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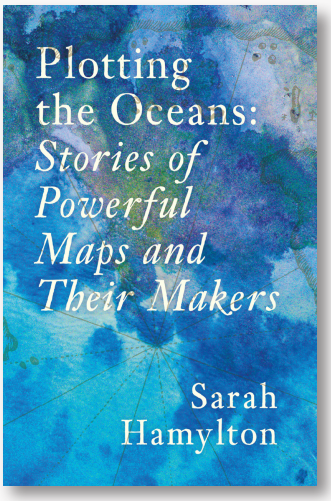

PLOTTING THE OCEANS: STORIES OF POWERFUL MAPS AND THEIR MAKERS

REVIEW 2 OF 2 FOR THIS TITLE

By Sarah Hamylton

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What does it mean to know the ocean? Does mapping imply knowing, or does the act of mapping bring about that knowing? *Plotting the Oceans* is, most broadly, about the strange intimacies and absences that come together, often in tension, in the practice of mapping the ocean. Hamylton weaves the poetics of underwater worlds together with the histories of those who have mapped them, moving between reef fieldwork, technological mediation, and cartographic critique. Across these registers, the book poses two intertwined questions: first, what happens to space and its representations when, through new technologies, the mapmaker no longer needs to encounter the place they map; and second, albeit less explicitly, what does it mean to map a place that cannot be walked or held still, but is inhabited through currents, crossings, and multispecies entanglements (Haraway 2008, Tsing 2015).

Hamylton's book opens with her experience mapping coral reefs in Fiji, where underwater surveys and Landsat satellite imagery were used to produce maps of the Mamanuca Islands—a volcanic archipelago lying to the west of Viti Levu. These maps had immediate consequences, persuading local chiefs and fishermen to support a *tabu*—or no-fishing area—that would contribute to reef recovery and ultimately to the creation of a marine protected area. From the outset, Hamylton thus reveals the map to be more than just a tool of representation, but in fact, an active agent of persuasion. She also places this story within a larger, Western, cartographic tradition, in which maps have always been bound to power, even when they enable something like ecological repair. Hamylton repeatedly returns to this central tension—that maps are frequently instruments of colonial expansion and territorial control, yet they are, often at the same time, *also* central to the efforts of conservation and environmental protection—but she cannot ultimately reconcile the dichotomous terms (and who among us can?).

The next five chapters—telling the stories of scientists attempting to map oceanic worlds that exceed ordinary human scale—develop this double bind further. Charles Darwin's coral-reef map, based on data compiled through conversations, letters, observations, and encounters with only a limited number of the reefs he classified, illustrates the force of cartographic arrangement. By situating reefs of various types into a relational taxonomy, his map allowed theory to become visible—or, more accurately, it was the map itself that *made* the theory. The patterns Darwin inferred from coral reefs would later inform his broader claims about geography and evolution, revealing abstraction as a generative tool for establishing relationships otherwise rendered inapprehensible by sheer scale. Turning to the other side of this double bind—where distance and abstraction both enable possession—Hamylton gives an account of the Australian polar explorer Herbert Wilkins, who was, in the late 1920s, charged with the aerial mapping of the Antarctic Peninsula in the name of the British Empire. In his own writings, Wilkins questions the stability of claims made from the air, asking where, exactly, the threshold of ownership lies: in seeing the land, mapping it,

or walking on it? How accurately must it be mapped, and how long must it be walked, before observation becomes ownership? In the end, the problem of distance was also representational: black-and-white aerial photographs of the icy landscape proved difficult to interpret, and a later expedition found that what had been mapped as frozen sea turned out, inconveniently, to be glacial ice on land.

The account of Marie Tharp's ocean-floor mapping—in Chapter 3—turns from the aerial remove of height to the almost unimaginable remove of depth. "Women were not allowed on ocean-going scientific cruises in the 1950s" (104), so Tharp sat at her drafting table and painstakingly assembled the countless depth-sounding profiles collected by others into composite maps. These maps transformed the scattered measurements into a dynamic landscape of ridges and valleys that transformed scientific understandings of continental drift and plate tectonics. Tharp's map, and her systems of statistical extrapolation, in all their ingenuity, were made possible—or, more accurately, made necessary—through and by the exclusions that distanced her from her subject, even as they opened a groundbreaking scientific vision. Distance, in this case, was not just a problem of scale, but a paradox sedimented into the map itself: the conditions that kept Tharp away from the seafloor also helped make it visible.

The politics of the map continue in Chapters 4 and 5 through Hamylton's account of conservation mapping. Chapter 4 turns to two atolls in the Indian Ocean—Aldabra and Diego Garcia—both of which were drawn into the strategic geographies of 1960s US and British military planning; and both of which were mapped by the same man. She recounts the story of geographer David Stoddart, who mapped Aldabra atoll—part of the Outer Islands of the Seychelles—as a fragile and exceptional limestone ecosystem cratered with freshwater pools, home to giant land tortoises, a nesting ground for vast numbers of green sea turtles, and a large colony of frigatebirds. Stoddart's maps helped develop and support the wider scientific and public pressure that spared Aldabra from military development. In the case of Diego Garcia—the largest island of the Chagos Archipelago, a British overseas territory—however, the military imagination prevailed: the island was developed as a joint UK/US military base, and the Chagossian people were forcibly removed to, and effectively abandoned on, Mauritius and the Seychelles; their right of return is still contested. The difference between these two outcomes was, in part, that Stoddart's Diego Garcia map did not make the same strong case for protection as did his map of Aldabra. He later wrote that: "I have been distressed by this ever since . . . my thoughts were on safeguarding Aldabra: trying to save one, you might get away with; trying to save two, you might lose both" (157). Considering these two outcomes, the map's role was not to show the world for what it is, if this is ever possible, but to make decisions about what forms of life and relations are important enough to visualize, and in this instance, defend. To this end, the Chagossian people are still embroiled in legal battles with both the British and Mauritian governments for their right to return home.

Hamylton centers Chapter 5 of her narrative on Terry Hughes—Director of the Centre of Excellence for Coral Reef Studies at James Cook University—and the aerial mapping of mass coral bleaching on the Great Barrier Reef. His map makes visible a large-scale catastrophe: coral death distributed across thousands of reefs by ocean warming, driven by fossil-fuel politics. His now-famous traffic-light map translates thousands of dispersed reef observations into a visual language: red for severe bleaching, amber for moderate bleaching, and green for reefs less affected (Figure 1). Hughes's maps make coral death devastatingly visible, but here a map's power meets its limit at its audience—catastrophe can be rendered in color, but political action can still be deferred. In these last chapters, maps are revealed as instruments of care and triage—presenting places with issues that can be seen, defended, and protected—while simultaneously abstracting those places into disconnected objects or issues that can be exploited or ignored without immediate real-world consequence.

Getting back to Hamylton's first question: what does it mean for maps when new technologies allow the mapmaker to be separated from the place they are mapping? Her conclusion, "A new era of mapping" does not provide a direct answer but instead offers a warning about technology's capacity to alienate, along with a meditation on perception à la the French phenomenological philosopher Merleau-Ponty. But the preceding chapters themselves continuously suggest that this alienation is not absolute. Technological mediation may separate the mapmaker from the place mapped, but it also produces new forms of relation: Darwin's abstraction, Wilkins's aerial vision, Tharp's extrapolation, and Hughes's bleaching surveys demonstrate distance as *both* a loss of proximity and a condition for seeing differently. Taken together, these stories—which are fundamentally about complex humans doing their best

to map the world—suggest that technology does not remove the mapmaker from the map, but instead relocates them in the map's methods, exclusions, and purposes. The question, then, is not whether technology alienates us from the world we map; but what kinds of relation, responsibility, and distortion it makes possible.

The ocean is a particularly difficult object for cartography because it resists the stable forms that maps often require—it is continually swelling, moving, and refusing fixed edges. To map a shoreline, Hamylton writes, its "infinite detail" must be "inscribed, projected and simplified" (29). This recalls the coastline paradox that every early geographer is presented with: how long is a coastline? The point being that there is no "right" answer, because it changes according to the scale and method of measurement. A coastline measured with a longer unit will be shorter than one measured with a smaller unit; the finer the measurement, the more detail appears. In other words, more precision doesn't mean getting closer to the truth; it just means collecting more and more coastline. I think geographers love to pose this question in introductory courses because it builds a shared bond of giddy uncertainty between students when no answer shouted out is correct; it's an intentional shifting of our classrooms from a space that values absolutes to a space that values the analysis of how those absolutes are constructed. With this paradox, the problem we're pointing to here is not just that maps simplify reality—this is just a requirement of mapping—it is that these methods help produce the reality they claim to measure. This book's best historical examples demonstrate exactly this point: Darwin's coral-reef map made geological processes visible; Tharp's seafloor maps made plate tectonics thinkable; Hughes's bleaching maps transformed dispersed coral damage into a national crisis. Yet the book does not always stay with the implications of this claim; too often, the critique seems to settle on the map while science is held safe as the ground of better representation.

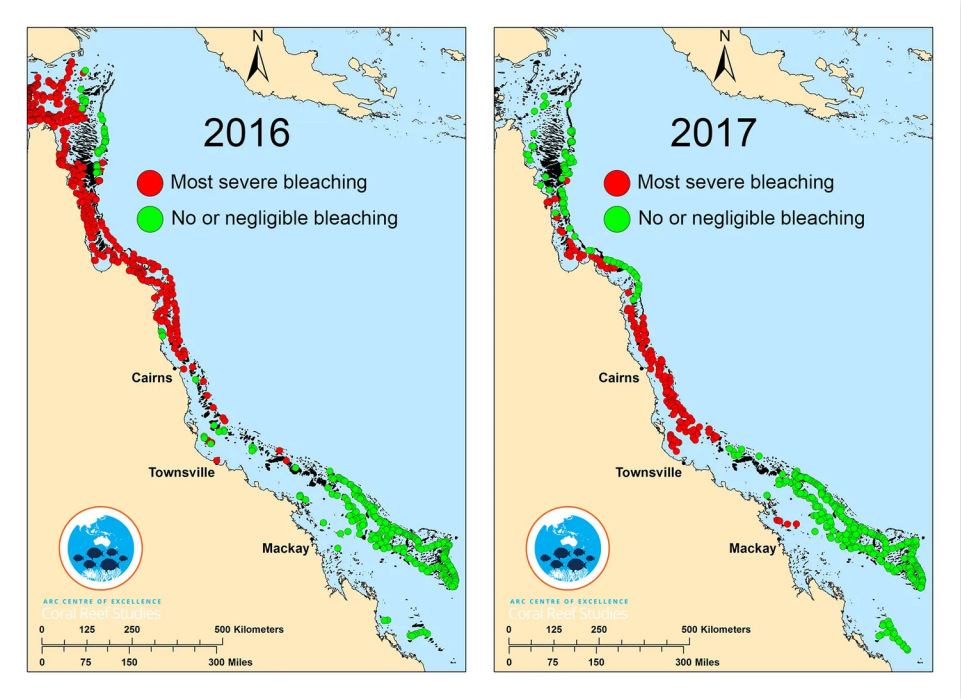

Figure 1. Great Barrier Reef: Two-thirds damaged in 'unprecedented' bleaching (Kerry 2017). It should be noted that this map does *not* appear in *Plotting the Oceans*. Hamylton does not include an example of what she terms Terry Hughes's now-famous traffic-light map, nor does she remark on its absence.

This is best seen in Hamylton's use of Bruno Latour's "immutable mobile," where she describes how maps are important because they can travel between contexts but still retain communicability (30). But this communicability can only exist because the map belongs to a broader network through which scientific authority is made: the landscapes become measurements, which become inscriptions, which become maps, which can then be compared and acted upon. In this, the institutional "underbelly" of each chapter is part of each map's epistemic force. Darwin's reefs depend on imperial travel, maritime surveying, and Victorian scientific networks. Wilkins's Antarctic maps depend on aviation, corporate sponsorship, and empire. Tharp's seafloor maps depend on Cold War oceanography, naval data, and gendered exclusion. Stoddart's conservation maps depend on US/British military ambition. Hughes's bleaching maps depend on aerial survey, climate science, media circulation, and political struggle over the public image of the Great Barrier Reef.

The point is neither anti-science nor nihilist. Tharp's maps really did help make plate tectonics thinkable; Hughes's maps really did reveal catastrophic coral bleaching;

Stoddart's maps really did help protect Aldabra. The strongest critique is closer to feminist science studies: situated knowledge is not weaker because it is situated, but "more truthful" in that it acknowledges the instruments, institutions, bodies, exclusions, and desires through which it is produced (Haraway 1988). Hamylton's own best moments point in this direction, especially when she lingers with fieldwork, sensory experience (like getting nibbled by a shark), local knowledge, and the bodily difficulty of knowing ocean space. Yet the book sometimes treats technological mediation as a distinctive problem of mapping, when it might be better understood as part of a longer history of scientific visualization: the conversion of situated, partial, embodied encounters into portable representations that appear objective because the relations that produced them have been obscured.

What remains most compelling about *Plotting the Oceans*, then, is not its argument that maps are powerful, but its repeated return to the impossibility of ever fully possessing the ocean through representation. Hamylton's best writing lingers in the gap between intimacy and absence: the diver suspended above a reef, the scientist tracing a shoreline, the drone passing over a mangrove forest, the cartographer trying to make the seafloor visible from inside an office. These scenes remind us that mapping is always an effort to pull closer something that actively withdraws. The ocean can be sounded, photographed, and modeled, but it cannot be held still; the ocean will always exceed the frame of the map even as it becomes knowable through it (Wilmott 2024). For me, this is where *Plotting the Oceans* is most valuable. Hamylton's stories show that maps are indispensable to science and its best moments of creativity, but also that they are incomplete; intimate with the worlds they describe but marked by the absences that representation requires. The task, then, is not to abandon maps, nor to accept their authority uncritically, but to read them as partial, situated attempts to know what cannot ever be fully held.

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