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Archiving Environmental Change: Mapping a Network*

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Abstract

This introduction describes the work of the Archiving Environmental Change working group, which emerged from the Transregional Collaboratory on the Indian Ocean, a programme established by the Social Science Research Council in 2019, with funding from the Mellon Foundation. The group set out to explore how the terms 'archives' and 'environment' change each other. This introduction considers two routes into this question of archives, environments and their intersections: (1) Relativising archive as dry inscription, and (2) Rethinking elements as media. The introduction considers each in turn and then addresses the articles that make up this special section, discussing how they illuminate these themes.

Keywords

Archives, environment, Transregional Collaboratory on the Indian Ocean, organic archives, elemental media, environmental humanities, collaboration, environmental change.

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How can language capture the distinct movement of forest creatures? What does mud tell us about the distant past? And at what point is the archive an environment, and vice-versa? These were some of the questions that animated the discussions of the interdisciplinary working group, Archiving Environmental Change. The papers that appear in this special section emerge from our group's collaborative conversations over roughly two years.

The Archiving Environmental Change working group emerged within the Transregional Collaboratory on the Indian Ocean, an interdisciplinary program established by the Social Science Research Council in 2019, with funding from the Mellon Foundation.[1] It was one of three working groups established to facilitate dialogue across distinct projects funded by the Transregional Collaboratory, alongside a group on transregional reverberations and another on oceanic livelihoods.

In the spirit of interdisciplinary, transregional partnership, Archiving Environmental Change brought together eight researchers spanning five countries. The group comprised two archaeologists, two historians, a professor of social work, a musician and arts manager, a linguist and a literary scholar. Our founding rubric proposed the following:

> How do the terms 'archive' and 'environment' change each other? In dealing with organic matter or aqueous and other environments, can one even talk of an archive? At the same time, how are actual archives around the Indian Ocean littoral assailed by 'environments', whether damp air, mould, bats, and bees as well as political contexts? This working group explores these questions, with the aim to produce new angles on the entanglements of 'archives' and 'environment' in the Indian Ocean arena.

In the early stages of our collaboration, each person presented their current object of study, which turned out to be pollen, insects, sand, fragments of sound, fish, ideophones, artisanal craft and cyclones. Our initial discussions focused on these (bar the latter) as miniatures, in part a shorthand for smallness, although these were not classic miniatures since they were not tiny renditions of some larger prototype. Yet, whatever the limitation of the term, it did usefully raise questions of scale, positioning humans as giants vis-à-vis our objects, an appropriate image for the Anthropocene. It also provided us the opportunity to explode metaphors, inspired by curator Radhika Subramaniam's ruminations on 'seedy politics', in order to see the larger worlds that a focus on the miniature could illuminate.[2] The question that soon arose was how, or whether such small entities might record and store information about environmental change. In what sense could these objects be understood as archives, and could one talk about archives of the environment?

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1 For more information on this initiative, included its funding projects, see 'Transregional Collaboratory on the Indian Ocean', https://www.ssrc.org/programs/transregional-collaboratory-on-the-indian-ocean/.

2 Radhika Subramanian, 'Notes for a Seedy Politics' in W. Lukatsch and C. Kuoni (eds), *Maria Thereza Alves: Seeds of Change* (New York and Amherst: Vera List Center for Art and Politics and Amherst College Press, 2023).

This introduction considers two routes into this question of archives, environments and their intersections:

1. Relativising archive as dry inscription
2. Rethinking elements as media

We consider each in turn and then address the articles that make up this special section, discussing how they illuminate these themes.

Relativising archive as dry inscription

The archive has always been implicitly premised on the idea of dryness, whether the dry inscription of documents, or the climate-controlled dryness of the archival environment itself. Yet, as the catastrophes of the Anthropocene mount, and permanent supplies of electricity and air conditioning can no longer be assured, this dryness as a material and conceptual precondition for the archive has become more explicit and has moved analytically to the fore. This shift has in turn directed attention to debates, both old and new, on the environment of the archive.[3]

One recent line of enquiry has focused attention on the organic material in the archive itself, not as a technical question of preservation, but as an analytical point of entry into larger questions. Joshua Calhoun, an early modernist, explores paper-making and the organic components of the page. As he indicates, modern readers, and scholars in particular, seldom recognise 'the plants, animals and minerals in their media', thanks to chemicals, electricity and air-conditioning that keep documents in a state of suspended decay. What kinds of reading strategies might such an awareness encourage, or in Calhoun's words, 'how has human communication been altered by the corruptibility of the nonhuman matter used to make texts'?[4]

To centre the organic content of archives is to foreground the question of destruction and damage. Or, to adapt a well-known title on climate change, what would be the arts of reading in a damaged archive?[5] In postcolonial contexts, archives have long operated under conditions of austerity, political repression, and neglect.[6] Indeed, as Edgar Taylor's work on Uganda indicates, colonial archives themselves were underfunded and patchy; in his words they manifested 'a limited will to knowledge, a prioritization of secrecy, and a suspicion of African publics'. They were never designed 'as robust public repositories in the service of liberal democracy'.[7] Instead they relied on policies of concealment and large-scale destruction of records. As we discuss in

3 For an overview of older debates, see L. Buckley, 'Objects of Love and Decay: Colonial Photographs in a Postcolonial Archive', *Cultural Anthropology*, 20, 2, 2005, 249–270.
4 J. Calhoun, *The Nature of the Page: Poetry, Papermaking, and the Ecology of Texts in Renaissance England* (Philadelphia: University of Pennsylvania Press, 2019), n.p.
5 A. Tsing, H. Swanson, E. Gan and N. Bubandt (eds), *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene* (Minneapolis: University of Minnesota Press, 2017).
6 B. Machava and E. Gonçalves, 'The Dead Archive: Governance and Institutional Memory in Independent Mozambique', *Africa*, 91, 4, 2021, 553–74.
7 E. C. Taylor, 'Risk and Labour in the Archives: Archival Futures from Uganda', *Africa* 91, 4, 2021, 532–533.

more detail below, what kinds of reading strategies might such damaged archives require?

Another concept relevant to these debates of reading amid damage could be the idea of the 'feral archive'. Anna Tsing and Feifei Zhou spoke to the group about their website *Feral Atlas* (reviewed here by Meghan Judge). One key concept in their project is that of 'feral infrastructure', which emerges 'when nonhuman entities become tangled up with human infrastructure projects. These constitute "feral" ecologies, that is, ecologies that have been encouraged by human-built infrastructures, but which have developed and spread beyond human control.'[8] Examples include water hyacinth on dams, marabou storks in rubbish dumps, and jelly fish polyps on marine gas platforms. *Feral Atlas* lists museum insects as a further example, these creatures often being brought in unwittingly by human visitors. In this instance, a human intellectual infrastructure (the museum or archive) becomes enmeshed with non-human entities, in this case, insects, and might be regarded as a 'feral archive'. As Isabel Hofmeyr's paper indicates, thinking about archives in these terms requires us to read documents and insects simultaneously.

Elements as media

One scholar who has taken these themes of dry inscription in radical directions is Melody Jue, who asks what happens to the idea of the archive if it is immersed in the ocean. This 'conceptual displacement', she suggests, defamiliarises 'our terrestrial orientations'.[9] It further entails 'a drastic shift in how we think about the ubiquity of terrestrial media terminology like inscription, as the process of recording information. What about the residues left by coral in the form of calcium skeletons, as information-bearing structures?'.[10] She notes: 'Seawater asks us to rethink terrestrial notions of the archive or database as informed by the language of earth and sediment, and instead consider storage in terms of seawater's capacity for protean transformation.'[11]

In Jue's analysis, the ocean relativises our dry ideas of the archive, while also directing attention to seawater as a medium in itself. This notion of medium forms part of a rapidly expanding field of environmental and elemental media studies in which phenomena like air, atmosphere, clouds, and rain are thought of as media. Across these fields, there has been something of an elemental turn operating under a range of rubrics: elemental media, elemental media studies, elemental politics, elemental worlds, in addition to related terms like ecomedia.[12] Whether exploring the poetics of air, the aesthetics of ice, or seaweed as a type of media, this scholarship ex-

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8 Feral Atlas, https://feralatlas.supdigital.org/, n.d.
9 M. Jue, *Wild Blue Media: Thinking Through Seawater* (Durham, NC: Duke University Press, 2020), 6.
10 M. Jue, 'Submerging Kittler', *Social Science Information*, 57, 3, 2018, 481.
11 Jue, *Wild Blue Media*, 32.
12 J. D. Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015); N. Starosielski, 'The Elements of Media Studies', *Media+Environment*, 1, 1, 2019, 1-6; M. Jue and R. Ruiz (eds), *Saturation: An Elemental Politics* (Durham, NC: Duke University Press Books, 2021); S. Engelmann, 'Toward a Poetics of Air: Sequencing and Surfacing Breath', *Transactions of the Institute of British Geographers*, 40, 3, 2015, 430–44; D. P. McCormack, *Atmospheric Things: On the Allure of Elemental Envelopment* (Durham, NC: Duke University Press, 2018); C. Iheka, *African Ecomedia: Network Forms, Planetary Politics* (Durham, NC: Duke University Press, 2021).

plores the churn of 'soils, airs, waters, and fires … together with organic and synthetic chemicals'.[13] In similar vein, Nicole Starosielski argues: 'It is critical to remember that elements are neither essential nor foundational. Elements compose … They are relational. Elements never fully stand alone. They attach, bond, and transform.'[14]

In postcolonial contexts, elemental approaches have opened up suggestive routes for accessing larger agendas. Studies of toxic air patterns throw light on modes of inequality while patterns of air conditioning illuminate new class structures.[15] Caribbean and African-American intellectual traditions have long deployed Atlantic waters as central to understanding the afterlives of enslavement whether through imagined underwater worlds like Drexciya or Christina Sharpe's residence time.[16] In southern African studies, the method of 'reading for water' has opened up new literary directions, where regions become defined less by nation or area than by coastlines, river basins, monsoon currents and hydro-cosmologies.[17]

Archiving environmental change: The papers

Relativising Archives

Thinking environmentally requires that we work with an expanded notion of archives that takes in the elements and atmospheres in which archives function. As already indicated, discussions of African archives have long considered archives in this light, factoring in environmentally and politically imposed damage. Hofmeyr's piece extends these themes by considering insects as part of the archival atmosphere, a move that produces novel conceptualisations of the archive itself – in this instance, archives emerge as a peculiar species of plant. As the article indicates, this view arises from the practices of entomologists who were called in to undertake fumigation in state archives. These officials treated infested archives as they did plants, subsuming archives into the logic of insect control in vegetal matter – the documents and volumes like so many closely-packed leaves, or a mono-crop in need of pesticide. Given the concentrations of cellulose present in archival depots, insects too probably experienced archives as a species of plant, although a rather sad specimen, unable to produce any of its own defences. Somewhat counter-intuitively, from the perspective of both the entomologist and plant, the archive constituted a type of failed plant.

What would be the art of reading in such a damaged archive? Drawing on Emma Solberg, a medieval scholar who studies insect damage in manuscripts, Hofmeyr explores this question. Solberg notes: 'Wormholes, in short, have been understood as damage, as that which gets in the way of reading, not as something to be read.'

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13 D. Papadopoulos, M. Puig de la Bellacasa and N. Myers (eds), *Reactivating Elements: Chemistry, Ecology, Practice* (Durham, NC: Duke University Press, 2022), 3.
14 Starosielski, 'The Elements', 4.
15 D. A. Ghertner, 'Postcolonial Atmospheres: Air's Coloniality and the Climate of Enclosure', *Annals of the American Association of Geographers*, 111, 5, 2021, 1483–1502.
16 D. Steur, 'Inhuman Kinship at Insensible Depths: Relating to the Non-Relational in Drexciyan Afrofuturism', *Extrapolation* 65, 1, 2024, https://doi.org/10.3828/extr.2024.5; E. Deloughrey, 'Heavy Waters: Waste and Atlantic Modernity', *PMLA*, 125, 3, 2010, 703–712; C. Sharpe, *In the Wake: On Blackness and Being* (Durham, NC: Duke University Press, 2016).
17 I. Hofmeyr, C. Lavery and S. Nuttall, 'Reading for Water', *Interventions*, 24, 3, 2022, 303–322.

What might such a reading of wormholes look like? By way of an answer, Hofmeyr considers two instances: the first, a story about termites, the second, an actual piece of worm-eaten wood. The literary text in question is 'White Ant' by Herman Charles Bosman, a short story set among 'backveld Boers' in the Marico district of South Africa. An ever-present topic of conversation are the termites which eat their way through furniture, stamps, books, wagons and wooden legs. As Hofmeyr indicates, insects not only shape, or reshape the social fabric of the village, they also inform larger categories of discourse, offering models of society which seem increasingly more sophisticated than those prevailing in Boer communities. Ultimately they emerge as 'a cipher that haunts Boer/white settler society and renders brittle the assumptions underlying its racialised social order'.

The second example concerns pieces of worm-eaten and toxic oak removed from Westminster Hall in London during a major fumigation exercise against the deathwatch beetle in 1917. Since the wood came from this 'jewel' of English architecture and history, pieces of wood were offered to museums in the dominions who eagerly accepted them for display. Hofmeyr reads these 'texts' by focusing on their wormholes which in turn points to a chemical history of empire. Taking place towards the end of World War I, the fumigation was 'portrayed as a miniature enactment of the battlefront where "the enemy" would be destroyed by chemical warfare'. The exercise was headed up by Harold Maxwell Lefroy, who had done his entomological (and fumigation) apprenticeship in British India. The vermiculated portions of panelling acted 'as signifiers of the British empire, ancient in its historical reach yet modern in its chemical efficiency'.

Elements as Media

Mud, sand, water, rivers, fish – across several of the papers, these entities are examined as environmental media. Simon Connor and Rufus Maculuve consider mud as an elemental medium, both for what it stores and for the sound it makes and what this might summon up. Archaeological and palaeo-ecological research can tell us about what mud stores ('microscopic seeds, diatoms, pollen, charcoal, insects and crustaceans') and what this betokens for *longue durée* environmental change. However, this specialist knowledge possesses limited circulation and Connor and Maculuve ponder on ways in which it might be mediated in more accessible form.

The article considers the material properties of mud as a medium, and the affordances this enables. As the authors indicate, 'mud has a preference for collecting things that are miniscule, malodorous and apparently no longer wanted elsewhere'. Discussing Maria Thereza Alves' project, 'Seeds of Change', Connor and Maculuve point out how mud in ships' ballast enables a safe passage for botanical and other stowaways.[18] When dumped on shore, the seeds in the ballast rapidly form ruderal communities which constitute 'unique repositories of environmental change' and

18 Subramanian, 'Notes'.

become a 'living expression of those forgotten trade connections, of far-flung dockside landscapes and of the homelands of transported slaves whose names were never recorded'. The concept of the ruderal (plants that grow on disturbed ground) has become important as an analytical site in environmental investigations, a recognition of ongoing human disturbance and how it intersects with non-human agents – in effect another way of phrasing the concept of 'feral infrastructures'.

Saarah Jappie explores sand dunes and a river as forms of memory and media. As part of an art and performance project on the Eerste River, she returns to her earlier work on Shaykh Yusuf of Makassar, the 17th century political exile and Sufi saint exiled by the VOC. His years of exile ended in the region of the river mouth where his tomb still stands. The region bears the name of his place of origin, Macassar, and today refers to a township, a beach, and a nature reserve. Jappie revisits earlier archival documents, interview material and field notes that touch in passing on environmental questions. These shards and fragments in turn provide the basis of a screenplay, *Crossings*, which forms part of the project on the Eerste River.

The screenplay draws together fragments of conversation and reminiscence in a range of languages, including Afrikaans, Dutch, English, Indonesian and Makassarese. Its triptych structure focuses firstly on the longstanding tradition of Cape Muslims camping on the banks of the Eerste River at Easter. A second movement focuses on the kramat and the river as sacred spaces while the final section looks outward, linking the South African Macassar to its Indonesian counterpart. Threaded across the screenplay are elemental and environmental shifts, 'the disappearing sand dunes and the inconsistencies of the river'. The sand dunes, much reduced by sand-mining for apartheid and post-apartheid urban development, are recalled as 'bright white mountains', betokening a fondly remembered past. The river likewise becomes a medium of recollection, the periodic flooding setting reminiscence and narrative in motion.

Sunil Santha focuses on a missing fish, the netholi anchovy. Once a staple of Nair households in coastal Kerala, the netholi has largely disappeared as a fresh fish, driven into earlier migration through warming ocean temperatures; turned into fish meal for animal fodder or health supplements for the wealthy; and packaged elsewhere and sold in frozen form. Through a series of interviews mainly with women in Nair households, Santha uses the netholi as a medium of memory and social analysis.

The women recall how previously freshly-caught anchovies were sold from house to house by women vendors who always stopped for conversation, becoming friends in the longer run. As one informant observed: 'Fish was a medium for our conversations.' These days, however, anchovies are mostly purchased in malls and supermarkets, often coming from afar and as a result frozen and chemically treated. One woman trenchantly observed, 'fish imported from other states are adulterated with formalin, a chemical used in mortuaries to preserve corpses. Imagine that these profit mongers have transformed our fish into a corpse.' Another interlocutor said: 'Today, the fish has no aroma. It may be coming from Gujarat. Today, the body of the fish looks more like a sludge. Though the fish remains very stiff today, it has no strength.' Yet another lamented: 'It no more tastes like the earlier days.'

Santha's interviews track how anchovies are made to embody social distinctions, demarcating class and gender roles. Once regarded as poor people's fish, today, as one woman observed, 'only the rich can buy fish, including anchovies, or sardines … Though most of us would love to have the netholi fry as snacks like banana chips, we cannot always afford that. So, the poor and joint families have netholi only with rice, while some of our rich neighbours may have it as a snack.'

As regards gender, Santha observes, 'most women recollected that they liked to eat small fish like anchovy and sardine when they were children'. This practice has produced a sentimental attachment to netholi, often a nostalgic symbol of female community and enjoyment. Or, as one woman noted: 'When women are together (in the absence of the men), we will try to recreate those netholi days.'

In a photo-essay Anna Tsing, Feifei Zhou, Hatib Kadir and Gilang Mahadika focus on sand-mining in Sorong on the coast of Papua New Guinea. Contractors, artisanal miners, migrants and villagers scour the landscape using different technologies: extractors, high-pressure hoses, spades, picks, hands. Landscapes change rapidly and visibly: 'River banks are eroded, beaches disappear, and sandy hillsides become moonscapes.' Human figures are dwarfed in the rent and cratered landscape. Bodies are caked in mud and sand. Landscapes and bodies are forced together, creating a new, mutant media of extraction.



This co-constitution of body and environment as media outlined by Tsing, Zhou, Kadir and Mahadika is important since it moves us away from thinking about media from a human-only perspective and hence a species-specific way.[19] In a paper 'Feeling like a Forest: Landscape Aesthetics as Ecological Knowing', which formed part of the workshop, Nathan Badenoch discusses how Bit speakers in northern Laos talk about their forest environments. Focusing on everyday language to describe forest features like gnarled roots emerging from the ground, or an encounter with a snake, Badenoch demonstrates how language is less a Saussarian application of arbitrary signs unlinked to the object being described, than a cross-species collaboration in which the poetic affordances of language and genres like parallelism and ideophones mesh with

19 Jue, *Wild Blue Media*, 26.

the material features of the object being described. Here speech and environment are deeply entangled and point towards an understanding of media – whether words or roots – as collaborative undertakings of sensory cognition.

A note on collaboration

A major goal of the Transregional Collaboratory on the Indian Ocean was to foster novel, ethical models for research partnerships in global north–global south as well as south–south contexts. The collaboratory's initiatives, including our working group, served as a testing ground for new approaches to collaboration. With the onset of the Covid-19 pandemic, we faced the added challenge of navigating transregional dialogue in the aftermath of heavy travel restrictions and, on a brighter note, a new openness to connecting virtually. And so, like much of the world in the wake of Covid-19, this working group existed only online, with some of us waking before sunrise and others staying up late into the night in order to make gatherings that spanned a 17-hour time difference.

The group's virtual nature facilitated conversations among scholars who had never met, and may not otherwise have crossed each other's paths. We were able to connect regularly, technical glitches aside, and to begin to build a network of researchers separated by vast distances, but invested in exploring similar questions. However, after some productive months, we started to feel the limits of virtual collaboration. What we gained in being able to communicate across time zones, we lost in depth and context, not to mention opportunities for spontaneity and organic community-building. In June 2023, we arranged a workshop in South Africa for the group. Five of the eight participants were able to attend in person, with others joining online. Participants gathered in Johannesburg and then proceeded to the Wits Rural Campus near Hoedspruit, Limpopo, for a two-day meeting at which drafts of the papers for this special section were presented.[20] The in-person event in the relaxed environment of the South African Lowveld helped to consolidate the sense of networking that had been built online over 18 months. While it is unlikely that we will reconvene again in this precise form, there will certainly be spin-offs arising from this meeting and from the network as a whole, where we have acquired, tried out, and experimented with ideas about archival environmental change, often well beyond our disciplinary comfort zone. Through these encounters, we have acquired new concepts and vocabularies that we can take back to our disciplines, along with the laughter and goodwill that the in-person meeting generated. We hope that the papers presented in this special section suggest some of the richness that this network in and across the global south generated.

20 Program for the workshop and images available at https://aec.ssrc.org/the-workshop/.