

## CHAPTER 4

# Correlation: Registers of Change

### Introduction

In the second half of this book we turn to examine how, after the end of the world of the modern imaginary, questions of knowledge and epistemology are not entirely separate from those of ontology but are *onto-epistemological*: i.e. knowing is not merely a product of the mind engaging in passive reflection of a world as object ‘out there’, but rather an ongoing process of embodied engagement and interaction. Here we suggest that dominant approaches to knowledge in Anthropocene thinking can be heuristically grasped by highlighting two points on an onto-epistemological continuum: Correlation (Chapter 4) and Storiation (Chapter 5). Central to both, in our analysis, is how islands are worked with as notable sites of relational entanglements in order to generate new approaches to knowledge and understanding. Both approaches to knowledge depart from key assumptions of the modern epistemic imaginary and are posthuman or more-than-human in orientation.

Where distinctions can be heuristically drawn between them is in how they approach, register or ‘read’ the Anthropocene. Correlation is a relational onto-epistemology which relies heavily on patterns of repetition and stable relations of surface effect. Here

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island life and island cultures emerge as important figures for developing Correlational approaches which sense and register the Anthropocene; illustrated well in how the island has become the emblematic ‘canary in the coalmine’ for climate change (Cantieri, 2017; Fitzpatrick and Erlandson, 2018; Chandler and Pugh, 2020b; West, n.d.; Baldacchino, 2020). By contrast, Storiatio offers a more speculative, disruptive and generative set of openings; problematising the modernist assumptions of time and space which remain in place in Correlational approaches. This is illustrated in work which draws widely upon island life and cultures to foreground that the traces, hauntings and legacies of modernity and colonialism are not past but very much constitutive of the present (Alaimo, 2016; Morton, 2016a; Sharpe, 2016; King, 2019; Barad, 2019; Neimanis, 2019; Farrier, 2019; 2020; DeLoughrey and Flores, 2020).

In the first half of the book, relational ontologies were grasped by way of the analytics of Resilience or Patchworks. We posited a spectrum or continuum moving from the fixed, more closely bounded island relational interdependencies of Resilience, to the more open, flowing and contingent island knots of interconnection of Patchworks. In the second half of the book, where we consider the sliding scale or continuum of approaches that work with islands onto-epistemologically, we draw a parallel process of movement away from modernist grounds. The direction of travel from Correlation to Storiatio increasingly takes us away from the ability to have knowledge of a law-bound universal ‘nature’ as assumed by modernity’s human/nature divide, and seeks to put the materiality of islands and embodied intra- (rather than graspable inter-) relations to the fore as enabling thought rather than merely being an object of it. Thus, we develop the central theme of our book: how work with islands after the end of the ‘world’ is enabling and enriching Anthropocene thinking.

Key to the onto-epistemology of Correlation, discussed in this chapter, is the capacity to see, sense or register processes of becoming beyond those ‘given’ in appearance to a human subject. Correlational approaches depend on contextual relations and

regularities, where experiential knowledge enables signs and signals to be read as indexing or registering other or unseen changes. For example, a dog barking in the night-time might alert someone to an intruder: the bark indexes something that would otherwise be unseen. Correlational forms of knowing or sensing thus enable a wide spectrum of interactions in the human and the nonhuman world and, as we later explore, are understood to inform the interactive evolutionary processes of life itself, as life forms co-relate in ecosystem processes of mutual adaptation. Correlation is not specific to human knowledge systems and, in modernity, was long sidelined in favour of the truths generated by the laws of causation. After the end of the world as imagined in modernist ways, Correlational approaches have increasingly garnered the attention of policymakers and academics and, for this reason, have often been drawn from island practices and imaginaries where these forms of working are understood to be more central to everyday life (Intergovernmental Panel on Climate Change, 2007; Benwell, 2011; Hanna and McIver, 2014; Walshe and Stancioff, 2018). In particular, the ability to read the signs of changing island environments via the practices of Indigenous island cultures is widely understood as key to registering the forces of the Anthropocene (Salick and Ross, 2009; Camus, 2018; Suliman et al, 2019; Forest Peoples Programme, 2019).

Correlational analytics focus upon how entities or 'actants' have particular capacities or affordances which can be instrumentalised to enable human knowledge of changing environmental conditions. Correlational approaches thereby often rely upon the properties of correlational techniques and assemblages to measure or register effects (such as the widely held sensitive affordances of island ecological systems or cultures to register changing environments). Entities do not therefore have a core essence or meaning in themselves, as they do in modernist reductionist frameworks of reasoning; rather, knowledge is established co-relationally. Nevertheless, Correlation is still reliant upon an object of knowledge with reproducible and predictable properties and a knowing human subject who is capable of 'standing outside', doing the

correlating, reading and measuring of inter-relations. Knowledge is about building up increasing correlational efficiency over time, assuming a set of regularities of relation, which can be grasped. In Correlational analytics, registrations of one entity through changes in another – intensities of heat through the expansion of mercury in a thermometer, levels of carbon monoxide in the air through changes in the body of a canary, or the evolution pathways of island species – reveal changes in intensities and distributions of entities that cannot be perceived directly and thus add to human capacities to know and act instrumentally in the world. Correlational analytics, widely developed by working with islands and island cultures, can thus be ‘exported’ as a set of instrumentalising techniques or useful practices, which are replicable. The rest of the world can learn from island practices and the ecological sensitivities of islands life and cultures.

The chapter unfolds in three sections. The first expands upon the underlying logics of Correlational onto-epistemologies. It examines how working with islands – and the correlational tropes of the island as materially indexing or registering climate change – is central to the wider generation of Correlational approaches in Anthropocene thinking. The second section focuses upon how Indigenous islander practices, and the proliferation of digital sensing technologies and the ‘smart island’ concept, are playing a productive role for the development of Correlational approaches in much contemporary thinking. These work with the long-held notion that islanders and island life are particularly sensitive and are attuned to register and read environmental change in ways that the rest of the world can learn from. The third section develops the analysis further by engaging the shift in contemporary scholarship, taking Correlational analytics beyond the knowing human subject, or the knowing islander, able to register inter-relations, towards the Correlational practices of (island) life itself in the Anthropocene. In conclusion, we draw out how other trajectories associated with working with islands in the Anthropocene start to blur the dividing line between the onto-epistemologies of Correlation and those of Storiatio – which we go on to discuss in the next chapter.

## The Analytics of Correlation

As Elizabeth DeLoughrey (2019) notes, islands have become vital interpretants in the Anthropocene for mapping and modelling indirectly, through the registration of effects, the impact of complex transformations in planetary conditions (Hayward, 2018; Wu et al, 2019). This is illustrated in an extremely wide range of island practices today: from the extensive use of Big Data to map changing island coastlines and rising sea levels (United Nations Climate Change, 2019), to the remote sensing of coral bleaching as a bio-sensor of environmental change (Li et al, 2011; Mohanty et al, 2013; Foo and Asner, 2019), the growing interest in applying algorithmic correlation to social media feeds to register emerging island disasters (Whyte, 2017), and Indigenous island peoples' own capacities for sensing climate change (Percival, 2008; De Souza et al, 2015). The recent success of such books as Robert Macfarlane's (2019) *Underland*, Gleb Raygorodetsky's (2017) *Archipelago of Hope*, and Laura Watts' (2018) *Energy at the End of the World: An Orkney Islands Saga*, reflect how islands and islanders are widely seen as key detectors or sensors of climactic variations in the Anthropocene; understood as 'important models for future sustainability and as corollaries for the survival of the human species generally' (Fitzpatrick and Erlandson, 2018: 283).

Islands are often seen as 'canaries in the coalmine' in debates about the Anthropocene because they are widely understood as small and extremely vulnerable to catastrophic climate change, and such forces as atmospheric pollution, rising sea levels and plastic pollutants (Cass, 2018; Grydehøj and Kelman, 2017; Keim, 2019). Thus, there is something to working with *island* affordances and properties that matters for these debates. Here, we do not think it is helpful to understand islands as 'blank spaces' for these developments, devoid of meaning, simply awaiting the 'parachuting in' and 'testing out' of Correlational onto-epistemologies. Rather, we argue that working *with* islands as sites of relational entanglements, affordances and feedback effects has been important for the particular development pathways and generation of correlational analytics in Anthropocene thinking more widely. Indeed,

the figure of the island has emerged as a central way of registering, sensing or revealing processes of anthropogenic influence which would often otherwise go unseen. The emergence of islands is clear when we think back to UN Secretary General Kofi Annan's comments to the UN General Assembly in 1999, that 'islands are microcosms for our world. We are all inhabitants of the global island, surrounded by the limitless ocean of space. If we can find solutions to the special vulnerabilities of islands, it will help us address more global problems.' This is a far cry from today's framing of islands, not merely as passive victims, but increasingly as active and productive agents – 'inspiring champions' (De Souza et al, 2015: 1) which the rest of the world can and should now learn from (Hall and Sanders, 2015; Intergovernmental Panel on Climate Change, 2007; Nwanze and Sinon, 2013).

As Grydehøj and Kelman (2017: 107) have noted, 'just as the boundedness of small islands makes their beauty more graspable, it also sets their disasters in relief, transforming islands into symbolic carriers for mainland fears.'<sup>1</sup> We take this observation as a starting point for analysing the work of the analogy of the island as the canary in the coalmine, and for drawing out its central and powerful organising logic. Our key argument is that the influential analogy of the island as the canary in the coalmine points to how islands are increasingly reinterpellated not merely as a 'living laboratory' (Watts, 2018: 105), in the sense of being small and confined sites for investigative research for the rest of the world, as they are often portrayed in the literature (Edmond and Smith, 2003; Grydehøj and Kelman, 2017; Watts, 2018; Baldacchino, 2020). More fundamental than this, we suggest, is that working with islands enables the generation and proliferation of correlational epistemologies as an alternative, moving beyond the modernist episteme's focus upon causal relations.

The registration of effects – the capacity to see processes of becoming beyond those 'given' in appearance to a human subject – is a product of the specific affordances of the particular subject-objects, or 'actants', in the terminology of Actor Network Theory (Latour, 2005), enrolled in the process. As discussed above,

correlational epistemologies are not new per se. Rather, in the Anthropocene, the limits of the modern episteme and the importance of process ontologies, and thus working with islands in particular as sites of relational entanglements, increasingly comes to the fore. Whilst in this chapter we focus upon islands and islanders as key Correlational registers in the Anthropocene, everyday examples of Correlational techniques would also include such mundane, epistemological instruments as the thermometer (registering air temperature based on the affordances of mercury or other liquids, which expand or contract at a constant rate as temperatures change) or the compass (registering magnetic fields based on the affordances of magnetic materials or ‘lodestones’ in relation to the magnetic north) (Chandler, 2018a). Thus, Correlational machines – thermometers, compasses, or islands in the Anthropocene – bring unseen or unrecognised forces into a wider awareness, thereby expanding our ‘world’ by revealing agential forces to us indirectly via their effects. Human, nonhuman and technological aids have long histories of enabling responsivity via the sensing or registration of effects, through the power of co-relation or Correlation. Today these approaches have become increasingly central in the quest to reveal dangerous underlying changes in planetary conditions.<sup>2</sup>

Here, working with islands is a productive force. We noted in the last chapter that, as Donna Haraway (2016: 56) points out, it was the ecologies, affordances and properties of islands and their surrounding oceans in particular which brought the Anthropocene into the consciousness of the wider world ‘in the first place’:

From the start, uses of the term *Anthropocene* emphasized human-induced warming and acidification of the oceans from fossil-fuel-generated CO<sup>2</sup> emissions. Warming and acidification are known stressors that sicken and bleach coral reefs, killing the photosynthesizing zooanthellae and so ultimately their cnidarian symbionts and all of the other critters belonging to myriad taxa whose worlding depends on intact reef systems. Corals of the seas and lichens of the land also bring us into consciousness of the Capitalocene, in which deep-sea mining and drilling in oceans and

fracking and pipeline construction across delicate lichen-covered northern landscapes are fundamental to accelerating nationalist, transnationalist, and corporate unworlding. (Haraway, 2016: 56, emphasis in original)

It is important here to illustrate how the trope of the island and its surrounding environments, as notable registers for climate change, shifts the focus to sensing and Correlation, rather than a modernist ontology of causation, as this is significant to the importance of islands as instruments for non-modern ways of working in the Anthropocene. Correlation relies on causal laws or regularities, but the key aspect is that these are secondary to Correlation rather than primary. As Bruno Latour argues, Correlational epistemologies are not about entities or essences but relations: the causal becomes background to the relational effects which are foregrounded (Latour et al, 2011: 84). In the classic trope of the canary in the mine, the precondition for the canary signalling the existence of carbon monoxide is the causal regularity of poisonous gas killing the canary before mine workers are aware of its existence and prone to its effects. However, the problem of carbon monoxide is not addressed at the level of causation (predicting it or preventing it from appearing or solving the problem afterwards) but through developing a method of *signalling* the existence of poisonous fumes and of increasing human *sense-ability* through the power of Correlation. Without this registration of effects, carbon monoxide is understood to either exist or to not exist in a mineshaft, and by the time it exists it is too late and the coalminers die.

The addition of the canary into the situational context reveals the coming into existence of other actants, the poisonous gases, which would have previously operated unseen, beneath the level of human cognition. The affordances of the canary enable poisonous gases (variations in intensities) to become quantified or measured via the material body of the canary. In the same way, the fact that mercury expands when heated is a specific capacity or affordance that enables enrolment in a technical more-than-human assemblage – a thermometer – or Correlation mechanism.

As Scott Schwartz (2017) writes, these affordances enable the translation of an intensity, like heat, to be read or made legible through extension, in the form of measurement; thus, enabling something that cannot be seen directly to be datafied indirectly. In short, Correlation can translate quality into quantity, enabling its registration through effect. Intensities such as air temperature or gas densities thereby come into existence as meaningful or legible objects.

Anthropocene thinking is fundamentally marked by new approaches which seek to affirm the enabling powers of more-than-human relations. For such authors, the power of the Anthropocene (Danowski and Viveiros de Castro, 2016), ‘Gaia’ (Latour, 2017; Stengers, 2015), the lithosphere (Clark and Yusoff, 2017), or ‘hyperobjects’ (Morton, 2013), like global warming, while too great for the human intellect to grasp in modernist forms of ‘command-and-control’, enable new forms of thinking and responsibility to emerge. Although ‘anthropos’ may have forged the road to the Anthropocene, the tables are turned; our transforming planet is setting the pace, revealing to us the overwhelming power and forces of more-than-human relations. Humans are now tasked with following and responding to these forces, having a more humble role: to learn how to better Correlate and sense what the transforming planet is telling us (Chandler, 2018b; Chandler and Reid, 2018; Chandler and Pugh, 2020b). The problematic becomes that of: ‘how to listen?’ and ‘how to become aware?’ The sciences of correlation rather than causation and the need to develop new methods and approaches of onto-epistemology – correlational technologies – have thereby come to the fore.

The ecological sensitivities of island life in particular mean that, for many commentators on the Anthropocene, it is islands which are sounding ‘the alarm for climate change’ (Cass, 2018). The breadth of research which understands island life as a Correlational mechanism is significant; thereby enrolling such varied island ‘actants’ as penguins (Carravieri et al, 2013), moose skulls (Berman, 2017), insects (Jongejans, 2019) and beach width (Mann and Westphal, 2014) as sensors of global warming. The particular sensitivities and affordances of island life and island

cultures are said to make them extremely important for engaging the overarching problematic of Anthropocene thinking: reworking relational entanglements as enablers of rather than barriers to knowledge, via new capacities for sensing changing and transformative conditions.

### Islanders' Correlational Practices

As discussed in the previous chapters, the question of how Indigenous islanders' sense and register the world around them differently from Moderns is at the heart of many wider debates about the Anthropocene (Forest Peoples Programme, 2019; Ellsmoor, 2019). Anthropologists and other researchers have done much to foreground how islanders' forms of spatial and temporal awareness are key to unlocking more productive ways of registering the Anthropocene (Percival, 2008; Salick and Ross, 2009). In particular, there is a strong critique of 'Western preoccupations with separating ontology from epistemology, knowing from being ... [in favour of an] Indigenous conception of onto-epistemology' (Kanngieser and Todd, 2020: 385; Watts, 2013). For Kanngieser:

From what I have been told of Pacific cultures, it is impossible to separate land from oceans, people, plants, animals and spiritual worlds. Konai Helu Thaman, a poet and scholar from Nuku'alofa, Tonga, states that 'Pacific notions of identity tend to emphasise the 'environment' in its totality, a concept for which the English term 'land' is grossly inadequate.' Unaisi Nabobo-Baba explains that in Indigenous Fijian languages the word *vanua* denotes 'land as well as place ... everything on it and in it ... all flora and fauna as well as waterways, oceans, mountains and forests ... Land is of physical, social and spiritual significance to people.' Within Pacific conceptions of environment, writes Banaban, I-Kiribati, and African American anthropologist Katerina Teaiwa, the ocean is a 'corporeal and psychic relational vehicle,' and land serves to teach 'about the 'spatiality' of life in contrast to or in concert with the sea.' When non-Pacific and non-Indigenous scholars generalize any relation to land, they erase these formative knowledges.

Universal discourses in Western environmental histories are inadequate if they do not recognize that place and land are shaped by relationships that are not interchangeable. When Land is understood in this way, kin studies might proceed. (Kanngieser and Todd, 2020: 388)

Not only thinking about but *with* these island cultures is today seen as productive and generative.<sup>3</sup> As modernist frameworks of reasoning and scientific knowledge seem to reach their limits in debates about the Anthropocene, island life, and Indigenous islander ways of knowing, through the Correlational registration or sensing of effects, appear to provide a non-modern alternative (Māhina, 2008; De Souza et al, 2015; Vaai and Casimira, 2017; Fair, 2018; Falefou, 2017; Farbotko, 2018a, 2018b). Engaging Indigenous islanders' correlational practices and worldviews are said to be particularly crucial because:

Indigenous science and knowledge are based largely on bioindicators, or natural signs ... Many animals can sense earthquakes and other natural disasters before humans can, and watching their behavior can give us time to get to safety if such an event occurs. Learning from nature in this way is an integral part of the Indigenous worldview that all things are connected, and that nature, when respected, can be a benevolent part of the whole community. (First Peoples Worldwide, n.d.)

Working with island cultures' correlational worldviews is widely understood as an important antidote to the hubris of modern reasoning – a better way of reorienting to the higher stakes in the Anthropocene.<sup>4</sup> Thus, Suliman et al (2019: 300) highlight that:

The ancient Austronesian concept of *\*banua* [meaning 'land', 'home' or 'village'] suggests an unfolding, emergent and yet holistic system across space and time; a complex network of mobilities and immobilities connecting people, ancestors, stars, canoes and other vessels, ocean, islands and continents. This system, perhaps best conceptualised as a dynamic cosmological compass, originated in South-East Asia [probably in Taiwan] with the ancestors

of Pacific Islands settlers. *\*Banua* ... forms a cultural scaffold for past, present and future (im)mobilities in and around the Pacific Islands, and provides an orientation for thinking about Anthropocene (im)mobilities within and beyond the region.

Whilst a large amount of island scholarship has examined the sophisticated navigational practices of islanders across vast oceans – especially islanders from ‘Oceania’ (Lewis, 1994; Finney, 2003; DeLoughrey, 2007; Hau’ofa, 2008; Genz, 2011; Rakuita, 2017; Perez, 2020a) – here Suliman et al’s (2019: 300) framing of *\*banua* as a ‘dynamic cosmological compass’ seeks to inform Anthropocene thinking by articulating an Indigenous islander cosmological compass and Correlational worldview.<sup>5</sup> Indeed, as these researchers point out, navigation across oceans is in fact secondary, or subsumed, to *\*banua*’s wider cosmological compass: ‘an active culturally and physically nourishing *\*banua* in the Pacific Islands seems to endure before, during and beyond the spatial and temporal passages of those who call it home’ (Suliman et al, 2019: 311). *\*Banua* is an extremely sophisticated Correlational worldview which facilitates the ‘constant repositioning of the self with reference to the moving cosmos’ (Suliman et al, 2019: 312). As Suliman et al (2019: 311) quote Māhina (2008: 76) with reference to the Tongan, local variation of fonua:

On the universal level, fonua entails the dialectically changing formal, substantial and functional relationships within and between nature, mind and society ... On the unique level, however, fonua espouses the historically shifting ecological, psychological and sociological connections within and across fonua (birth), fonua (living) and fonua (death), as conflicting physical, emotional and human processes of eternal cycle and exchange.

For Suliman et al (2019), working with islander Correlational compasses and worldviews is not just an interesting exercise in Anthropology, it draws wider attention to important forms of practical mobile ways of knowing which exist outside formal governance spaces and processes. Highlighting this therefore

becomes a way of ‘challenging state-centric approaches to climate change adaptation’ and is seen as ‘essential for the existential security of Pacific people and central to contemporary climate activism’ (Suliman et al, 2019: 298):

Expansive, open and shared across the multiple indigenities of the Pacific Islands since original settlement, \*banua seems likely to endure beyond the Anthropocene through ongoing, changing and yet also eternal mutual custodianship of life with ancestors and descendants. The mobile nature of \*banua is lived in Pacific Island diasporas in places like New Zealand and Australia, and is likely to survive even the worst case scenario of complete loss of habitability of some islands. \*Banua is likely to continue to offer cosmological resilience in a changing climate, even in the face of individual, family, community or national despair arising from loss of land in the \*banua, possibly in new, as yet unknown ways and perhaps most importantly, whether remaining on or leaving degraded lands amid rising seas, its people can continue to nourish \*banua and be guided by it. A partial balm, perhaps, to the experience of profound existential insecurity. (Suliman et al, 2019: 313)

Such passages draw attention to how working with islanders’ correlational practices and worldviews is frequently seen to provide alternative, more productive, ways of generating knowledge. As another example, Camus (2018: 146) argues that greater anthropological insight into how islanders from Kiribati register, sense and correlate to their environment has an important ‘role to play in the debate on “adaptation” and “resilience”, for it can humbly act as a kind of agency or sentinel alerting us to the reality that this debate cannot stay in a state of suspension much longer.’

The alignment here of Resilience ontologies with Correlational approaches to knowledge is not unusual in the Anthropocene literature. Both Resilience and Correlation adopt a logic of relation, with the knowing human subject being understood as capable of reading the patterned regularity of inter-relational effects – such as the islanders who read the ‘dynamic cosmological compass’ of \*banua (Suliman et al, 2019: 300). Both Correlation and Resilience

also involve a much wider or ‘flatter’ redistribution of agency than top-down, causal, modern frameworks of reasoning which operate according to the logic of a human/nature divide. For Resilience analytics, focusing upon relation and interdependency enables greater adaptation to the forces of the Anthropocene by drawing upon the immanent potentialities of interactive (island) life itself. For Correlation, as an onto-epistemology there is a complementary focus upon working with islands and island cultures as a way of sensing, revealing and generating greater knowledge of complex relational patterns and connections. Moreover, because both Resilience and Correlation draw upon *generalised* patterns of knowledge, forms of reading or sensing, they can be instrumentalised, exported, and made replicable as wider practices for engaging the Anthropocene – for example, as noted, \*banua has endured and travelled over many generations, and there are multiple localised variations spanning Austronesia, which, Suliman et al (2019) argue, enhances islander Resilience in the Anthropocene.

The extension of the logics of Correlation is not confined to interest in Indigenous islander correlational practices. Correlational logics are also driving the development of new sensing technologies which work on the assumption that islands and island cultures are particularly sensitive to changing environmental conditions. As Jussi Parikka (2015) has highlighted, as far back as Lyell, Darwin and Babbage, in the 1800s, the Earth has been pictured as a giant sensing mechanism, with Babbage (1837) arguing that ‘[t]he air itself is one vast library’ (see also Parikka, 2015: 138). In 1839, John Ruskin pictured a ‘vast machine ... systems of methodical and simultaneous observations ... omnipresent over the globe, so that [meteorology] may be able to know, at any given instant, the state of the atmosphere on every point of its surface’ (quoted in Edwards, 2013: 431). Today, there is a massive interest in the development of Correlational machines capable of sensing the changing conditions associated with the Anthropocene; where ‘synthetic computation expands what is sensed, measured, calculated, communicated, stored and worked on’ (Bratton, 2015: 87–88; Springer et al, 2017). Reflecting the prominence of islands as Correlational

machines in these developments, Springer et al (2017: 18) powerfully argue for the ‘relevance’ of these approaches ‘for a contemporary consideration of the concept of the island as such’.

The characteristics of islands as enclosed relational spaces of interdependency are often said to make them ‘by their very nature, agile in size and governance – useful factors to become an innovation “testbed”’ (Handforth, 2017; see also Grydehøj and Kelman, 2016, Baldacchino, 2020). ‘They can move quickly to trial and scale new technology, providing innovators – big and small – with real-world environments for testing new ways of working’ (Handforth, 2017) – from the call for new ‘smart islands’ which could sense emergent effects and enable ‘real-time decisions’ in the Caribbean after Hurricane Irma (Whyte, 2017), to the real-time detection of changes in air and water quality on islands (Smart Island World Congress, 2019), to tracking the fluctuating levels of food available in retail shops after island disasters (Cavallo, 2017). Island Innovation’s *The Virtual Island Summit* (September, 2020), led by James Ellsmoor, is just one illustration of the popularity of these approaches, attracting around 10,000 attendees. Here, as just noted, Correlational approaches often work productively with the analytic of Resilience, and the types of examples discussed in Chapter 2, expressed in the notion of smart ‘Islands of the Future’ (Filmproduktion and Arte G.E.I.E., 2016). Again, in these developments, it is extremely important to note that islands are not simply ‘blank spaces’ or ‘empty laboratories’ devoid of meaning. It *matters* that such digital sensing technologies are generated by working with islands as widely understood sites of adaptive potential, relational sensitivities and feedback effects. Thus, these existing affordances are readily available for the construction of new digital approaches seeking to make these relational effects legible to planners and policymakers.

‘How do you turn these islands into a living IoT [Internet of Things] lab? Just add 500,000 sensors’ (Solana, 2017). In Spain’s Balearic Islands, referred to in this quote, the movements and relational interactions of island life can become seen or are ‘datafied’ through their translation into digital sequences, via their

registration through sensory equipment, now so cheap as to become increasingly ubiquitous. Perhaps the most obvious example of this is Singapore, where, as *Smart Island* (no date) journal says:

Making technology all pervasive, permeating every sphere of activity, Singapore became an Intelligent Island by year 2000 ... But technology does not cease to evolve, so Singapore has a constant focus on it and now has a 10-year plan to become the world's first Smart Nation by 2025! Sensors will be rolled out across the country to further improve the quality of life for its citizens.<sup>6</sup>

Such digital sensing operates through Correlational logic – enabling the unseen to be seen through the registration of effects, in these cases, upon the material body of the sensor. On the island archipelago of Indonesia, the capital city Jakarta has sought to turn its citizenry into citizen-sensors, capable of early detection and adaptive responsiveness to wide-scale flooding. One such Correlation and sensing project, PetaJakarta, sees the population of the major city as a resource still in need of mobilisation: they are already extensively networked through social media and could make great citizen-sensors, especially once flood information offered can be verified through geo-spatial tagging of the precise time and location (this enables others to check and compare the information from multiple sources and makes verification much easier) (Chandler, 2017). Social media can be reconfigured with humanitarian apps to activate these civic citizenship elements. Different problems can then be used to construct engaged and active communities able to play a role in addressing them as a form of ‘civic co-management’ (Interview, PetaJakarta Coordinator, 2016, in Chandler, 2017: 118). The development of civic communication technologies is understood as enabling a more dynamic reality of island life to unfold, amplifying the collective networked social intelligence of the island city, where the citizens and the river flooding work together to reveal the river’s importance and to develop syncopated rhythms of adaptation, rather than seeking to control or ‘normalise’ the river system (Chandler,

2017). At present, new civic technologies are being bankrolled and tested in relation to disasters and emergencies, but the hope is that this could be the beginning of new forms of geo-social networked systems enabling much more distributed and democratic forms of real time island governance.

Another localised illustration of how Correlational analytics are associated with the development of new sensing technologies can be found in Elizabeth Johnson's (2017) insightful examination of the work of commercial bio-sensing and the use of organic life to monitor fresh and marine water sources for pollution. Here an array of animal species, including small fish, worms, molluscs, crustaceans and micro-organisms are monitored intensively to discover their norms of functionality and to develop ways of measuring changes in these indicators. They are then ready for use as correlational technologies of registration:

[The company] monitors a suite of 'behavioral fingerprints' as these organisms are exposed to different systems. Locomotor activity, reproductive rates, and embryonic developments are measured together to indicate the severity of hazardous anthropogenic chemicals as well as biologically produced toxins, such as blue-green algae. In this way the company boasts, it can make 'pollution measurable'. (Johnson, 2017: 284)

As Johnson (2017: 284) notes, this mode of generating knowledge is less about causation than seeing indirectly via effects: making 'imperceptible harms' perceptible. The approach sees through Correlation, which enables new problems and possibilities to be detected. Changes in the bodily indicators of the animal organs can alert human agents to potential problems, even if the sources of those problems are unknown. Thus, the company concerned argues that problems can be detected 'in due time before pollution irreversibly spreads in the environment or even harms human health' (Johnson, 2017: 284). In a technological extension of the nonhuman prosthesis of the canary down a coalmine, bio-sensing becomes a powerful way of 'sensing the Anthropocene' (Johnson, 2017: 275). Intensities of pollutants or toxins are given extension or

appearance through the affectivities of the bodies of small marine creatures. This form of knowledge generation works on the basis of developing new forms of correlational sight; enabling a fundamental shift from knowing on the basis of analysis of causal connection to the adaptive knowledge of registering surface effects. The onto-epistemology of Correlation is not concerned explicitly with the direct essence of entities, or with chains of causation, but with seeing emergent effects; enabling ‘more-than-human’ assemblages of responsivity. New actors or agencies are brought into being through the affordances of islands’ ecological sensitivities, enabling the appearance of ‘effects’, and thus enabling insight into processes of emergence through these ‘co-relations’.

The underlying logics of Correlational approaches, and how islands are regularly enrolled in their development, are also usefully highlighted in Stephanie Wakefield and Bruce Braun’s (2019) work on the deployment of ‘green infrastructure’ on Manhattan island. This also relies on the agency of nonhuman actors, such as the deployment of oysters as seawall infrastructure, to enable sensing that is grounded in responsivity. Wakefield and Braun highlight the distinctiveness of this mode of governance which, rather than seeking to adapt and learn on the basis of causal relations that are oriented towards the future, has a very different temporality or approach to the future in that it seeks to ‘*ward it off*’ (Wakefield and Braun, 2019: 13: emphasis in original); attempting to keep everything as it is by cancelling out or absorbing events. Rather than seeking to reform or adapt existing modes of infrastructure – for example, by building walls around Manhattan island – such approaches instead seek to maintain existing forms of infrastructure but to add other forms of sensing and responsivity. While modernist or causal understandings assumed a hierarchy of centralised reporting and adaptation, such Correlational governance has a much flatter ontology of self-generated responses, whether at the level of society, community or the quantified self.

Such innovators regularly work with island life in order to develop and forward Correlational onto-epistemologies as an important way of engaging with the environmental changes of

the Anthropocene. Some of these do so by developing approaches which examine how island life itself is quite literally *sounding* the alarm bell of changing planetary conditions. As Lewis Gordon (2018) examines in an article ‘What does the End of the World Sound Like?’, an increasing number of researchers are recording the changing soundscapes of islands undergoing rapid environmental change; for example, changing bird songs, dogs barking, the sounds of forests, cyclones and islanders (for a good example see the ‘Burrow Collective’ (2020) on Fiji). For Anja Kanngieser (2020), islands are key sites which enable us to listen to the sound of ecocide as it unfolds. It is the affordances and sensitivities of islanders and island life in particular which repositions working with islands as central in these contemporary debates, not in modernist ways – needing to be protected and saved – but as spaces in which new approaches to sensing relational entanglements can and should be developed. Just as the Anthropocene at one and the same time puts humans at the centre of the problems of climate change but also weakens and undermines claims to human superiority, so islands and islanders are seen as undermined and threatened in the Anthropocene; but, importantly, also become key to sensing changing climactic and environmental conditions.

### The Correlational Practices of Island Life

Whilst many academics and practitioners give attention to islander correlational worldviews and practices, Anthropocene work has also focused upon island dynamics themselves as a correlational practice. In order to demonstrate the wide-reaching power of thinking with islands, here we expand the ways in which island dynamics are being engaged by turning to ways in which ecosystems, such as forests, can be thought in terms of island dynamics (Burgess and Sharpe, 1981; Howe, 1984; Small and Hunter, 1988; Rolstad, 1991; Bierregaard Jr et al, 1992; Iida and Nakashizuka, 1995; Edwards et al, 1999). A good example of this is Eduardo Kohn’s *How Forests Think* (2013). For Kohn, the Amazonian rainforest enables us to work with island characteristics of an isolated

system of relational interaction and feedback; and thus the generative power of embodied forms of knowledge as the logic of life itself – as Correlational – is clearly illustrated in Kohn’s approach of a material semiotics of interactive life as becoming. As in the case of Darwin’s work on islands (2010), island relations are seen to work immanently to magnify or intensify island differences and distinctions. Thus, island forms of embodied knowledge multiply or pluralise the world rather than reducing or homogenising it. Central, for Kohn (2013), is how this process of island becoming is correlative; where patterns repeat and flow through life as material signs and registrations are read and responded to. To give a simple example, the presence and distribution of water will structure the distribution of species of plants and insects, which will shape the distribution and nature of animal species and so on. Life thus ‘correlates itself’ interactively to ever higher levels of complexity. As species, including humans, seek to harness life’s powers and resources, these patterns become magnified. Correlation, in this sense, is a materialised set of interpretations and reinterpretations. The world becomes readable or registerable in its materiality through its relationships of feedback and their regularities and patterns.

Working with island forms of embodied knowing and interrelation (here, the rainforest as a distinct ‘island’ ecosystem) enables understandings of life that go beyond linear or deterministic imaginaries; in fact, emphasising non-linear and multiple potential developmental paths. For Kohn (2013), for example, the giant anteater is a contingent relational product but nevertheless it expresses and amplifies the reality of the world in relation. We cite a passage to illustrate:

Anteater snouts over the generations have come to represent with increasing accuracy something about the geometry of ant colonies because those lineages of ‘protoanteaters’ whose snouts and tongues less accurately captured relevant environmental features ... did not survive as well ... today’s living anteaters have come to exhibit comparatively increasing ‘fitness’ to these environmental features. They are more nuanced and exhaustive representations

of it. It is in this sense that the logic of evolutionary adaptation is a semiotic one. (Kohn, 2013: 74)

It is relational interdependency – in this case, the fact that the giant anteater is dependent upon ants as the sole food supply, and the regularity of its repetition over time – that enables this kind of coeval adaptation of species-in-environment. Thus, the island form of relational dependencies and interaction is that of a process which is itself a material narration. Whilst, as noted, a significant amount of work has examined forests in terms of island dynamics, as Robin (2014) says, there is ‘something profound about islands in general ... They are places revealing Earth’s history: the very soils and climates accelerate and concentrate evolutionary processes.’ The path dependencies and interactive stories of life – prevalent everywhere but revealed prominently by island life – are conspicuously registered in the material bodies of the actants themselves. The point is not so much one which concerns the ontology of complex adaptive systems, but that of (island) life itself as a communicative process which depends upon capacities for being and becoming sensed, read, registered and Correlated – as species change and transform through interaction over time.

Kohn’s (2013) semiotic approach is not forwarding an abstract claim – that every atom or grain of sand contains the history of the universe – but a highly concrete one. Life is irreducible and every life ‘pathway’ contains the individuated story of itself as an interactive becoming. This is readable or knowable through the traces which continue to exist and to relate relations. It is registered in these relations as life ‘Correlates itself’ in regular patterns and through their amplification. Importantly then, for this onto-epistemological approach, humans are not the only readers or interpreters of signs or stories. All life is held together through the Correlation of feedback effects which enable continuities to exist in ways which exceed modernist or anthropocentric understandings which separate Thought and Being, or Nature and Culture, reserving communicative interaction and cultural distinction for the human realm. The material semiotics of Kohn’s, which the work shares with some advocates of Actor Network approaches (see,

for example, Law 2007), puts material interaction at the centre of understanding rather than fixed essences of entities, which are separate or distinct from the environment. Differences continue to make differences, but for Kohn, as for many theorists considered in the Resilience chapter, there is still a telos – an underlying reality to the world which is accentuated by interactive (island) life: ‘it is only because the world has some semblance of regularity that it can be represented’ (Kohn, 2013: 59).

Working with such interactive feedback processes of islands as Correlational archives emphasises continuities or patterned regularities which enable habits of interactive adaptation to evolve. The point, as it was for Darwin, is that islands amplify or concentrate such processes, making them particularly prominent or apparent for the development of Anthropocene thinking. Today it is widely argued that working with island life enables us to develop better ways of sensing, Correlating and reading the regularities of forces associated with the Anthropocene. Eben Kirksey’s (2019: 23) work, as another example, has explored the new chemosocial communities of the Australian green and golden bell frog, which have emerged ‘in a complex landscape shaped by chemical weapons industries, municipal landfills, government remediation programs, real estate speculation, and a multitude of chemical and biological agents.’ Focusing upon the legacies of dumping grounds in the Sydney Olympic Park, Kirksey examines how these bounded, but intensively inter-relational, urban islands have become a habitat for these endangered species; noting that whilst many other amphibians have been harmed by toxic chemicals, bell frogs have ‘persisted here in polluted areas while vanishing from many protected conservation zones’ (Kirksey, 2019: 23). Thus, ‘While the normal world order of this frog has been lost with the spread of a deadly fungal disease, toxic chemicals have enabled the continuation of its social life’ (Kirksey, 2019: 23).

Life thus appears to have its own immanent drive or dynamic producing a hierarchical or biopolitical ordering in which traces of the past appear as legacies in the present. This framing of interactive ordering, initiated with Charles Darwin’s work on islands, further decentres Man in the sense that he becomes a creaturely

being: ‘our ancestor was an animal which breathed water, had a swim bladder, a great swimming tail, an imperfect skull, and undoubtedly was a hermaphrodite!’ (cited in Alaimo, 2016: 115). Man is put back into the world of being and could be seen as composed of and in inter-species life. As Neil Shubin states, the human body itself can be read as Correlation, a material registration of effects, not just of our evolutionary history but also the history of the planet and the solar system itself:

If you know how to look, our body becomes a time capsule that, when opened, tells of critical moments in the history of our planet and of a distant past in ancient oceans, streams and forests. Changes in the ancient atmosphere are reflected in the molecules that allow our cells to cooperate to make bodies. The environment of ancient streams shaped the basic anatomy of our limbs ... The list goes on. (cited in Alaimo, 2016: 119)

However, despite the fact that, as Alaimo (2010: 158, 2016) has argued, Darwin’s evolutionary insight ‘gives us our first glimpse of the “posthuman”’, the present (usually a white Eurocentric male present) is always the apex of being and from this vantage point the past can be grasped and appropriated, even if this is conceived in nonlinear ways.<sup>7</sup> Thus, despite his opposition to determinism, Karl Marx, for example, was to write that the ape could only be understood from the higher development of its anatomy in Man; in the same way that bourgeois society enabled a better understanding of the economies of earlier modes of production (Marx, 1973: 105). As Alaimo (2016) states, this view of the present as containing the material traces of the past can easily be subsumed under a reassuring anthropocentric story of evolutionary complexity, leading up to the present as the culmination of the process.

In debates about the Anthropocene, it is precisely the regularities and patterns of co-evolution which are under threat through catastrophic climate change, ocean acidification and island species extinction. Relational interactions are seen to work in uneven and unexpected ways. Stories of evolution on islands and perfected synergistic becoming through embodiment of the environment can often end up in tragedy, as co-dependences become a death

sentence rather than a matter of ‘the survival of the fittest.’ This is captured well in the stories of ‘flightways’ of Thom van Dooren (2014), which we briefly discussed in Chapter 1. Here speciation is a process not only of creative becoming, but also of extinction, where islands figure prominently in Dooren’s associated projects such as *The Living Archive: Extinction Stories from Oceania* (The Living Archive, 2020). This includes an interactive map which seeks to track stories of species extinction and environmental degradation for the extensive range of islands it lists as the Northern Mariana islands, Guam, Marshall Islands, Federation of Micronesia, Palau, Papua New Guinea, West Papua, Nauru, Solomon Islands, Kanaky (New Caledonia), Vanuatu, Tuvalu, Kiribati, Wallis and Futuna, Tokelau, Samoa, American Samoa, Australia, Fiji, Tonga, Niue, Cook Islands, French Polynesia, Pitcairn, Rapa Nui (Easter Island), Aotearoa (New Zealand) and Hawai’i. Through such extensive projects, the Anthropocene and islands thus enable Correlational onto-epistemologies to also tell different, less positive, stories of relational interdependency. As we have seen in this chapter, this is more broadly the case for researchers who draw upon islanders’ own Correlational practices and cosmological compasses to reveal how patterned relations are being disrupted in the Anthropocene, and for those who focus upon island life itself as a Correlational or sensing process. In both cases, islands have become important for generating alternative ways of knowing, sensing and revealing the disruptive forces of climate and planetary change.

### From Correlation to Storiation

This chapter has explored how Correlational approaches which work with islands as key sites for understanding relational affordances and feedback effects – variously employing the tropes of islands and islanders as the ‘canaries in the coalmine’, Indigenous islanders’ own correlational practices, new digital sensing technologies and the ‘smart island’ concept, and the evolutionary pathways of island life itself – can be seen to work very differently

from modernist epistemologies oriented around understandings of causation. They instead focus upon sensing and registering the dynamic processes of inter-relations in their processual emergence. Yet, for an increasing number of commentators on the Anthropocene, these types of Correlational approaches are still too hubristic in their assumptions of Correlational regularities of relation and of a 'knowing human subject' capable of instrumentalising, assimilating and appropriating the more-than-human world in these ways.

Setting up the stakes for the next chapter on Storiation, we can turn to the growing interest in Derrida's (2011) *The Beast and the Sovereign* for Anthropocene thinking. Cary Wolfe, for example, has drawn upon Derrida's deconstructive contention that '[t]here is no world, there are only islands' (quoted by Wolfe, 2017: 140). The focus of Wolfe's (2017: 137) analysis is Big Bend National Park on the USA/Mexican border, 'an island of biodiversity in the vast, arid wasteland that is western Texas' whose richness of species is said to be akin to the ecological diversity found by Darwin in the Galápagos. The point which Wolfe (2017: 138) makes about the power of working with the 'conceptual apparatus of the island' is that islands are not selective because they are closed to the external world, but precisely because they are spatially and temporally open internally: 'the more systems build up their own internal complexity through recursive self-reference and closure, the *more* linked they are to changes in their environments to which they become more and more sensitive' (Wolfe, 2017: 149).

For Correlational approaches, these capacities and affordances of island systems are what make islands like Big Bend National Park significant sensory assemblages. But Wolfe's argument goes further and disrupts the logics of Correlation, because island ecosystems can assist expanded forms of perception: enabling us to move beyond the spatial and temporal assumptions of the modernist episteme, to grasp the existence of traces, hauntings, ghosts and plays of differences and absences. Wolfe (2017: 140) deploys Derrida (2011: 8–9):

... [neither] animal or human individual inhabit the same world as another, however close and similar these living individuals may be (be they humans or animals), and the difference between the one world and another will remain always unbridgeable, because the community of the world is always constructed, simulated by a set of stabilizing apparatuses, more or less stable, then, and never natural, language in the broad sense, codes of traces being designed, among all living beings, to construct a unity of the world that is always deconstructable, nowhere and never given in nature. Between my world ... and any other world there is first the space and time of an infinite difference, an interruption that is incommensurable with all attempts to make a passage, a bridge, an isthmus, all attempts at communication, translation, trope, and transfer that the desire for a world ... will try to pose, impose, propose, stabilize. There is no world, there are only islands.

For Wolfe, the rich and vibrant ecology of islands can enable our awareness of this capacity for holding together multiple worlds beyond anthropocentric conceptions of flat grids of space and time. We move beyond appearances of stable entities and relations to speculatively foreground other modes of relating and interplays of affect beyond human sensibility but which make any island ecosystem what it is. Wolfe extrapolates from Derrida's provocation into a way of working with island ecosystems themselves as multiple 'worlding' processes involving different spatial and temporal interconnections, with the conclusion that:

what counts as 'world' is always a product of the contingent and selective practices deployed in the embodied enaction of a particular autopoietic living system, which is always *closed* and self-referential on the level of its particular mode of 'organization' but *open* to its environment and its perturbations on the level of 'structure'. (Wolfe, 2017: 141, emphasis in original)

Thus, processes of interactive 'worlding', as Derrida tells us, will also always involve the influence of multiple affects beyond the stabilised appearances that constitute the 'world' of any specific form of life. These affects, speculatively grasped in terms of the

deconstructive play of presences/absences, ghosts and hauntings, are as much a part of the present dynamics as entities which may appear to us in more stable ways. For example, changes in temperature or humidity many thousands of years ago which humans are no longer aware of, or the extinction of species which humans can no longer register or sense, or processes of colonialism, whose legacies are not readily apparent, that have enabled Big Bend to have the unique fauna, flora and animal life which it does.<sup>8</sup> This 'haunting' should not be understood as problematic but as constructive; although often unacknowledged or unseen, these absences still hold (i.e. exist) in the present and help the present to hold (i.e. to cohere).

As Wolfe says, in practice these material tracings and hauntings, which are vitally important to making any island ecosystem what it is, will stretch *infinitely* in time and space, and thus it is simply impossible for the knowing human mind to be able to grasp, sense or register them in their totality. For Wolfe, this focus fundamentally challenges the presumption that there is some Archimedean point from which a human being could 'stand apart' and see that 'everything is connected' – as humanly readable, patterned regularities – on the island. Working with islands in this *expansive* way thus enables Wolfe to rework or extend the logics of Correlation; to expand debate into *speculating* upon these presence/absences, traces and hauntings which make island ecosystems such as those of Big Bend National Park. This extension or intensification of Correlational logics we conceptualise as the analytic of 'Storiation'. This onto-epistemological approach profoundly disrupts the notion of a knowing human subject capable of knowing via fixed or regular patterns of interaction and affect in synchronic relations of time and space. There is, instead, a reoriented focus upon:

traces that register the presence of an absence – not just the absence of the ecosystems in which the maples, oaks, and aspens are typically found, much farther north, but a much more profound absence that challenges the commonplace notion in ecological thought that 'everything is connected,' an absence that challenges, that is, the notion of 'world' in which islands would

be just nodes, points of interconnection in a larger, encompassing fabric of life. (Wolfe, 2017: 139)

For Wolfe (2017: 138), central to Derrida's contention that '[t]here is no world, there are only islands' is that the world and islands do not exist as coherent graspable wholes, as they did under modern frameworks. Rather, the world is one of infinite islands, differences and presences/absences; where each temporal interaction carries 'a materialized 'trace', as Derrida would put it, whose inscrutability haunts [holds] the present with retentions from an evolutionary past and protentions of an evolutionary future' (Wolfe, 2017: 142–143). The onto-epistemological focus of Storiatio is a humbling but nevertheless enabling one, suggesting that humans can never fully grasp island reality but can generate insights when *approaching* islands speculatively. Working with islands in the Anthropocene by way of speculating from the materialised traces and plays of difference/ absences enables us to see islands as invitations to thinking differently and more expansively.

If Patchworks can be seen as a disruption of the modernist tendencies which still linger in Resilience ontologies, the same can be said of how Storiatio disrupts the modernist, epistemological claims of Correlation to be able to read inter-relational patterns of path dependency. Here the epistemology of Storiatio constitutes more fluid and contingent approaches of awareness. There is no claim to be able to coherently grasp island inter-relations, as in the case of digital Correlational technologies noted above, or the evolutionary pathways tracked by authors such as Kohn (2013) and van Dooren (2014). What is at stake in Storiatio is not the ability to register or read inter-relation by employing more-than-human assemblages, Correlational mechanisms or cosmological compasses; but a more open, speculative onto-epistemology which registers the holding of hauntings, spectres, ghosts and legacies of such forces as colonialism, consumerism and pollution in the Anthropocene.<sup>9</sup> It is through these forces, that can be speculatively registered in 'strange', 'weird' or 'quantum' ways, that new possibilities for nonhuman-centred thought emerges.

## Conclusion

This chapter has focused upon how work with islands and island imaginaries has been vital to informing and developing new onto-epistemological approaches, that seek to go beyond the limits of modernist frameworks of knowledge. We have seen above how Correlational onto-epistemologies bring thought into the world, mobilising the power of relation to co-relate understandings via materialised registrations, marks or signs that emerge as a material effect of relational interaction, independently of whether there is a human subject present. New correlational knowledge capacities are, for example, given a material form in digital sensing technologies and the ‘smart island’ concept; where the focus is upon the emergence of effects but there is no assumption that effects can be understood and manipulated or governed through the imposition of external or subject-centred policy goals.<sup>10</sup> Real time responsive forms of management through digital sensing, switch the focus to the ‘what is’ (Latour, 2013: 126) of the world in its complex and plural emergence. Latour (2017) argues that such machinic or more-than-human methods of ‘onto-epistemological’ knowing are absolutely necessary today, because modernist forms of representation, reduction, abstraction and exclusion cannot know a world that is plural, lively and interactive.

The materiality of the relational becoming of the world, brought to the fore in island work, is a vital mechanism of decentering human- or subject-centred approaches to knowledge. Thus onto-epistemological approaches are associated with what is often called the ‘ontological turn’ which seeks to expand our world, not by adding one more human-centred cultural perspective but a less human-oriented way of seeing or perceiving itself (Holbraad and Pedersen, 2017).<sup>11</sup> Onto-epistemology is about the material embodied affordances of worldly entities. For Correlational approaches, these affordances are used to bring new entities into being through the signs, marks and registrations of their effects. As we have seen, global warming, just like changes in body or air temperatures, can only be ‘seen’ via the registration of its

effects, enabling everyday island interactions to become signifiers of planetary importance. Correlational approaches thus make islands important as mechanisms of perception, for seeing the world, for understanding the stakes of the Anthropocene. In onto-epistemological approaches, potentially all objects or entities can be made to ‘speak to us’ as their specific affordances register their worldly relationality. What entities have to ‘say’ depends upon their relations and affordances, and the potential for entities to ‘speak’ is only limited by our capacity to sense or see these. As we have already noted above, onto-epistemology can be taken further, and in the approaches of Storiatio (as we will analyse in the next chapter) a more speculative approach is taken, which seeks to expand our capacity to imagine ‘worlds’ from other, non-human or more-than-human, perspectives.

## Notes

- <sup>1</sup> Like Grydehøj and Kelman (2017: 107), Godfrey Baldacchino (2020) has critiqued ways in which islands have been ordained ‘as advance indicators or extreme reproductions of what is present or future elsewhere’.
- <sup>2</sup> Perhaps the island artist who has done most on the international stage to explicitly foreground the trope of *sensing* the Anthropocene is the Icelandic artist Olafur Eliasson who has been ‘inspired by Iceland to connect nature and art’ (Skidmore et al, n.d.). In his 1993 work, *Beauty*, Eliasson created a darkened room with fine mist in it from the fallout out of a punctured hosepipe, which is illuminated by a single lightbulb; so that, from certain angles, the participant senses a rainbow. The whole point of this project, which leaves the lightbulb and hosepipe bare for the participant to see, is to explicitly draw the participant’s attention to the importance of sensing itself: ‘... seeing yourself sensing. You’d not just be having an experience, but conscious of having that experience. You would be made self-aware by the set-up of his work, of that experience of looking’ (Skidmore et al, n.d.).
- <sup>3</sup> Such debates reorient the stakes of a critical tradition which has widely condemned how islanders are researched by Western

academics and are co-opted into Western systems of knowledge and power (for example, Linda Tuhiwai Smith, 2012).

- <sup>4</sup> As another example, Sophie Chao (2020) has worked with the Marind people of Indonesia to produce a multi-sensory map which examines how they correlate to their island differently from those who seek to develop oil plantations. Focusing upon Marind song, lands, vegetation, bird and animal life, Chao has produced a dynamic sensory map of shifting and flexible demarcations ‘rather than a map of topography, or ownership, or territory’.
- <sup>5</sup> See also Renee Pualani Louis and Moana Kahele’s (2017) *Kanaka Hawai’i Cartography: Hula, Navigation, and Oratory*, which situates mapping in the island environment and encodes islanders’ spatial knowledge into bodily memory via repetitive recitations and other habitual practices, such as hula.
- <sup>6</sup> See Schneider-Mayerson (2017: 166) as illustrative of debates concerned with how Singapore’s advanced sensing and adaptive technologies means that ‘some islands will rise’ in the Anthropocene.
- <sup>7</sup> Anthropocene thinking is increasingly concerned with how debate is ‘Trapped in all-too-human languages, sensual orientations, corporeal habits, graphic representations, and data visualizations’ (Fish, 2019). Innovative work on islands is leading the way for alternative approaches to sensing and registering transformative planetary changes. Machine Wilderness (2019) is an experimental project developed by Theun Karelse, Alice Smits and a range of associates, involving sessions in the Venice Lagoon and elsewhere. By way of innovative symposiums, exhibitions, workshops and fieldwork sessions, this programme seeks to examine what sensing and correlational technologies would look like if they could directly relate to island environments in the way that organisms other than humans do. ‘The Machine Wilderness program starts from the viewpoint of organisms (and technologies) as interacting populations surfing collectively on the geological and meteorological currents that carry them’ (Machine Wilderness, 2019). Central to Machine Wilderness is the organising concept of ‘biomes’, long held as important to working with island ecologies and life. The aim is to develop new technologies which do not correlate and sense their surroundings like humans, but rather like communities of plants and animals which have correlated with relational forces and entanglements over time.

- <sup>8</sup> For example, radiocarbon dating has shown that Boot Canyon in Big Bend National Park had a very different environment fifteen to twenty thousand years ago than it does today. ‘One result of this is the presence of so-called relict species that can live nowhere else in the park, such as big tooth maple, Arizona cypress, quaking aspen, and several species of oaks, which were stranded in Boot Canyon and Pine Canyon with the retreat of the last ice, far from their normal alpine habitats farther north in the Rockies and Sierras’ (Wolfe, 2017: 139).
- <sup>9</sup> Adam Searle (2020: 169, emphasis in original) approaches the question of species extinction in a similar way: ‘The ontological “presence-ing” of absence enriches us with ghosts, whom we should engage and allow to speak through their markings on the world. Only through learning to make sense of absences of not-there-anymore can we think through the absences of the future to come, of the not-there-yet. And this is thoroughly intertwined within an ethics and politics of the worlds in which we coinhabit, the ways we *act* in the present...’
- <sup>10</sup> This approach accords well with Bruno Latour’s claims for actor network theory, which inverts Marx’s famous dictum in a way that clearly expresses the analytics of Correlation, that ‘[s]ocial scientists have *transformed* the world in various ways; the point, however, is to *interpret* it’ (Latour, 2005: 42, emphasis in original).
- <sup>11</sup> It should be emphasised that this turn to ontology is not about establishing a universal truth of how the world works but freeing epistemological approaches from modernist constraints, held to separate the subject from the world and to reduce the world to a narrowly human appropriation of it.