



Remembering the Elizabeth Bay Reclamation and the Holocene Sunset in Sydney Harbour

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Abstract Projects of coastal reclamation have allowed humanity to expand its terrestrial foothold, often quite dramatically, although the act of extension may be forgotten as we come to naturalize these new lands as timeless terra firma. Against this possibility, my investigation of the 1880s reclamation of the Elizabeth Bay foreshore on Sydney Harbour, Australia, is a work of recall or recovery. The introduction by British colonists in the late 1700s of the notion of “capital in land” both underwrote the dispossession of the bay’s indigenous inhabitants and stimulated a thirst for land that led colonists and their descendants to want to push the shoreline out into the sea. As my inquiry deepens, other temporalities come into view alongside this colonial narrative. Formed around 300 million years ago in the Sydney area, the sandstone that was used to construct the seawall is found to be eroding in a manner that allows the sea to advance inland a millimeter at a time, back toward where it was prior to the reclamation. In doing so, the sandstone appears to be at least as amenable to the sea’s impetus as it is to the human intention for it to defend the reclamation against the sea. Meanwhile, earthworms active in the “artificial earth” of the reclamation undermine and bury objects such as lost coins and cigarette butts, causing them to subside into the earth at a rate of a few millimeters a year. Haunting the essay are the specters of rising and falling sea levels and my personal history with this reclamation in the year 1980. On bringing together these diverse temporal threads and processes, this article argues that archaeology has a particular role to play in bringing reclamations and other things of the Anthropocene into view.

Keywords coastal reclamation, nonlinear time, Anthropocene, indigenous dispossession, sandstone, sea level rise, Sydney Harbour

Introduction

When the sea level rose more than 120 meters following the end of the last glaciation, a relatively steep-sided river valley on the east coast of Australia was inundated, and Sydney Harbour took shape. When the sea reached its present level 2,000

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years ago, the harbor, with its convoluted shoreline, occupied an area of fifty-five square kilometers.¹ Commonly described as Sydney's greatest "natural asset," the harbor in fact has been greatly modified in the years since January 1788 when the British First Fleet sailed between the spectacular sandstone cliffs that mark its entrance. Beginning in the early nineteenth century, land was reclaimed at many locations around the harbor's middle and inner reaches, pushing the shoreline out into the water to create space for port facilities and foreshore parks.² The parks were formed by erecting sandstone seawalls across the inner extremities of a number of embayments, some of them badly polluted by the discharge of raw sewage, which until 1898 flowed directly into the harbor.³ The space behind the walls was filled with dredged sediment, soil, and garbage of various kinds. Rather than a natural asset, the harbor is an "imbroglio" of human and more-than-human intensities.⁴

There is an overreaching conceit in the word "reclamation," with its presumption that the seascape humans claim back is already incipiently landscape. In the current era of anthropogenic global warming, with the sea creeping up the defensive walls of our reclamations, one might think we would be too busy defending what we have to contemplate extending further into the sea, but globally the rate of coastal reclamation shows no sign of abating. In China, for example, where almost half the country's coastal wetlands were lost to reclamation between 1950 and 2000 and where eleven thousand kilometers of coastline are now under some form of reclamation, major new reclamations are either under way or on the drawing board, providing space for container ports, urban expansion, theme parks, and fish farms.⁵ Much of the current discourse on sea level rise is rightly directed at the tragedy of inundation—the inundation of Micronesian atolls, for instance—and yet in East and parts of Southeast Asia there continues to be a net expansion of landmass into the sea. The question of who will lose and who will "win" land over the next century or so is complicated by the fact that land in major river deltas, including the Mekong and the Pearl River deltas, is sinking in response to declining rates of sedimentation (due to damming and diversion of rivers), groundwater extraction, natural compaction of sedimentary deposits, and other processes.⁶ Much of the affected terrain is farmland, often won from the delta waters centuries ago by reclamation. The combined effect of subsidence and sea level rise means that thousands of farmers will lose their land. Meanwhile, on many of the islands in the Seto Inland Sea, Japan, enormous sums are being spent to construct

1. Lewis et al., "Post-Glacial Sea-Level Changes."

2. Birch et al., "Reclamation in Sydney Estuary."

3. Aird, *Water Supply*; McLoughlin, "Shaping Sydney Harbour."

4. Latour, *Reassembling the Social*, 46; Latour, *We Have Never Been Modern*.

5. Ma et al., "Rethinking China's New Great Wall."

6. Doyle, Day, and Michot, "Development of Sea Level Rise Scenarios"; Wang et al., "InSAR Reveals Coastal Subsidence."

new seawalls along reclaimed foreshores fronting fishing settlements that have declining populations.⁷

Once created, coastal reclamations are assimilated to the adjoining human terrestrial habitat, the line of the “join” often being difficult to detect. For each new generation born into this habitat, the reclamation is “given in its sensuous certainty,” in the words of Sara Ahmed, who writes, “What passes through history is not only the work done by generations but the ‘sedimentation’ of that work as the condition of arrival for future generations.”⁸ Trees sprout from the anthropogenic soil of the reclamation, and their fallen leaves form humus. Plants, buildings, and infrastructure spread across the surface and subsurface, exaggerating the reclamation’s appearance of longevity and making it more difficult for us to recall or imagine the beach or marshland it displaced. At the same time, perhaps we always “know” reclamations for what they are. Thom van Dooren, in reflecting on the massive reclamations that house much of the Port of Rotterdam, has been inspired by Michel Serres’s writing to think of such topographic alterations as *markings*, in some ways not unlike the territorial markings of other species but today increasingly enrolled into the larger rhetorics and practices of human appropriation that characterize our Anthropocene Earth.⁹

Reclamations are markings also in the archaeological sense of being physical traces or footprints that track our meandering path toward the current situation, where the extent of our “claim” on the biosphere has become toxic. Archaeology, as a discipline, stays close to the artifacts that compose the material past, whether the past of deep time or of more recent times. These physical traces are always narrated in the present, according to the perceptions, concerns, and discourses of the present. Archaeology attends closely to their materiality—their formal-stylistic attributes, marks of use and modes of decay, craft and construction techniques, and environmental relations—in order to gain new insight into past worlds.¹⁰ In the case of reclamations, an archaeological orientation can counter their taken-for-grantedness by letting us consider how they might appear to archaeologists of the future. In so doing, it renders the familiar unfamiliar.¹¹

An archaeological orientation to reclamations looks forward as well as back in time. I draw inspiration from Zoe Crossland’s depiction of archaeological traces as portents of the future.¹² Arguing against the Anthropocene as embodying a closed narrative of projected dystopia, she reminds us that “change has to be situated in the constellation of

7. Based on my own observations in Japan in August 2016. Much recent seawall construction in Japan has its origin in the exigencies of a swollen national public works program that aims to stimulate the flagging economy.

8. Ahmed, “Orientations Matter,” 241.

9. van Dooren, “Unwelcome Crows,” 200.

10. Olsen et al., *Archaeology, the Discipline of Things*.

11. Buchli and Lucas, “Absent Present.”

12. Crossland, “Anthropocene: Locating Agency.”



Figure 1. Pre–World War II aerial view with Elizabeth Bay at the left and Rushcutters Bay, center.
City of Sydney Archives

material conditions that are handed down to us” and that these conditions—reclamations might constitute one such condition—represent a history that is not purposeful but “emergent and full of unspecified potential.”¹³ As portents, reclamations may indeed evoke a future of continued and even intensified human monopolization of coastal ecologies, but they do not determine it. An archaeological sensibility might help us appreciate how and why reclamations have been carried out, how they behave as objects, the nature of our entanglement in them, and the possibilities for less destructive entanglements.

Believing the Anthropocene will be revealed in the “things” of the Anthropocene, I now step forward for a closer look. The object of my attention is the Elizabeth Bay reclamation, and in approaching it I step forward not as a stranger but as someone with a personal history of the place.

Returning to Elizabeth Bay

Elizabeth Bay is a small suburb centered on an embayment on the south side of Sydney Harbour, just one and a half kilometers east of the city’s CBD. During the summer of 1980 I often lay sunbathing on the lawn of the small park that was created when the

13. *Ibid.*, 127.

inner bay was reclaimed in the 1880s. Lacking any clear understanding that I was lying on a reclamation, I had no inkling that below me, down through several meters of infill, lay a remnant beach. No echo of the waves that a century ago hissed up the sand of that beach reached my ear where it rested on the grass.

After a year living in Elizabeth Bay, I moved on to a series of rental addresses elsewhere in the city, very rarely returning there. In 2015, however, I hatched the idea for a project to revisit these former addresses, gauging the extent to which, as material objects, the apartment buildings and houses that had been home to me since arriving in Sydney in 1979 triggered memories. I started with the 1930s building in Elizabeth Bay where I had spent 1980 living mostly alone in a one-bedroom basement flat. The six-story structure is located on a promontory just a few hundred meters wide that separates Elizabeth Bay from Rushcutters Bay (fig. 1). After an absence of more than three decades, I walked down the asphalt driveway, shaded by Moreton Bay fig trees, from the street to where the building stands on the edge of a steep slope falling down to the western end of Rushcutters Bay. I then took the familiar brick path from the end of the driveway through shrubs and tree ferns to a set of stairs curving down to the building's shady entrance (fig. 2).

Halfway down the stairs, my attention was caught by a molded stucco chevron of fern fronds on the wall above the doorway, clearly an original feature of the architecture but one I had no recollection of, despite the near certainty that my eyes had registered it hundreds of times when I lived there. Standing on the doorstep, my nose to the cool glass, I peered into the dimness of a small lobby off to the left of which I could see the top of the staircase that led down to the basement level. In my mind, I took the stairs down to my old flat. I visualized my younger self down there lying in bed, sitting at the trestle table I had made with my own hands, and making toast in the kitchenette that was regularly visited at night by a water rat entering through a hole in the floorboards. The past of 1980 was present here with a vividness that was almost shocking, prompting me to step back from the glass with a sense that I was on the threshold of doing something I might regret. It occurred to me that the more I remembered, the more I was reworking what remained to me of that time. Accompanying that thought was an image of the person sitting at the trestle table down in the basement flat looking up at me; and the words that came along with the image were "back off."

Retracing my steps slowly up the driveway and back along Elizabeth Bay Road, I set off for home. That at least was my intention, but on reaching Ithaca Road, on my left, I turned into it and set off downhill to the little waterfront park I had visited so often in 1980. Within a few minutes, I was walking across the lawn to the seawall and leaning against its waist-high parapet to look down to where the small harbor waves broke against the wall's large sandstone blocks. I sat for a while on the wall, watching the Manly ferry and thinking about what had happened on the doorstep back up the hill. My thoughts then moved to reclamations. Visiting the Pearl River Delta the



Figure 2. Entrance to apartment building in Elizabeth Bay. Photograph by the author

previous year, I had become interested in the long history of reclamations there, and this had led to a broader interest in reclamations as artifacts of human expansiveness. It was now no longer possible for me to be on this wall without being conscious of it as the bounding wall of a reclamation. Following that afternoon at Elizabeth Bay, instead of collecting memories from my old addresses I slipped into a pattern of returning every few weeks to the park and the seawall, partly from the pleasure of having rediscovered the place and partly to try to piece together its history.

A Labile Coastline

We live in the Quaternary, the period that began with the onset of the northern hemisphere glaciation 2.6 million years ago, an event experienced in Australia in the form of a drier, colder climate and radically lower sea levels. During the last glacial maximum, approximately twenty-one thousand years ago, the sea around Australia was 125 meters lower than today, meaning the coast off Sydney was between six and twenty kilometers east of where it is now.¹⁴ As the glaciers and ice sheets elsewhere in the world began to melt and withdraw, the sea moved back in over the land until it reached a highstand between 1 and 1.5 meters above present sea level seven thousand years ago, falling back to where it is today by around two thousand years ago. At that point, the embayment at Elizabeth Bay took form.

Having arrived in Australia between fifty-five thousand and sixty thousand years ago,¹⁵ Aboriginal people living on this part of the New South Wales coast are assumed

14. Lambeck and Nakada, "Late Pleistocene and Holocene Sea-Level Change"; Attenbrow, *Sydney's Aboriginal Past*, 38.

15. Hiscock, *Archaeology of Ancient Australia*.

to have occupied the undulating plain of the continental shelf that lay exposed off Sydney during the low sea level phase. They retreated inland in front of the advancing sea, losing something like three meters of territory a year and presumably adjusting their clan territories as they went as well as incrementally modifying their spiritual, storied, and economic understanding of the land. They would have witnessed how, at high tide, the sea edged further up the sandstone cliffs than it had before; how it crept up and over the edge of the rock platforms on the seashore, filling nooks and crannies and running forward to create tidal pools where none had been before.

When the British arrived in January 1788, there were several Aboriginal clan groups living in the area around the harbor. The British convicts, soldiers, officers, and colonial officials saw clan members fishing from bark canoes, camping in the harbor's many coves, performing ceremonies, and hunting in the woods.¹⁶ They came upon shell midden mounds that were the accumulated waste of generations of Aboriginal shellfish consumption, and they discovered images of mythic beings, boomerangs, and whales engraved on exposed sandstone platforms around the harbor. The clan groups occupying the country around Sydney were resourceful in adapting to the changes that followed European arrival, but in 1789 an introduced disease, probably smallpox, killed more than half their members in just over a year. Of the Gadigal, the clan living on the harbor's south side, including the area of Elizabeth Bay, all but three perished.¹⁷ Members of clans from further afield moved into the area, but the British, who by 1808 already numbered more than ten thousand, were quickly in the majority.

During Lachlan Macquarie's tenure as governor, from 1810 to 1821, a neat row of bark huts was built for Aboriginal people on the narrow band of flat land behind the Elizabeth Bay beach, just above where I sunbathed in 1980. It appears that for a short while they cultivated European crops there and became an attraction for wealthier Europeans visiting in carriages as well as a target of "vandals" and "harassers."¹⁸ They lost this land when in 1826 the colonial secretary for NSW, Alexander Macleay, received a fifty-four-acre land grant covering most of the amphitheater around the bay, an area now densely covered by apartment blocks, mostly erected in the early and mid-twentieth century.

The British governors were empowered to grant land to Europeans deemed worthy, and in the first decades of colonial settlement grants were made over an area extending out across the three and a half million hectares of the Sydney Basin and then beyond. To understand how and why the foreshore of Elizabeth Bay came to be reclaimed in the late 1880s, we need to appreciate that in the early decades of the colony the legal system of land title had worked in tandem with the technology of cadastral

16. For the most detailed account of European-Aboriginal contact in the early years of colonial settlement, see Karskens, *Colony*.

17. Attenbrow, *Sydney's Aboriginal Past*, 21.

18. Karskens, *Colony*, 526–27.



Figure 3. The Elizabeth Bay seawall and reclamation, from the east. Photograph by the author

survey to translate the country of the indigenous inhabitants into a tradable commodity.¹⁹ It created a body of capital to underpin and fuel the colonial economy and gave impetus to the subdivision of many of the early land grants. Most of the Macleay estate at Elizabeth Bay, with its formal gardens, pathways, an orchard, and an orangery reaching right down to the beach, was subdivided into residential blocks and sold off prior to the 1880s. On the west side of today's waterside park, a row of the elongated rectangular blocks extended along the curve of the bay, each with its lower boundary reaching down to the high-water line. The owners, however, soon gained government consent to reclaim the space out from that boundary to the low water line. There a sandstone seawall was erected to serve simultaneously as a retaining wall to hold the soil and refuse used to reclaim the area over the beach and as a defense of the reclamation against the sea. The reclaimed land became a seaward extension of the gardens of the large houses that had been built at the landward end of the blocks. To the east of these gardens, the Sydney City Council reclaimed an equivalent band of beach and intertidal mudflat to form present-day Beare Park. The seawall was extended as part of this project so that by the late 1880s it inscribed a gently curving line from one side of the bay to the other (fig. 3).²⁰

19. Kass, *Sails to Satellite*.

20. This seawall was under construction by 1886; see memo by the City Surveyor's office, 27 March 1886, item 26/211/775, City of Sydney Archives.

For the citizens who purchased waterfront properties during the Macleay Estate subdivision, the reclamation meant that ownable land literally materialized in front of them and was written onto their title deeds. Joshua Reno, writing about landfill on the edge of Detroit, observes, “Mass waste comes to rest in places that are considered empty. They are empty not only because they possess raw air space to fill with translocal discards, but because they lack the means to resist pre-emption of local lands for such purposes.”²¹ The nineteenth-century beach and mudflats at Elizabeth Bay were “empty” in this way, the more-than-human occupants of the space having been effaced by a classificatory optic that mapped their habitat purely in terms of its potential as dry land. So too, in the eyes of the British, was the whole Australian continent empty. Discounting Aboriginal occupation as ineffectual, they deemed the continent *terra nullius*.

The privatization of common land at Elizabeth Bay via an act of reclamation was not dissimilar to the way in which, from the thirteenth century, much of the commons of Britain was “enclosed” by neighboring landowners to create fields for sheep grazing and cultivation. The “Parliamentary enclosures” of the eighteenth and nineteenth centuries forced many thousands of peasant farmers to leave the land and join the swelling ranks of the urban poor.²² It seems safe to assume that at least some of those who were displaced by these enclosures subsequently became, in Australia, beneficiaries of the colonial enclosure of indigenous country.

Little reclamation had been carried out in Sydney Harbour until the mid-1830s, at which time there was an abrupt increase.²³ Soon, licensed surveyors were being employed to map in detail the settled parts of the harbor foreshore and to plot the all-important high-water line onto these maps—all-important because a procedure was instituted whereby landowners could seek permits to reclaim between the high-water and low-water lines.²⁴ In the library of the North Sydney Council’s heritage center, I looked at some of the beautifully drawn and annotated maps produced in the late nineteenth century for Careening Cove and Lavender Bay on the harbor’s north side. I noticed that even where reclamation had already occurred—mostly representing the extension of individual residential or commercial waterfront properties—the surveyors drew in the high-water line where they estimated it had originally been (“originally” in the sense of where it had been since the 2,000 BP sea level standstill).²⁵ These lines

21. Reno, *Waste Away*, 137 (emphasis in original).

22. Mingay, *Parliamentary Enclosure*.

23. In the two decades after 1835, a total of 30.7 hectares was reclaimed; see Birch et al., “Reclamation in Sydney Estuary,” 353.

24. Under an 1882 regulation, the high-water line was defined as “the mean high-tide mark between high-water spring and high-water neap tides.” NSW Survey General’s Survey Regulations, 1882, Section 44.

25. *Trigonometrical Survey of Port Jackson the City of Sydney and the Suburbs*, sheet no. 2, E.1, preliminary edition, comp. A. L. Lloyd, December 1881. Stanton Library Collection MF301/5, North Sydney Heritage Centre, North Sydney, Australia. I thank Ian Hoskins for drawing my attention to these maps.

evoke the spectral beaches and mudflats over which tides edged and waves broke prior to reclamation and would do so again were the reclamations to be disestablished.

By 1866 the government's view was that while reclamation "was not the optimal approach to preserving the appearance and natural environment of the harbour foreshores," it nevertheless caused no "practical injury."²⁶ Given the 7.6 million square kilometer size of the Australian landmass, the effort British settlers devoted to enlarging it around the edges might seem perverse. But white settlement in Australia has always strongly favored the seaboard, fully 85 percent of the population in 2001 being concentrated within 50 kilometers of it.²⁷ It was not simply desire for more land that drove reclamation; it was desire for land in the right place. It is thus understandable that the prospect of even a medium-scenario sea level rise of eighty centimeters over the present century has many Australians worried.²⁸ We conceive of sea level rise in terms of the sea flooding the land, but reclamation is a flood of land moving the other way. This comes to mind when you see maps such as those showing the history of reclamation in Macao, in which the extensive tracts of new land skirting the "original" islands of Macau, Taipa, and Coloane look very like a surge of land flooding into the sea.²⁹

Water Views

I was down at the seawall late in the afternoon of one of the first warm days of September 2015. Rain had been falling intermittently out of a grey sky all afternoon, and apart from me, the few people present in the park stood under umbrellas watching their dogs run across the sodden lawn. I imagined the reclamation to be saturated all the way down from the lawn's muddy surface to the beach buried several meters below. Water was seeping through the gaps between the sandstone blocks and dribbling down the face of the wall into the sea.³⁰ At such times, the wall seemed like a dam holding back the pond-like reclamation from the somewhat lower pond of the harbor. In the bay, small waves were layered over a gentle swell, that rhythmic heaving of the harbor's body that could seem like the breathing of a great animal at rest.

Compared to other liquids, water has great surface tension, a product of the peculiar propensity of its molecules to stick to each other. This means the surface of the harbor is readily deformed by the agency of wind and rain. On that wet afternoon in September, the raindrops falling into the bay were spaced far enough apart that you could see individual rings radiating out from where they struck the water's surface. Rings

26. Birch et al., "Reclamation in Sydney Estuary," 348.

27. Year Book Australia, 2004, cat. no. 1301.0, Australian Bureau of Statistics, www.abs.gov.au/Ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article32004.

28. For Australian government sea level rise maps, see OzCoasts, Australian Government, Geoscience Australia, www.ozcoasts.gov.au/climate/sd_visual.jsp (accessed December 23, 2016).

29. Jiang, Lin, and Cheng, "Monitoring and Assessing Reclamation Settlement."

30. I refer to the harbor water as "sea," since, due to the small volume of freshwater flowing into it from the land, it is almost completely saline.

radiating out from neighboring raindrops ran into each other, creating complicated patterns of collision, continuance, and reverberation. A copy of Yasushi Inoue's novel *The Bullfight* lay beside my bed, and that night I reached the part where he describes his principal character listening, with his lover beside him, to the temple bells of Kyoto ringing out on New Year's Eve in 1946. "At midnight, all at once, the long, low gonging of the bells began issuing for the first time in years from all the great temples scattered throughout the city. . . . They heard the bells being struck, at regular intervals, nearby and far away, their countless reverberations all layering and colliding, echoing into each other."³¹ I thought of the raindrop rings down at Elizabeth Bay, two kilometers away, echoing into each other in the darkness.

You can follow a single raindrop ring moving across the surface of the water and still be aware of the others around it, even though there are other patterns of movement subtending them—the large, slow movement of the swell, ripples generated by the breeze, and small waves running back from where the swell breaks on the wall. Focusing your attention, you can momentarily encompass all the moving parts of the pattern, but you only need to glance away for that intricacy to vanish. I turn to see a dog chasing down a ball on the lawn behind me, and when I look back there is only the harbor, that more abstract entity, barely tangible in its givenness.

One day back in 1980, as I sat on the seawall with the reclamation behind me, the ordinary boundary between the water and myself unexpectedly gave way, and the water, with all its surface mobility and complexity, seemed simultaneously to be inside me and out there. The experience was fleeting, but it happened again several times while I was living at Elizabeth Bay. Mathew Gandy's term "ecological rapture" might cover it, but Maurice Merleau-Ponty's account of visibility and what he refers to as "the chiasm" seem most pertinent.³² For Merleau-Ponty, we are joined to the world in a mutually inclusive relation of folding. Simultaneously touched by the world as we touch it, we look out upon it as both seer and participant in what we see.³³ My memory of this experience faded after I moved from the bay early in 1981; it was only on coming down to the park after revisiting my old building that afternoon in 2015 that it came back to me. Perhaps it was triggered by those moments standing on the doorstep of the building, gazing through the glass. That might explain why, on my way home from there, I impulsively veered off-course into Ithaca Road and walked down to the seawall. Once there, the experience reoccurred, and I thought, "Oh, yes, this thing . . ."

It may seem odd that this should occur on a reclamation, but it supports Jane Bennett's point that enchantment is as possible in manufactured settings as in those that

31. Inoue, *Bullfight*, 51.

32. Gandy, "Queer Ecology," 733; Merleau-Ponty, *Visible and the Invisible*.

33. Particularly useful to me have been applications of Merleau-Ponty to contemporary environmental studies by Brian Bannon and John Wylie (Bannon, "Flesh and Nature"; Wylie, "Depths and Folds").

are pristine.³⁴ The fragility of reclamations, their contingency, lies in the illusion we harbor that we can wring the sea out of the land altogether and produce something purely and permanently terrestrial. From that perspective it seems entirely unsurprising that it was there, while sitting on a reclamation, that the sea came flooding into me.

The Soil of the Reclamation

Whether in the Pearl River Delta or Sydney Harbour, reclamations may appear to be a materialization, almost a monumentalization, of the culture-nature binary. The ecologically rich ecotonal transition zone between aquatic and terrestrial ecosystems is erased in favor of what seems a hard-line interface between land and sea. Some might thus construe the act of reclamation as an attack on nature, but as Karen Barad reminds us, “in an important sense, there are no ‘acts against nature,’ not if they entail the sense of absolute exteriority that is usually assumed . . . there is no position outside nature from which to act; there are only ‘acts of nature.’”³⁵ Seen from this angle, reclamations are no more “against nature” than is the queer sex that occurs after dark in some of the apartments around the edges of the park at Elizabeth Bay or even in the park itself.

Reclamations are not against nature, but they are examples of the kind of “artificial ground” whose rapid expansion during the modern era is widely taken to be a stratigraphic indicator of the Anthropocene.³⁶ At Elizabeth Bay, the infill deposit forming the reclamation comprised soil and human refuse transferred there from elsewhere, together with sediments from the adjacent harbor floor transferred by a pump dredge located just offshore, all of this contained within the sandstone seawall.³⁷ It is likely that the part of the deposit furthest in from the wall rests on ground containing archaeological remains of the camp set up by Governor Macquarie for Aboriginal people in the second decade of the 1800s, along with the remains of Aboriginal occupation predating European arrival. Such remains, including stone tools, charcoal from campfires, and shell midden deposits, have been recorded and excavated by archaeologists elsewhere around the harbor and have been found to date from the period after the sea reached its present level 2,000 years ago.³⁸ Mostly we are oblivious to these things as we walk about the park, several meters above, but we are in touch with them insofar as we are in touch with a reclamation deposit that is in touch with them.

34. Bennett, *Enchantment of Modern Life*.

35. Barad, “Nature’s Queer Performativity,” 47.

36. Price et al., “Humans as Major Geological and Geomorphological Agents.”

37. A letter to the Sydney City Council in 1886 from Norman L. Cohen of Ithaca Road, Elizabeth Bay, requests the use of the government dredge to “clear out” the bay along the length of the reclamation wall. Item 26/214/1647, City of Sydney Archives.

38. Attenbrow, *Sydney’s Aboriginal Past*. Traces of Aboriginal presence earlier than 7,000 BP could also be present. While most radiocarbon-dated Aboriginal archaeological sites in the Sydney region belong to the period after 3,000 years before the present, several earlier dates exist, the oldest widely accepted date being 14,000 BP.

The base of the reclamation infill constitutes the “bounding surface” between anthropogenic strata and preexisting strata and is thus, in this locality, the lower bounding surface of the Anthropocene.³⁹ The infill belongs with those other forms of “artificial ground”—paved roads, concrete floors and car parks, garbage landfill and agricultural soils—that represent the spread and “hardening” of human habitat on Earth. However, unlike reclamations undertaken to create container ports, with their vast fields of concrete, the infill at Elizabeth Bay produced a living soil. Bacteria colonized it, fixing nitrogen and making it available to be used by plants and soil fungi, and the bacteria became food for larger organisms like worms, which aerate and mix the soil. The infill has taken on a life of its own, but this is a life continuous with and entangled with human life, as illustrated in the way earthworms bury human artifacts. The casts (feces) deposited on the ground surface by earthworms operating in the subsurface can surround and undermine objects lying on the ground, such as bones, pebbles, toothpicks, coins, lost earrings, cherry stones (spat out by humans), and cigarette butts, causing them to sink into the ground at a rate of a few millimeters a year.⁴⁰ The subsidence of our earrings and coinage into the infill deposit helps me to see this ground as a trans-species habitat rather than the sovereign terrain of humans.

The City of Sydney annually top-dresses the lawn on the reclamation with enriched sandy soil, leading to further burial of surface artifacts and presumably countering the vertical shrinkage of the reclamation deposit as it “settles” over time.⁴¹ While I was on my hands and knees looking for worm casts, it occurred to me that I might be crossing the exact spot on the surface where I lay on my towel in 1980, but then I realized that surface must lie below the thin strata of numerous top dressings.

The Time of the Seawall

The seawall was constructed from large blocks of Hawkesbury Sandstone, a rock formed during the Triassic Period between 200 and 400 million years ago. Sand, washed down a river system from far inland, was deposited to form a floodplain in the present-day Sydney region. Over millions of years this sand compacted to form the sandstone that is Sydney’s bedrock. Extensively quarried from 1788, it immediately became the stone of choice in the colony for the construction of houses and public buildings and for paving, curbstones, walls, and bridges. The yellow-brown rock remains a distinctive feature of the city’s built environment, lending it a warmth you would not get from granite or basalt. The sandstone is also highly visible in situ in cliff formations and outcrops. Where sandstone buildings and walls lie close to these or connect directly with them, you are reminded of the continuity between the built and unbuilt.

39. Edgeworth et al., “Diachronous Beginnings.”

40. Canti, “Earthworm Activity.”

41. See, for example, Jiang, Lin, and Cheng, “Monitoring and Assessing Reclamation Settlement,” on the subject of reclamation settlement in Macao.

Disaggregation is the technical term for the decay of sandstone. In the course of this decay, the clays and other minerals that bind together the silica grains (sand) in the stone dissolve, leaving the affected grains to fall away.⁴² At a macro scale, we can think of the quarrying of sandstone as an anthropogenic disaggregation of it into rectangular blocks of various standard sizes, blocks that are then reaggregated into buildings that are mostly rectangular in shape and divided internally into rectangular rooms.⁴³ These structures are set within the rectangular cadastral grid that surveyors laid out over the settled parts of the colony, including, as we have seen, over the terrain of Elizabeth Bay. In the act of quarrying, the rectangular Cartesian grid of colonialism was projected in anticipatory form into the colony's bedrock. If that seems fanciful, consider how the technology of the cadastral grid, developed over hundreds of years in Britain, rolled out across the Australian continent as if it knew it in advance or as if it was foreshadowed in the very terrain.⁴⁴

I tended to think of the seawall as a stable barrier to the sea until one day at low tide I stood on the narrow strip of beach at the foot of the wall and saw how quickly the stone blocks positioned in the splash zone and above it were eroding. Soluble airborne salts from the harbor have penetrated the sandstone and crystallized there, causing disaggregation.⁴⁵ What should always have been obvious to me was that the quartz grains falling from the eroding sandstone were not just accumulating on the beach; they *were* the beach, which is to say they had assimilated into the mix of quartz grains already there. The grains in the stone, washed downriver during the Triassic, were now washing around in another kind of water, the harbor water against which the wall was built as a defense. The sandstone blocks that were level with my eyes as I stood on the beach were giving up their substance rapidly, on a geologic timescale, but too slowly for us visitors to the park to ordinarily notice. Human time and geologic time are not easy to reconcile, and yet, as Ben Dibley observes, now that we have become a "geological agent," we need to simultaneously conceptualize "temporal scales that once appeared incommensurable."⁴⁶

As the sandstone blocks lose mass, they allow the sea to advance inland a millimeter at a time in a temporality similar to that of the worm activity that was burying cherry stones and cigarette butts left stranded on the undersurface of the lawn. If we concede that the waves hitting the wall "intend" not to end there but to run up the sandy surface of the former beach, just as they did in the days before the wall was built, then the eroding wall is responding to the sea's intentions at the same time as it temporarily serves our purpose of keeping the sea out of the reclamation.

42. On the disaggregation of sandstone in Australian heritage buildings, see Swan, "Modes of Decay."

43. Note that a square is technically a rectangle.

44. Byrne, "Nervous Landscapes."

45. Swan, "Modes of Decay," 24.

46. Dibley, "'Shape of Things to Come,'" 52.

Here and there on the seaward face of the wall, severely corroded iron bolts project out of the stone. Perhaps they originally supported iron rings used for mooring boats. Cement mortar was used to fill in around the bolts and anchor them to the sandstone matrix, just as it was also used to plug the larger gaps opened up between the sandstone blocks by erosion. However, the cement mortar has proved harder than the sandstone, which, in eroding, has retreated from around the cement, often leaving the cement plugs projecting out a centimeter or more from the wall's surface. The intention was that the cement mortar would unite with the sandstone to hold the bolts and fill the gaps, but the stone, quite literally, has gone its own way. As it happens, the way it has gone has sometimes provided the kinds of crevices that octopuses, urchins, crabs, starfish, and other intertidal species can inhabit and that practitioners of eco-engineering have recently been creating in some Sydney Harbour seawalls.⁴⁷ Given its heritage status, eco-engineers have not attempted to create artificial openings in the Elizabeth Bay seawall but instead have attached concrete "flower pots" to parts of the wall in the intertidal zone, creating microhabitats for such species.⁴⁸ In these ways, the wall becomes softer, more permeable, more habitable.

In the process of eroding, the sandstone blocks slough off the rectangular dressing given to them by the nineteenth-century quarrymen and take on the sinuous shapes congenial to their matter and to their characteristic mode of decay (fig. 4). These curvaceous forms suggest the metaphor of the fold in Merleau-Ponty's phenomenology, mentioned earlier, and Gilles Deleuze's work on folded matter in Leibniz, the Baroque, and the world at large.⁴⁹ The kneading/folding metaphor has a key role in Serres's account of nonlinear time and history, an account in which events from different eras bend toward each other, becoming adjacent or coexistent and evoking the figure of a "crumpled handkerchief."⁵⁰ In Steven Connor's words, this gives us an image "not of time moving on and dissipating, but of endlessly regathering itself."⁵¹ I think of the small harbor waves that regather themselves to break once more against the seawall and of how my own history involves a gathering and regathering at this reclamation across the span of thirty-six years. The history of this space is a matter of rhythms and repetitions rather than linear progression. Included here, of course, are the rhythmic movements of the waterline in response to diurnal and monthly tide cycles, the spring and neap tide cycle, and the much more stretched-out rhythm of the glacial and interglacial cycle of the Quaternary Period we were born into, a rhythm that has its origin principally in the Earth's orbital eccentricity.

My relationship with the top of the wall is more intimate than with its seaward face. When I sit on the wall or stand against it, my hands absent-mindedly touch and

47. Browne and Chapman, "Ecologically Informed Engineering."

48. *Ibid.*, 8204.

49. Deleuze, *Fold*.

50. Serres, *Genesis*, 60.

51. Connor, "Topologies."

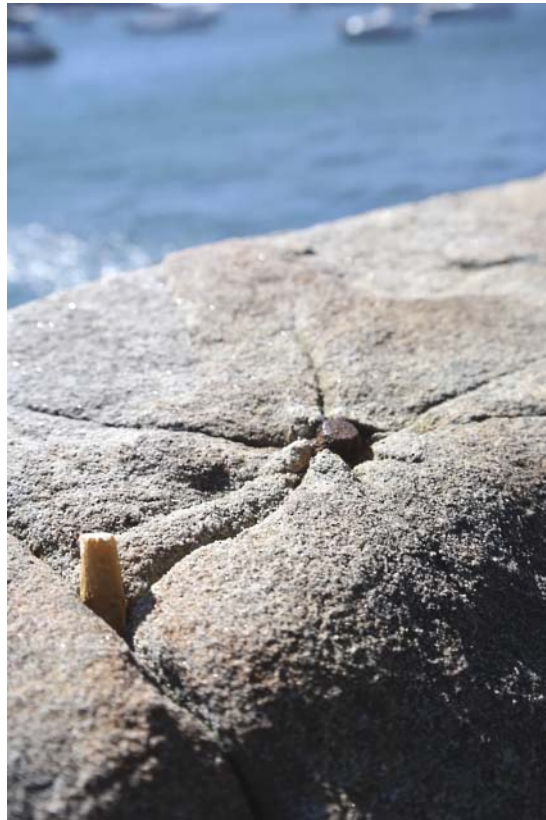


Figure 4. Weathering of sandstone blocks in the Elizabeth Bay seawall. Photograph by the author

caress its surface and come away with grains of sand attached to them. Some of them end up in my pockets so that I become an unwitting agent of the wall's further dispersion. At some point in the wall's 130-year history, iron pegs, perhaps to support a low railing, were sunk into holes drilled vertically into the sandstone blocks of the wall's parapet and were cemented in place with mortar. The railings had been removed by the time I arrived on the scene in 1980, but the stumps of the iron pegs would have been there, just as they are now, evenly spaced along the top of the wall (fig. 5). Some have rusted badly in the salt air and the sea spray that drifts over the wall in heavy weather. In the process of oxidizing, the iron has expanded, exerting enough pressure to crack the surrounding sandstone, much the way that in other climates water seeps into cracks in rocks and then splits them when it freezes. The iron's propensity to rust has perhaps damaged the wall in its role as a "hard defence."⁵² The small surge of anger I experienced in 2015 when I first noticed the cracking of the rock was to do not with the undermining of a hard defense but with the damage caused to something I am fond of by the callous indifference or lack of forethought of those who penetrated the stone with rust-prone iron. I assume that most of those who stand at the seawall are, like me in 1980, unaware of the slow violence of the rusting iron. Whoever pushed a cigarette butt into one of the cracks (fig. 5) was perhaps not inclined to follow the crack to its source, which would be to follow the time of the crack and the time of the rust.

52. In coastal engineering, hard defenses such as seawalls and groins are an alternative to soft defenses, which include the replenishment of eroded beaches with new deposits of sand.

Figure 5. A sandstone parapet block cracked by the rusting of an iron insert. Photograph by the author



Conclusions

If, for argument's sake, we take 1945 as the Anthropocene's starting point, then clearly by 1980 I was living well inside that new era.⁵³ However, the Holocene lingered on as a state of mind long after 1945, and I now wonder whether the golden tinge, which, when I look back, seemed to suffuse my life in 1980, owed something to the long drawn out Holocene sunset. I now see that as I lay on the summer lawn at Elizabeth Bay in 1980 I was living in the last "halcyon days of the Holocene."⁵⁴ This was not a time innocent of our impact on global ecology. We had already acquired "the various tactics and mechanisms of disinhibition that have made it possible . . . to ignore successive environmental knowledges and warnings, and defeat those challenges and alternatives that opposed themselves to industrial and consumerist action."⁵⁵ However, we were unaware that the scale of this impact had made us a very significant influence on the Earth system, and we had yet to realize that this influence would be geologically marked. In that sense, it was as a visitor from the Anthropocene that I returned to Elizabeth Bay in 2015.

53. On the beginning of the Anthropocene, see Zalasiewicz et al., "When Did the Anthropocene Begin?"

54. Howe, "Timely," n.p.

55. Bonneuil and Fressoz, *Shock of the Anthropocene*, 290.

The reclamation that took form at Elizabeth Bay in the 1880s is not a thing of the past. It continues to be a constitutive element of the material present. Archaeologists increasingly appreciate the falsity of historicism's claim that the past lies behind us, neatly stratified in sequential order.⁵⁶ We see that the past continues to be materially present in palimpsest form. For example, sunbathing on the Elizabeth Bay reclamation in 1980, I participated in the materiality of its past in the sense that I lay horizontal on its surface rather than inclined on the sloping shoreline of the pre-1880s beach. And when I picked up my towel and returned to the basement flat, I descended a staircase designed in the 1930s, my feet unthinkingly taking the two ninety-degree turns on the landing halfway down, just as the 1930s architect intended they would. The "layers of pastness that make up the present" are at the heart of what it means to live in the Anthropocene, where our lives are shaped, though not determined, by the material products left behind by a humanity that has hugely magnified its capacity to produce material products.⁵⁷

Archaeology, in its particular scrutiny of things and in its care for them,⁵⁸ surely has a role to play in bringing the "things" of the Anthropocene into view and, in doing so, equipping us to be more aware of our productions. Reclamations are our things insofar as they are anthropogenic landforms, but we need to be open to their otherness as things not intrinsically contingent on us. We are called on to notice them anew.

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56. Olsen, *In Defense of Things*; Olivier, *Dark Abyss of Time*.

57. *Ibid.*, 124.

58. On archaeology as "a material metaphysics of care," see Olsen et al., *Archaeology*, 204–7.

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