and radically different epistemologies, such as science and mythology.[5] Over centuries of cultural (including technological and epistemological) homogenisation, the tragic flaw that we always find in an ancient Greek tragic figure now resides in a collective self-perception, which has one of many origins in the irrational core of rational science: 'science, or rationality in general, stands in tension with the world of myths and passions … Rationality wants to explain the sensible world according to *epistēmē*, while the world as such cannot be fully and objectively grasped'.[6]

Although Hui's cosmotechnics emphasises the local in the cosmological, centuries of colonialism and globalisation have challenged the perseverance of local expressions of mythos, techne and episteme. In the sensible world of a globalised, Anthropocene culture, some people see a tragic destiny, an atmospheric climate so weighty that to press against it seems like throwing sand at avalanches, blowing smoke at volcanos, or spitting on a tidal wave. But worse, these futile acts are celebrated as we throw sand with rigorously trained confidence, and hand out gold medals for sand-throwing. In Greek tragedy, there is less irony, and less ignorance of the futility. So we either observe these two extremes of sensing futility while feigning confidence, or we set the issue aside while feeling consciously or unconsciously guilty of culpably abandoning our own life-giving culture. In this context, Hui's claim that 'the tragic hero transcends the opposition between fate (necessity) and freedom (contingency)' renders freedom almost synonymous with irresponsibility.[7] But not all freedoms are taken with rebellion or lassitude; some freedoms are imposed through circumstance.

For Hui, the tragic artist has 'a status between the mortal and the immortal'.[8] Recall here that pair of aphorisms: Aristotle, in *Politics*, writes: 'Man is by nature a political animal, and he who is unable to live in society, or who has

no need because he is sufficient for himself, must be either a beast or a god', and Nietzsche responds: '"To live alone one must be a beast or a god", says Aristotle. Leaving out the third case: one must be both – a philosopher.'[9] Here Nietzsche's tragic philosopher – a species of tragic artist – is living on the edge of society.

Tragedy for Nietzsche begins to die when philosophers prioritise aligning beauty with rationality. The unreasonable fatalistic irrationality of tragedy is anathema to those who seek to find good order in everything. Since Nietzsche's death of tragedy, as Arthur C. Danto writes, 'the history of philosophy has alternated between the analytical effort to ephemeralize and hence defuse art, or to allow a degree of validity to art in treating it as doing what philosophy itself does, only uncouthly'.[10]

As Danto argues, Plato and Kant align in their attempts at disinterested perspectives towards art. For Plato, the philosopher-king is interested only in pure forms, and the Kantian aesthete is capable of looking upon works of art without any prejudicial interests of their own; 'the implication in both is that art is a kind of ontological vacation place from our defining concerns as human'.[11] Hence one arrives at the Kantian question of the purpose of art, or more explicitly, its pointlessness: 'The work of art looks as though it ought to be useful for something, but in philosophical truth it is not, and its logical purposelessness connects with the disinterests of its audience, since any use it might be put to would be a misuse, or a perversion'.[12] Centuries later, and in an act of aesthetic reclamation, surrealism began exploring purposelessness: objects whose purposes are thwarted by a peculiar quality, or objects whose purposes are generally unknown but a purpose appears likely. Other purposes are secret, some concealed by misdirection.

Surrealism's tragic-masochistic objects

The uselessness of art described by Kant and the tragic irrationality lauded by Nietzsche were both embraced by surrealism in the 1930s. For example, André Breton was captivated by the ability of art objects to elicit ambivalently both intense desire and an intense sensation of the tragic, especially fear.[13] Hailed as an icon of surrealism then as now, Meret Oppenheim wrapped a fully functional teacup in gazelle fur, rendering it both useless and beautifully, tragically irrational. Known in English as *Fur Teacup*, this bizarre sculpture was titled by Breton as *Le Déjeuner en fourrure* (*Luncheon in Fur*), a reference to Edouard Manet's *Le Déjeuner sur l'herbe* (*Luncheon on the Grass*) and Leopold von Sacher-Masoch's sadomasochistic novella *Venus im Pelz* (*Venus in Furs*).[14] Oppenheim's sculpture, and Breton's title, alludes to the desirous vaginal recession and the soft sensuality of pubic hair, but the fur-wrapped spoon resting on the saucer sparks horrid thoughts of cunnilingus with a hairy tongue or acts of bestiality. The object of desire is counterbalanced by the tragic object, the object of fear and revulsion. In Oppenheim's case, the desire-fear complex takes on a masochistic quality that foreshadows her other famous work, *My Nurse* (also made in 1936, consisting of a pair of upturned high heels tied to a silver platter and displayed as a roast turkey with a vaginal opening), and the overarching surrealist concept of the masochistic object.

Not surprisingly, there is an undercurrent of voyeurism in surrealism's masochistic objects, from Oppenheim's exposed and sexualised feminine objects to Salvador Dalí's objects. For Dalí, this concept of the masochistic object connects to artworks as commodities and the patron's masochism: in his words, the 'masochistic buyer … was avidly looking for the object capable of making him suffer in the most indefinite and least obvious way'.[15] This is an extraordinary observation: that art objects attain their power through the mysterious discomfort they provoke. However, as a class of objects, the provocative object is of a more general order than the art object, as many provocations are readily comprehended; that is, many kinds of provocation are rather obvious. Within surrealism though, the masochistic object is identified with qualities that are antonyms of the obvious: purposes are secret, nonexistent or unknown, even to Dalí's buyer. Not surprisingly then, surrealist researches that sought the 'least obvious' occasionally yielded real poetic discoveries, or, if you prefer, novel poetic constructions.

Surrealism's tragic pairs

René Magritte described his mid-1930s images to Breton as arising through a process of 'deliberate research'.[16] There is, Magritte explained, a 'certain feature residing obscurely within each object … something linked to it'.[17] Contemporary philosopher Graham Harman, in his object-oriented ontology (OOO), would refer to this 'certain feature residing obscurely' within every object as the object's unique quality. For Magritte, the unique quality, when objectified, produced the visual idea, or the visual metaphor. One example is the burning tuba in *The Discovery of Fire* (1935). Here, Magritte sought a companion object for flames, an object that could prompt metaphor.

Magritte understood metaphors as responding to our innate desire to upset the established order of things. When imagining an altered order in our metaphoric ideas, we momentarily reflect on the emotional valence of having those desires realised. In 1932, Magritte wrote,

> we are affected by the sight of an ordinary object placed in an unfamiliar setting; our secret desire is for a change in the order

of things; and it is appeased by the vision of a new order (isolation)… the fate of an object in which we had no interest suddenly begins to disturb us.[18]

So what we, the voyeurs, see is that the burning tuba is not merely an object with unusual qualities, but an object with which Magritte intends for us to sympathise or even empathise – or perhaps to pity or fear. In either case, an object about which we care somehow more than habit ought to afford. In these attempts to prompt empathy with all living and non-living objects, Magritte's surrealism walks his audience away from the modern philosophical centrality of humanity with its anthropocentrism, and towards the anti-anthropocentric, and what we now call ecological thinking. Magritte recalls the highly surreal origins of his own object orientation:

> One night in 1936 I woke up in a room where there happened to be a bird sleeping in a cage. A splendid misapprehension made me see the cage with the bird gone and replaced by an egg. I had grasped a new and astonishing poetic secret, because the shock I experienced was caused precisely by the affinity between the two objects: the cage and the egg, whereas previously I had provoked the shock by bringing together totally unrelated objects. Preceding from this revelation, I tried to discover if objects other than the cage, thanks to the pinpointing of some elements peculiar to them, and a strictly predestined part of them, could not display the same obvious poetic quality that the egg and the cage had achieved through being brought together.[19]

Magritte's judicious distribution of affinity and unrelatedness can be understood as akin to OOO's relational and non-relational objects.[20] That is, one aspect of any given object has affinities and relationships with other objects (the relational, or the sensual, object), while the other aspect remains obscurely withdrawn (the non-relational, or real, object).[21] In the example of the egg and the cage, as in that of the fire and the tuba, one of the objects can be understood as an objectified quality of the other object. The burning tuba is apparent, yet the tuba is not melting, charring, or even smoking. The flames, the second object, are present as the objectified quality of the tuba, which is as unaffected as it is unaffecting; yet, the viewer may experience an unsettling concern for this burning tuba because the tragic pairing elicits sympathy. Similarly, being caged is a quality of the egg, so the cage exists as an objectified quality of the egg. As it prevents the egg from escaping, the cage disturbs our understanding of the egg's objecthood. The viewer is left disturbed by the image and concerned by what this irrational and tragic pairing implies about the egg: its fate, its potentials, its threats – and, in turn, what it implies about the viewer's own powerlessness.

Shipwreck theatre

Cosmotechnical tragedy and Magritte's process of pairing masochistic objects are brought together in Simon Weir's ambivalent and strange subject, 'shipwreck theatre'. How do these two words effect each other? Does the theatre host an audience witnessing ships wrecking? Or is the body of the theatre constructed from a shipwreck? Or both? Just as Magritte said his approach sought to elicit empathy for ordinary objects, so the pair of words invites audiences toward empathic responses for shipwrecked theatres and theatred shipwrecks. At the same time, as theatres are effectively sanctioned locales for voyeurs, the coupling of theatre with shipwreck brings to mind Hans Blumenberg's classic philosophical text, *Shipwreck with Spectator*, which begins with the case of a spectator watching a ship sink from the safety of shore.[22] What does it mean to witness wreckage in real time, and what are the responsibilities of spectatorship? The masochism of the voyeur who cannot – or does not – turn away at the sight of unspeakable tragedy does speak in countless metaphors, within the context of surrealism as much as within our own unfathomable Anthropocene conditions.

With all this in mind, 'shipwreck' and 'theatre' were chosen by Weir to prompt text-to-image AI.[23] The lack of visual precedents for the AI to draw upon, and the ambiguity of the notion, led to many very different outcomes, some serene and idyllic, others harrowing and nightmarish. Of the hundreds of images generated, a select number were retained, not surprisingly, those seemingly gesturing to an unfathomable future.

When paired with Hui's cosmotechnics, which 'refuses' the narrative of linear progress with its tragic destiny and redemption – 'this homogeneous technological future that is presented to us as the only option' – shipwreck theatres were read as alternatives to the hyperfocus on 'technological singularity and transhumanist (pipe) dreams' that crash diverse visions of futures that might co-exist.[24] Instead, we might envision a cosmotechnics-to-come that contains shipwreck theatres as one of various 'constellations of relations, e.g., the parental relations between females and vegetables, or the brotherhood between hunters and animals.'[25] But the pairing of shipwreck and theatre, like Magritte's tuba and fire, or egg and cage, creates explosions of relations and non-relations, of affinity and unrelatedness. The non-relations, the nonsensical, the indeterminacy of such multiplicitous outcomes lends itself well to dreaming cosmotechnical futures where collisions of nature and culture are no longer deniable, if they ever were.

While Magritte's ideal viewers (and Dalí's ideal buyers) experience the tragic pairing and the masochistic object by feeling for, with, and against the burning tuba and caged egg, object-oriented ontologists Graham Harman and Ian Bogost say that this kind of experience brushes at the limits of access to any object.[26] No object can ever truly feel for, with or against, or comprehend, or even consume another object, because each object has this certain non-relational aspect, a hidden-away or occluded part that does not interact with other things.

Like Magritte's fire and birdcage, in the object pairing of shipwreck and theatre, it is the wrecks that are cagey, shifting, and indefinite. Shipwrecks, especially those located under water, are metaphysically and physically secreted away, in a dark and mysterious realm inhospitable to human presence. Because of this occlusion, the creative method termed 'shipwreck hauntography' is limited in its wrecky representations to depictions of the shifty and phantasmal object's way of being.[27] Representing the way of being of shipwrecks then, is representing the unrepresentable, so hauntography can only ever be 'an artistic method that represents (visually or otherwise) the ontological absent-presence of shipwrecks: that is, as things that defy complete phenomenological access, while inspiring speculation into the uncanniness of being a thing of anthropogenic origin but which persists beyond *anthropos*'.[28] With this definition in mind, a hauntograph has three necessary elements: 1) it depicts an object's way of being, across time; 2) it acknowledges that the object is beyond complete human access; and 3) it is rooted in realism, despite its necessarily speculative nature.[29] Each of the images below contains these three criteria, with a particularly heightened sense of speculation into the occluded nature of things given that the future, even more than oceanic depths, is entirely withdrawn from human access, phenomenologically and epistemologically.

Well aligned with the ideas and images presented here, shipwreck hauntography is also a pairing of sorts: a tragic object that has ceased to function as designed, and another object becoming increasingly aware of the limits of subjecthood – which may be understood as tragic in its own right – in regard to other objects; indeed, the hauntographer might even be considered a hyposubject.[30] There is an architectural component to both objects, shipwrecks and hauntography, with the latter devoted to building the unbuilt and drafting the failed design, and the former consistently being remade by various engineering marine forces, in what has been called 'naufragic architecture'.[31] Although these 'marine engineers', from microbes to plankton and nekton, work hard to create colonies on shipwrecks and to convert their materials into habitable or edible forms, Killian Quigley remarks that sponges, hydras and molluscs attaching themselves to wreckage are regarded as akin to ornamentation, 'troped as that which superficially encrusts, decorates, or adorns underwater stuff'.[32] This trope of invertebrate ornamentation has also affected architecture on land, where the adoption in Renaissance Europe of Vitruvius's *De architectura* as the cornerstone of architectural and archaeological theory positioned adornment as morally suspect, implying 'irrationality, illogic, untruth, and even moral decadence.'[33] Given that indeterminacy is a key quality of surrealism's objects and of the hauntographic method, and that moral decadence is often associated with the theatre, an architectural pairing of shipwreck and theatre might lean into the trope of invertebrate adornment as risqué nonsense – or perhaps even more disturbing, that invertebrates and their ilk might become the true cornerstones of a new, cosmotechnic architectural theory.

On the tour guide scripts

So that these shipwreck theatres can be read as cosmo-technical tragedies, they are presented within a loosely described fictional scenario in the distant future, as an illustrated series of tour guide scripts, which the guides recite to tourists visiting their scheduled destinations. The images depict an otherworldly architecture, clearly Earth, but with new coastlines and radically different architecture-ecology relationships. The purpose of the tour guide script is to encourage readers to view the images, not as meaningless AI products, but as speculative architectures. By considering them as real, we can begin to imagine the architecture's cosmotechnical inhabitants, and thereby tremendous cosmotechnical temporal difference.

The relationship between word and image here is grounded in a fictional construct that is deliberately loose. Within the readers' flexible frame of expectation, the angle of approach is again surrealist. Consider first Magritte's fondness for titling images with charismatic, enigmatic and suggestive poetry. As he explicitly stated, 'the title is related to the painted figures in the same way that the painted figures are related to each other'.[34] In Dalí's work, the figures and their titles are also related, though differently from Magritte; for Dalí, this often meant wrapping the objects in layers of irrational associations and referring to other art objects, similar to the way Oppenheim did. How many layers of association? For Magritte, Dalí's reiterations of irrationality became 'superfluous'.[35] For instance, consider Magritte's little surrealist object titled *Confiture de cheval* (*Horse Jam*), an empty jar with a hand-painted paper label bearing the title and an outline drawing of a horse. Magritte's catalogue raisonné interprets this as 'presumably a joke about horse shit'.[36] The idea of an ostensibly empty container given a provocative title was borrowed

from a 1919 work of Marcel Duchamp that Magritte admired: an empty container titled *50cc of Paris Air*.[37] The association with horses may relate to the fact that Paris was full of horses in Duchamp's youth, as Brussels was in Magritte's, and likely smelt of horse manure. Horse-drawn omnibuses were phased out in Paris and Brussels across the early years of the 1910s, replaced first by steam-powered, then gasoline-powered, vehicles. Consequently, we may assume that the changed character of the city air was noted by many across these decades, and air could be considered an object worthy of preservation. Five years after Magritte's reply to Duchamp, Dalí layered the idea in irrational associations:

> I hollowed out entirely an end of a loaf of bread, and what do you think I put inside? I put a bronze Buddha, whose metallic surface I completely covered with dead fleas which I wedged against one another so tightly that the Buddha appeared to be made entirely of fleas… After putting the Buddha inside the bread I closed the opening with a little piece of wood, and I cemented the whole, including the bread, sealing it hermetically in such a way as to form a homogeneous whole which looked like a little urn, on which I wrote 'Horse Jam.'[38]

This process of layering objects with irrational narratives that prompt irrational interpretation was an ingredient of the surrealist ethos drawn from Duchamp's ready-mades: that objects can be made art by an artist's nomination.

The relationships between the text and images in the tour guide notes take the surreal form described above. In our example, the irrationality has two components: in Magritte's terms, mysteries *du jour* and mysteries *de facto*.[39] Many of the mysteries *du jour* are recognised as fictional allusions to fictional worlds that we added to create theatrical realism, while others are reframed as *de facto* or proto-rational: for example, the assumption in the tour guide notes that humanity will have changed energy sources many times – horses, wind, water, tallow, whale oil, coal-powered steam engines, petrol-powered combustion engines, electric engines, nuclear engines – and yet still saw more efficient processes of energy materialisation in plants, fungi, and animals. There is an additional mystery *de facto* that architects will found a new capacity to grow buildings, and this technology will be passed and surpassed through a sequence of biotechnical improvements. Early generations of this new architecture decayed (unusually) and became subjected to reparatory modifications. Time loops back as historians reminisce and muse upon the failings of architectural methods that, today, we ardently seek. And as such, by sharing imaginings of catastrophes befalling our cosmotechnical salvation, these images of shipwrecks may come into gentle contact with latent masochistic tendencies in their audience, especially in those who ruminate on the valuable yet Sisyphean task of attempting to stabilise our relationship with our environment, like seeking stillness and balance while aboard a broad ship in the open ocean.

Tour guide script: **Day 1, 09:00. Expressionist Sand Architecture** [Fig. 1]

We begin our tour at the great sand caves. Millennia ago, ancient architects lined up wooden ships, then stacked more on top. They were covered with naturally occurring biosand, which sealed them in place and left hollow voids inside the rock in the shape of the upturned boats. The weight of the sand bent the ships' timber, some into curious shapes. What's most remarkable here are the architectural details that reveal how these extraordinary structures were made. Like the technology we use today, the bacteria used in the biosand bonded the sand grains together. Unlike today's techniques, here the biosand merged into the timber. Over time, the wood disintegrated into a thin layer of a rare cellulose-lignin-sandstone composite, visible today in the vaulted ceilings.

Over thousands of years, the original structures were buried beneath the weight of the biosand. Then sea-level rise and extraction by fracking dramatically shifted local seismic activity, with uplifts intruding into the underlying Messinian limestone formation, lifting the buried ships up to the surface. Strong aeolian activity during the Youngest Dryas stadial piled up blowing sand onto the protruding stone forms. Sand and biosand bonded to create elaborately ornamented types of dunes. The fine details slowly eroded, leaving the irregular texture on many of the exterior walls.

Inside the vaults you can experience uncanny acoustic effects, and the cool shade, of this superb example of expressionist sand architecture.

At midday we meet again here to travel to the seaside, and tonight we visit the underwater shipwreck.

Tour guide script: **Day 1, 14:30. Shipwreck Architecture Archaeological Site** [Fig. 2]

We will embark on our first example of shipwreck architecture. This ancient boat sailed hundreds of thousands of years ago, when the landscape was very different. When sea levels rose, coastal cities and towns were submerged into the intertidal zones, and many buildings were revealed and concealed by tides each day. These were dangerous places, the sites of many shipwrecks. Areas like this and where we will travel tomorrow, became famous for their many coastal shipwrecks.

Across this dangerous period of history, many families fled onto large ships, like this one, living at sea for many

Fig. 1: *Expressionist Sand Architecture*. Image: Simon Weir.

Fig. 2: *Shipwreck Architecture Archaeological Site.* Image: Simon Weir.

years, until cities fell further into the water, the fires ended, and harbours once again became safe. When these communities returned to land, they permanently docked to the shore.

For many thousands of years, architects burned shells to make the lime for their cement and mortar. The original building was made by the pioneering architects who trained those molluscs to grow their buildings. Architects cultured microorganisms to grow calcite structures – flexible anchor arms, towers, habitations – to hold the old ship in place, and soon enough, the ships became permanent settlements. For centuries, these structures were wonders of the world. Residents added intricate lines of enzymes, like tattoos, onto the living surfaces, and grew delicate fibres used in luxurious cellulose fabrics, and giant edible molluscs were farmed on the hulls' undersides.

Over time, people came to think of these vessels as villages or apartment buildings rather than as boats. The molluscs underneath grew into a solid foundation, and the ships' hulls deteriorated, eventually becoming among the first examples of Molluscan Baroque architecture.

Later still, after these town-ships were abandoned, the remaining ship timber on the upper decks began to ossify – a process accelerated by an evolved version of the biome that substituted mineral collagen for cellulose – making these behemoths into organic bone-stone composites that are part boat, part skeleton, part architecture. Unlike other boats in the area, this hull came to rest on a calcite outcrop which, when combined with the shell foundation, provided ample calcium for redistribution by the biome, so the lower part of the hull that looks like timber is actually stone. The colour of the hull has remained uniform because the halite from seaspray in this part of the harbour prevents lichen from discolouring the surface.

In more recent years, the sea has acidified, wiping away much of the molluscan calcium carbonate underneath the boat, and making the original form easier to see. As the sea acidified, the salty rain eroded some of the upper surfaces. Unlike today's ossification processes, which result in uniform surfaces, earlier biomes were less consistent and produced harder and softer areas, so the decay has produced these strange patterns.

Unlike the many other ships that once lined this coast, only this one survived because its hull was geologically connected to the seabed through its foundation of calcite bedrock and calcium carbonate shells. The other ships, which were anchored to the foreshore only by their calcite sea arms, were washed out to sea during acidic storms. This boat, once surrounded by dozens of others, now stands alone in the harbour as a testament to dynamic architectural formation processes along this coast.

Today, all town-ships are protected heritage, some partially restored for tourists. Visitors enjoy the mountainous mineral collagen formations, and the surprising details. An example of early biological architecture, before architects could grow precisely, its exuberant and irregular style comes from working *with* the unpredictable nature of their microorganisms' biomes.

Tour guide script: **Day 1, 19:30. Shipwreck Architecture Diving Base** [Fig. 3]
The auroras will begin soon. In the meantime, notice the architecture's smooth, glossy surfaces. These glasslike surfaces are in fact petrified wood. Although it doesn't look much like wood now – and technically, it is stone rather than wood – trees once furnished important parts of ship hulls, like the outer planking, the decks, and the stem and stern castles.

Back when the metal ship components of this theatre were submerged, microbial communities gathered on those parts of the hull. In doing so, they unwittingly protected those features from abrasive seawater and the erosion of strong currents. However, in these waters, microbial communities do not commonly colonise ship timber, because they can't metabolise the arsenic and tar that were used to seal the timber and prevent decay.

So, over long periods of time, the wooden parts of these sunken ships were permineralised by ocean currents carrying quartz and other minerals in their streams. Those crystalline minerals filled the gaps in the cell structure of the wood until the wood was turned to stone. Once sea levels began rising and hurricanes dominated shorelines, driftwood from onshore was carried under water and eventually stacked up against the shipwrecks. That wood was also gradually permineralised, creating this 'connective tissue' between and around the vessels.

As sea-levels subsided, and the ships were exposed to the surface again, and wave action eroded the petrified wood, giving the theatre its distinctive texture and luminescence. As we enter the theatre and await the aurora, note that the tables where we will dine are constructed by a biomanaged type of sweet fungus, whose spores blew into the theatre in the '60s during the last typhoon season. Please do not begin eating the table until the final course of the meal is served, and try not to spill food on the tables, as the chef has prepared a special dressing for the sweet fungus table as dessert.

Tour guide script: **Day 1, 22:00. Underwater Experience of Sunken Shipwreck Architecture** [Fig. 4]
Once decommissioned, these twin trawlers were moored in the harbour and served as duplexes to house young

Fig. 3: *Shipwreck Architecture Diving Base*. Image: Simon Weir.

Fig. 4: *Sunken Shipwreck Architecture*. Image: Simon Weir.

couples just starting out on their own. In fact, the first home of stage darlings Twyla Naviggi and Nero Tweller was at the stern of this trawler right here. Sadly, the boats were eventually condemned due to unsafe levels of iron corrosion, which increased the risk of ferrous infection among residents. Shortly after the last residents were evacuated, both vessels succumbed to iron sickness, began taking on water, and sank forty-five metres beneath the surface, where they were moored.

Years later, investigators noticed that the ships were no longer corroding. The Atlantic Meridional Overturning Circulation system resumed its flow, changing the chemical composition of the seawater, causing different chemical reactions with the metal of the ships' hulls. With the increase in cold-temperature peri-halites, instead of corroding, the metal began concreting by forming these bubble-like structures that expand slowly and absorb other items into themselves. This process can happen rather quickly, so be careful not to touch the surface. Observers estimate that the two ships will join together within the century. As you can see, it's a truly mesmerising spectacle to watch this chemical process in action, and to witness the fusion of these two old trawlers into one.

The question, of course, is what will happen once they are fused? Will the concretion process carry on to engulf the entire harbour, or will it reach a certain limit and then stop? At this point, it's anybody's guess what the future holds for these leviathans.

Tour Guide Script: **Day 2, 09:00. Abandoned Biofactory** [Fig. 5]
Like most early-generation biofactories, this one can be seen reflected in its lake. But watch out: it's not water, it's carbon-black ink. Built as a ship moored in its own reservoir, this biofactory chained together a series of biological reactions developed from trees to produce coldness. It was effective for its time, and its only waste products were a chalky timber-like substance and the black oily ink you see in the lake here. During the centuries-long drought, this liquid was left to evaporate in the sun, where the evaporated water was collected in receptacles suspended above the reservoir and distributed to surrounding communities. Once dried over summer, the solid components of this waste product were harvested in great blue-black chunks for biofuel in the winter, which, thanks to this biofactory and others like it, grew a little cooler each year until returning to hibernation norms.

The massive chalky timber horns, or tusks, grew beneath the lakebed, a by-product of the cold manufacturing process. They breached the reservoir's surface about thirty years after plant's construction, and after that, the tusks were harvested for use as construction materials. Visitors to the plant when it was operational would have seen vast flat surfaces and a small black lake. When lighter and stronger timbers produced by newer biofactories made these products obsolete, and yes, outlawed in some places, the tusks were left to grow into these huge monuments of the Neo-Cretaceous style. Now derelict, this biofactory drifts on ink, like a ghost ship on a great lake. This factory is still alive and still growing. Estimates vary about when the biofactory will naturally contract: between one and two million years.

As you walk the shoreline to experience the biofactory from different angles, you may notice that the air still feels cooler when you inhale. The air is safe, but the oxygen content is a little higher than usual, so if you start to feel lightheaded, please inform one of our helpful and friendly team members.

Tour Guide Script: **Day 2, 13:00. Shipwreck Theatre Ruin** [Fig. 6]
This stretch of the coast is famous for its series of shipwreck theatres. The coast is dotted with jagged rocks lurking just beneath the waves, which posed navigational hazards to sailors who often ran their vessels aground in foul weather. Over time, the coast developed a reputation for being one of the most dangerous in this part of the country. Then, rumour has it, unscrupulous captains looking to collect on inflated insurance policies would sail too close to the spectacular rock formations rather recklessly. However, some oral histories suggest something even more sinister, that shipwreck mafias were at work here. Using holograms to conceal the rocks, thieves waiting onshore would deceive captains into running aground. After the ship was wrecked, they would dispatch its crew and plunder its cargo.

Whichever story is true, this coast is a graveyard littered with the wreckage of enormous vessels. As the seas retreated, the rocky outcrops where the ships were stranded became exposed. At first, they were used as party places for adventurous youngsters, but as the seas retreated further, they became thriving businesses: dinner theatres, yes, like where we dined last night. In more recent years, as the seas returned, most have been abandoned once more to the waves.

Here in our first example, the architecture has been deformed by centuries of wave pressure interacting with the biofilms and cartilaginous organisms attached to the hulls, who absorb the water's force to make their own energy. Many visitors find the building has an eerie presence in the darker hours, as the abandoned theatre's

Fig. 5: *Abandoned Biofactory*. Image: Simon Weir.

Fig. 6: *Shipwreck Theatre Ruin*. Image: Simon Weir.

tide-powered lighting continues to shine years after its last performers left the stage.

Tour guide script: **Day 2, 16:00. Shipwreck Theatre Holovid** [Fig. 7]
On the other side of the cove we have another shipwreck. This abandoned theatre was one of the most popular examples of its day, with many famous people in regular attendance, and one can easily see why. The view, as you can see, is spectacular; however, much of it is an illusion. In fact, the smaller wrecked boats closer to us on the shoreline are not real; they were added by the owners' architects to provide a more dramatic, more theatrical ambience for the performances premiered here and the important guests in the audience. The architects resurrected a long-lost method called hologrammetry to create the illusion of wrecked vessels on a stormy sea, visible both from the coast where we are now and from within the theatre. But if you were to approach the boats, you would be able to swim right through them, because they are only made of light.

You may be wondering how patrons arrived at this theatre, since it's not connected to land, and everyone knows that this stretch of coast was less affected by the dramatic sea-level fluctuations of the past. However, the island-like appearance of this shipwreck theatre is also an illusion. Stop and listen for a moment and watch the waves hit the rocks. That's right, they produce no sound. This dynamic holovid is tidal-powered, so it still operates long after the building was abandoned. The holovid tracks the real water levels around it, so that it matches the shape of the real water, but if you watch for a while, you'll see the water perform strangely; that's the holovid. Years ago, one of the main attractions of this theatre was that visitors could experience walking on water; you see, the gap of sea between the cliff and the wreck is also an illusion. Theatregoers could walk right off the cliff and onto the upper decks of the fourth balcony with no risk of falling into the sea.

Tour guide script: **Day 2, 19:00. The Original Shipwreck Theatre** [Fig. 8]
The final destination of our tour is another shipwreck, the only theatre along this once thriving coastline still open for business. Performances occur whenever low tide coincides with early evenings, which happens five or six times a month. Though doors don't open for another hour yet, for us tonight they have already turned on their spectacular stage lighting. The 'shining sun' lighting design is produced by a hidden tower and lines of rigging behind the stage, which mirror and amplify the glowing of bioluminescent marine organisms. The audience enter along a pathway through the sand and board the shipwreck to the right. The cast and crew perform on the ship on our left. Typically, performances deploy smoke and fog around the stage, so that cast and crew can walk to and from shore unseen by the audience; these effects lend a magical, ethereal quality to the stage performances.

Of the three theatres on this coast, this one is the newest. Unlike the others, it was not built from any actual wrecked ships; rather, it was designed this way to honour the spirit of the earlier vessels. Inspired by the ancient concept of *Kunstruine* or artificial ruin, this copy of the original shipwreck theatre designs does not have the same lavish detail of earlier generations, and of course, lacks the aura of authenticity. From the beginning, it has been criticised as a cheap tourist trap, but it remains popular with visitors to this day, and the owners report growing audiences. In fact, they're considering another replica shipwreck theatre further down the coast.

But now, after having seen so many spectacular examples of shipwreck theatres, and with the outgoing ebb tide opening the pathway for us to enter this one, you be the judge: is it a tasteful homage to a time-honoured tradition? Or a weird simulacrum symptomatic of franchise culture?

Fig. 7: *Shipwreck Theatre Holovid*. Image: Simon Weir.

Fig. 8: *The Original Shipwreck Theatre*. Image: Simon Weir.

Notes

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Biography

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Dr Sara Rich is Associate Professor of Theory and History of Art and Design at the Rhode Island School of Design. An enrolled member of the Waccamaw Indian People, she is a maritime archaeologist, art historian, artist, and author of speculative fiction. Her recent scholarship includes essays in the *Journal of Aesthetics and Art Criticism*, *Heritage*, and *Contemporary Philosophy for Maritime Archaeology* (which she also co-edited). Her most recent books include *Mushroom* (in the Bloomsbury series, Object Lessons) and *Shipwreck Hauntography: Underwater Ruins and the Uncanny* (in the Amsterdam University Press series Maritime Humanities, 1400–1800).