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## Reef (Coral)<sup>i</sup>

Cameron Allan McKean<sup>ii</sup>

Where is it?<sup>1</sup> What is it made of?<sup>2</sup> What shapes does it take, and how are those shapes arranged? Is it a submerged jungle, a manicured garden, a kilometre-high tower, or an undulating city stretching out as far as the eye can see?<sup>3</sup> Does it look like something you recognise? Is it a location with a name and known dimensions? What can we know about it, as it disperses and constellates across the seafloor? Is it a story of life, of oceanic abundance? Is it a story of loss, of “the world that progress has left to us”?<sup>4</sup> Is it a noir “without a known ending”?<sup>5</sup> Where does it begin and end?<sup>6</sup>

It’s underwater. It’s alive. It’s dead. At low tide, it peeks above the surface. At high tide, it’s just a darker shade of ocean. It’s a shallow ring encircling a sandy Pacific atoll. It’s a mountain that sinks beyond the reach of light and divers. It’s squashed into a tank in a Queensland aquarium. It’s growing over bullet holes on a WWII warplane that crashed off a Papua New Guinean coastline. It’s a 344,000 km<sup>2</sup> living system, emerging from the edge of a continental shelf.<sup>7</sup> It’s a “giant teacup,” a “wall,” a “thin necklace of coral” that overwhelms the senses, turning divers to “children in a store filled with surprises” – a spectacle whose “full dimensions” remain unknown.<sup>8</sup>

<sup>1</sup> This is the first question. Understanding coral reefs as one of Val Plumwood’s “shadow places” involves attuning to a set of questions about how they are represented and materially situated in time and space. Asking such questions of reef specificities (“material conditions” in Plumwood’s phrasing) opens up what it means to “know” or “keep track” of the “complex network of places that supports our lives” (“Shadow Places,” 139). In Plumwood’s figuring, each shadow place is understood as knowable, definable and, tacitly, singular (i.e., one of many places). However, reefs are not always locatable as “a piece of ground, a piece of the earth” (“Shadow Places,” 144). They can challenge the ability to have what she describes as “consciousness of place” (“Shadow Places,” 144) because that “place” is remote, underwater, shifting and often unseen. Reef places, like other “complex” places, are best understood “as sets of specificities” (Law and Lien, “Denaturalizing Nature,” 140–141). In this text, opening up to this understanding takes the form of cascading questions. The goal of attending to specificities, in Law and Lien’s view, is to “denaturalize” complex worlds to consider how they “might be rendered less repressive” (“Denaturalizing Nature,” 140).

<sup>2</sup> Coral reefs are complex living systems made up of limestone structures grown by tentacular Cnidarian animals. But there are “striking and profoundly important regional differences in the species richness, functional composition, dynamics and resilience of reef systems” (Bellwood, “Confronting the Coral Reef Crisis,” 828).

<sup>3</sup> Stefan Helmreich reminds us that the Western explorers and scientists who encountered coral reefs in the 1800s, specifically Darwin, framed reef structures in terms of their architecture rather than biology (*Sounding the Limits of Life*, 50).

<sup>4</sup> Tsing, *The Mushroom at the End of the World*, 19.

<sup>5</sup> The noir genre helped Deborah Bird Rose think through “the looming sense of fatality; the creeping awareness that nothing can be put right” in the Anthropocene, which she describes as a “story without a known ending” (“Anthropocene Noir,” 215).

<sup>6</sup> “Coral began its career in the scientific imagination as a boundary object, an assemblage of flesh and stone that generated speculation about the boundaries of the living and nonliving” (Helmreich, *Sounding the Limits of Life*, 49).

<sup>7</sup> Lønborg et al., “The Great Barrier Reef.”

<sup>8</sup> “Savage World of the Coral Jungle.”

Perhaps it's an image: a calming tableau in the background of a video titled "10 Hours of Relaxing Oceanscapes."<sup>9</sup> It's a colour-saturated postcard, sold in the lobby of a tropical resort. Perhaps it's just a memory: of corals seen through a fogged dive mask, of a childhood spent spear fishing in the bay outside your house, of being shipwrecked, of the Holocene.

It exists. It's beside oil refineries, in the outflow of factories, in the path of agricultural runoff, inside warming saltwater. It's altered and broken. The assemblage has degraded.<sup>10</sup> It's a formation that stretches across the ocean and atmosphere. It links off-world satellite networks that monitor rising water temperature with emissions from trade networks, onground warscapes, and underground mines. Held within this formation, it becomes less present.

Is it a dim echo of the coral-poor "ecosystems of the Precambrian era"?<sup>11</sup> Is it caught in a "downward spiral"?<sup>12</sup> What else is it doing? Where is it "doing more than simply disappearing"?<sup>13</sup> Is it something other than a place on which shadows are cast? Is it a threat? How is it "a very dangerous character," still sabotaging global trade and travel?<sup>14</sup> Can it be malevolent? If you take too many of the fish sheltering in its carbonate branches, will it take vengeance? Will it "pull people into the sea, withhold fish, or possess people"?<sup>15</sup> Is it a valued protector, pushing back against storm surges and the destructiveness of unruly tides?

Under the water, its Cnidarian creators – the corals who grow its mineral structures – are reaching out their tiny stinging tentacles into the ocean. How does this flesh transform as you drift toward the surface, and little corals seem to become towers, platforms, or vast mineral landscapes jutting out from continental shelves? Maybe it's all easier to locate from higher up?<sup>16</sup> But even here, looking down from space, can you tell where it is? Can you trust yourself to define its edges, or is the reef working in ways that are not always immediately observable?<sup>17</sup> What defines it; who locates it? Bobbing in the swell off an island on Australia's northeast coast, a tour guide might tell you that it is tiny animals growing stone, growing an

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<sup>9</sup> "The Coral Reef."

<sup>10</sup> The 2016 bleaching event transformed "large swaths of the Great Barrier Reef from mature and diverse assemblages to a highly altered, degraded system" (Hughes et al., "Catastrophes, Phase Shifts, and Large-Scale Degradation," 492).

<sup>11</sup> Bradbury, "A World Without Coral Reefs."

<sup>12</sup> Serious and repeated disturbances on reefs such as "declining water quality, ocean acidification, and rising mean temperatures" put stress on corals and "impair reproductive success across a range of early life stages." These stresses create feedback loops that limit coral recovery "and suggest a reinforcing downward spiral in coral status" (Birkeland, *Coral Reefs in the Anthropocene*, 225).

<sup>13</sup> Rivera Sotelo, "Coral Nurseries," 121.

<sup>14</sup> On July 10, 1870, *The New York Times* reported that six men who were shipwrecked had lived for 51 days on a remote reef "off the northern coast of Brazil." They survived by sheltering in a hut built from the pieces of other ships that had been wrecked on the coral, drinking fresh water from iron water tanks (also remnants of previous shipwrecks) and knitting hats from coconut fibres. (*The New York Times*, "European Mail News: Fifty-One Days on a Reef").

<sup>15</sup> This is a view of reefs as told to anthropologists by Indonesian blast fishers. When reefs create misfortune, "relational balance is restored by mediation (e.g. attending to the spirit's wish and arranging an offering or ceremony)" (Pauwelussen and Verschoor, "Amphibious Encounters," 303).

<sup>16</sup> "The Great Barrier Reef," writes historian Iain McCalman, "is so extensive that no human mind can take it in, the exception perhaps being astronauts who've seen its full length from outer space" (*The Reef*, 9).

<sup>17</sup> Australian author and journalist James Woodford writes in his travelogue *The Great Barrier Reef* (2010) about a confusing space between the "unbelievably spectacular" (41) conditions he witnesses as a tourist diver on the reef and the "catastrophe" (24) described by reef scientists. Woodford understands this doesn't mean the scientists are wrong, but instead that there's a "gap between the news and what was in front of my mask" (41).

ecosystem. But does this make its location any clearer, or accelerate its ambiguousness, its amphibiousness?<sup>18</sup>

It exists. But it's changing in ways that can't completely be anticipated.<sup>19</sup> It shifts. It isn't singular. It's a series of multiple locations, scales, structures and is entering a new phase, becoming different, becoming algal.<sup>20</sup> As it changes forms and locations, making new climates and planetary changes legible, how does it alter us? Is it "something to be read for climate change, for potentially patentable genes, for representativeness"?<sup>21</sup> Is it something to be measured or something to weep over?<sup>22</sup>

Where is it in time? Is it a kaleidoscopic colonial fantasy of endless oceanic growth, a dream of a past that never was? Is it carrying the possibility of branching futures?

Right now, it's being trained on "environmental treadmills" in an experimental laboratory.<sup>23</sup> Right now, it's attempting to reassemble in the toxic conditions of a changed ocean. Right now, it's blurring with new and different forms of life and nonlife. Here, it's fused with constellations of microplastics and the material traces of the Pacific theatre of war. There, it's emerging on ruined ships, storm-broken sunken planes, and the fish-cleaned bones of drowned humans. Elsewhere, it's "little more than rubble, seaweed, and slime."<sup>24</sup> And everywhere, it's changing, shifting places in a warming ocean with other forms of life, other landscapes, other ecosystems, making and taking terrain under the asymmetrical conditions of extraction.

"It's there," someone says. "The visibility is bad. You just need to dive deeper, and you'll see it." But it's unrecognisable. Where was it?

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<sup>18</sup> Studying human-coral relations in Indonesia, Pauwelussen and Verschoor "stress ambiguity as a 'useful complication' that stimulates thinking and reflection. Amphibiousness helps sustain this ambiguity, and renders it productive. ... Indeed, if objects and realities are not clear-cut a new kind of sensitivity is required to engage with and sustain ambiguity" ("Amphibious Encounters," 309–310).

<sup>19</sup> Predicting major changes on reefs (such as becoming dominated by seaweed) has been difficult "because the increased instability of coral reef ecosystems before their collapse has often been unrecognized, even on reefs that are relatively well studied" (Bellwood, "Confronting the Coral Reef Crisis," 827).

<sup>20</sup> "A striking phase shift has occurred from a coral-dominated to an algal-dominated system" (Hughes et al., "Catastrophes, Phase Shifts, and Large-Scale Degradation," 1550). "Phase shift" has become a term used to describe transformations on degraded reefs where fast-moving seaweed occupies space left by dead coral.

<sup>21</sup> For today's "environmentalists, biotechnologists, and would-be coral genomicists," corals and the reefs they build are "something to be read – for climate change, for potentially patentable genes, for representativeness." For Helmreich, this is a distinct change from the "immersive, embodied point of view" taken by twentieth-century divers (*Sounding the Limits of Life*, 60).

<sup>22</sup> "Those who remain silent when their observations point to environmental decay are the undertakers of the environment; environmental post mortems become their stock and trade. "They measure and we weep" (Johannes, "Pollution and Degradation of Coral Reef Communities," 51).

<sup>23</sup> The late Ruth Gates, the first woman to be President of the International Society for Reef Studies, told ethnographer Irus Braverman that her team run hardy coral species on "environmental treadmills" to prepare them for the conditions of future seas (*Coral Whisperers*, 237).

<sup>24</sup> "Today, the most degraded reefs are little more than rubble, seaweed, and slime. Almost no large animals survive, water quality is poor, and large corals are dead or dying and being replaced by weedy corals, soft corals, and seaweed" (Pandolfi et al., "Are U.S. Coral Reefs on the Slippery Slope to Slime?" 1725).

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<sup>i</sup> McKean, Cameron Allan. "Reef (Coral)." *An A to Z of Shadow Place Concepts* (2021).

<https://www.shadowplaces.net/concepts>

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