

EÓIN FLANNERY- ‘The buried life’: ecological criticism and the ‘deep’ past

1

The fundamental principles of James Lovelock’s Gaia Hypothesis have been well disseminated and digested within and beyond environmentalist discourse. Yet, it is worth revisiting the basics of Lovelock’s thesis as we progress through a discussion of ecology, time and historicity. Famously, the Gaia Hypothesis proposes: ‘A view of the Earth as [. . .] a self-regulating system made up from the totality of organisms, the surface rocks, the ocean and the atmosphere tightly coupled as an evolving system [. . .] this system [has] a goal – the regulation of surface conditions so as always to be as favourable as possible for contemporary life.’¹ The organicism of the Gaian system, thus, has fuelled much ecocritical argumentation, as it expresses the tenuous equilibrium that holds on the planet by the interacting agencies of humanity and non-human ecological factors. Such explicit and life-sustaining interdependence demands that humanity conduct its affairs in more eco-sensitive and responsible patterns. But, of course, in addition to representing a call to planetary duty and husbandry, Lovelock’s hypothesis speaks to humanity’s long-term historical situation, and to latter-day contentions that assert the changing, and harmful, historical agency of humanity in ecological terms. Lovelock’s theory, which has moved from being a lightly considered, almost ‘new-age’ speculation, to reputable climatic scientific projection, exposes the fallacy that kept human and natural histories in mutual exclusion. Equally, as Lovelock’s final clause above reveals, the Gaian regulation of the planet sustains all ‘life’, and it is not prejudiced in favour of the retention of human life or human civilisation as we know and comprehend them.

In tune with the critical and historiographical material manifest throughout our discussion, Lovelock’s thesis is not merely confined, or confinable, to the sphere of environmental science. Gaia theory bears on considerations of human historicity as it enlists deep-time histories to its frameworks of analysis, and, in this way, further undermines anthropo-centric apprehensions of planetary evolution. Diagnosing the political consequences of Lovelock’s hypothesis, the environmentalist Tim Flannery argues: ‘the deep interconnectedness central to the Gaia

hypothesis presents a profound challenge to our current economic model, for it explains that there are both limits to growth, and no “away” to throw anything to’.² In a sense, Flannery politicises Lovelock’s scientific hypothesis, but this does not disqualify the genuine political and critical valence of Gaia theory. Embedded within the Gaia Hypothesis are the seeds of later environmentalist re-readings of history, as well as anticipatory suggestions of geologico-scientific arguments, which impress the empirical verifiability of man-made climatic change. As Flannery’s interpretation of Lovelock indicates, the Gaia Hypothesis does not simply alert humanity to planetary interconnectedness, but it impresses the reality of the limitations to the planet’s resources and to its capacity to endure the waste products of capitalist industrialisation. Lovelock’s work, then, gives the lie to a theory of history that is nourished by, and that promotes, the notion of endless supply and productivity. In this respect, the Gaia Hypothesis exposes the myths at the core of the history of capitalism, and at the foundations of capitalism’s theory of historical progress. Read in these ways, Lovelock’s most enduring scientific conceptualisation brings human and non-human histories, deep-time geology, and the politics of ecological criticism into the same orbit – and this alignment has been taken in enlivening new interdisciplinary directions in recent interventions.

2

‘For Collingwood,’ Francis Gooding argues, ‘the affairs of people are never just occurrences plain and simple. They are always caught in a complicated and tangled meshwork of past and future events.’³ Motivations and rationalisations are the raw materials of a scientific history, which does not simply chart the events and the personalities of the past, but tries to account for historical actions themselves. Further elaborating on Collingwood’s historical theses, Gooding continues: ‘An historical event is one that occurs not only in time, but also in thought; it is an event which has not only an “outside” – the event as a phenomenon – but also an “inside”, composed of what the actors in the scene think of their actions, and the complexities of their conscious motivations’.⁴ Thus Collingwood defines the essential difference between the history of humanity and the world of non-human, natural processes in time. While mankind is possessive of intrinsic historical value and of historical agency, all else is restricted to non-historicity through an absence of ‘thoughtful agency’.⁵ Such an historiographical schematisation propagates, and underwrites, a dyadic relationship between culture and nature over the course of time; and this ossified demarcation is what Gooding’s broader argument seeks to dismantle. As we shall see below,

the juxtaposition of culture/humanity and biology/nature has come under increasing pressure from ecological, postcolonial, and neurohistorical methodologies within historiography. And Gooding's intervention broaches the difficulties in integrating the human and the non-human within the same historical canvas; it is an effort to problematise Collingwood's humanist historical vision. Gooding concedes that 'Historical behaviour does not appear to be strictly determined by the absolute contingency that reigns in unhistorical nature'. Nevertheless, 'Everything on this earth happens under the same sun [. . .] Historical activity is, from this point of view, fully subsumed in the embrace of the unhistorical [. . .] Historically determined happenings are thus a type of natural event'.⁶

While Gooding's case departs from Collingwood's in its accommodation of human and non-human 'events' as fragments of the same historical domain, his argument maintains a distinction at the level of process. In other words, though humanity and nature have interacted, and continue to interact, historically in identifiable and discrete events, the underlying historical 'thought-processes' that structure and reflect upon this shared historical form are always only available to humanity. What is significant about Gooding's reading of Collingwood's influential historical philosophy is the tentative moves it makes towards generating a serviceable solidarity between human history and natural history. Without acknowledging its ecocritical credentials or applications, Gooding's argument is a limited yet valuable anticipation of the agenda currently being worked over in ecological and 'green' postcolonial criticisms of mainstream historiography. Indeed, his concluding remarks crystallise this congruence between the latter two fields of inquiry: 'There is an epistemological boundary, to be sure; but there is only one sequence of events, and the elements of those events which must be understood in historical terms can only be a constituent part which must finally be located in the unfolding of universal time, in and of itself.' Defending this disposal of an apparently intractable intellectual barrier, Gooding states: 'These things are not in contradiction with each other: the historical rests within the unhistorical, it is a part of it, and it can to that extent be thought of as itself unhistorical. It is a moment of nature, not an aberration from nature.'⁷ The political resonances of Gooding's review of Collingwood's historical optic find common cause in recent historiographical revisionism, which centres on the validity of enlisting the artefacts – human and non-human – of the 'deep' past as informants of politicised ecological and postcolonial criticisms. By no means homogenous, these differential historiographical accounts are, it seems, powerfully enabling critical strategies in confronting and elucidating the planet's environmental crisis.

3

Published in 2011 by the National Academies Press in Washington DC, a report entitled *Understanding Earth's Deep Past: Lessons for our Climate Future*, and authored by the Committee on the Importance of Deep-Time Geologic Records for Understanding Climate Change Impacts, furnished lengthy and detailed analyses of the insights to be gleaned from 'the ground beneath our feet'.⁸ Opening with a stark statement of the relatively anomalous current condition of the earth's atmosphere, the report affirms: 'By the end of this century, without a reduction in emissions, atmospheric CO₂ is expected to increase to levels that Earth has not experienced for 30 million years'.⁹ From a geological-scientific perspective, accessing deep-time records is of paramount importance in permitting contemporary climate scientists to ascertain the climatic conditions that obtain with such heavily carbonised atmospheric ratios. The Earth's geology is, then, viewed, and acted upon, as a vast and indispensable climatic archive from which climatic projections can, potentially, be formulated. Likewise, the scale of humanity's carbon pollution, the acceleration of this discharge in such a brief historical time period, is thrown into relief by the revelations noted in the deep-time geological records. The motivation, and the accompanying benefit, of attending to the planet's geological repositories – another way of dilating our historical imaginations – is made explicit in the report. Tying the fortunes of humanity's and the planet's futures to productive engagements with the 'deep' past, the authors of the report argue: 'The possibility that our world is moving towards a "greenhouse" future continues to increase as anthropogenic carbon builds up in the atmosphere, providing a powerful motivation for understanding the dynamics of Earth's past "greenhouse" climates that are recorded in the deep-time geological record.'¹⁰ The sentiments expressed here are salutary, in that this is not simply an unadorned statement of scientific factuality, but is philosophical and utopian in its subtexts. Abstracting from this point, what becomes apparent is that orienting our historical consciousness to embrace the 'deep' past can have significant purchase within contemporary environmentalist thinking, including and beyond the realms of geological science. Indeed, the report's authors acknowledge the import of their statistical findings and projections beyond their own discrete peer-audience.

Findings such as those contained in *Understanding Earth's Deep Past* are scientifically produced, debated and ratified, but these same results and conclusions can, and will, impinge upon the lives and the livelihoods of billions of people across the globe. So that scientific reports on climate change are legitimate informants of cultural and

political commentaries and discussions on the planet's diminishing ecologies. Both the content and the methodology of such reports are instructive to how lateral attitudes and levels of knowledge about ecological degradation are shaped in the current context. As the report suggests in its concluding stages, 'Ultimately, the goal of education and outreach from the deep time perspective should be to help various audiences understand that the Earth has archived its climate history and that this archive, while not fully understood, is perhaps science's best tool to understand Earth's climate future.'¹¹ In many ways, the strategy proposed, whereby the past becomes the focus of possible future actions and outcomes, departs markedly from the teleological mindset that contributed, and continues to contribute, to the politico-economic conjuncture motoring global climate change. Rather than persist with a presentist and/or future-oriented myth of progress and perpetual modernisation, climate science's turn to, and faith in, the disinterred testimonies of deep-time geology represents a subversion of the dominant vectors of historical understanding. And this idea of critiquing regnant historical frameworks and *Weltanschauung*, using deep-time and the 'deep' past as reference points, while implicit in this scientific report, has become more visible within mainstream historiography, and within dialogues between historiography and environmentalist discourse.

Historical periodisations, geological time-frames, and anthropocentrism are three of the many themes that excite fevered debate within contemporary ecological criticism and creative writing. Given the urgency of the planet's ecological circumstances at present, and the alarming proximity, in temporal terms, of the effects of lateral climate change on vast swathes of the global population, it is no surprise that 'time' is so central to these ecocritical discussions. In appreciating the scale, the progress, and the potential resolutions of global climate change, then, much recent commentary has focused on historical time and on narrative frames with which humanity engages with, and represents, its own, and the planet's, pasts. For many ecocritics and historians, a radical recalibration of humanity's historical consciousness is warranted if we are to arrive at a rigorous comprehension of the unfolding ecological crisis – its root causes; our long-term implication in this crisis; and our inescapable future investment in the alleviation of its worst excesses. Of particular interest to these voices are the ideas of 'deep' history and geological time; protracted historical perspectives that challenge and that chasten anthropocentric historiographies. But this move within historical understandings of humanity's relationship with planetary ecology is not solely designed to underscore the depth of humanity's dependence on the planet's wellbeing across many millennia. This vector of historical

thought is also trained on exposing the scale of our responsibility for the escalation of climate change in the first instance. Equally, and in another register, the scalar proportions canvassed by such critics raise issues pertaining to the relative brevity of humanity's pre-eminence on Earth in geological time, in order that a degree of ecological humility might be generated towards a more sustainable interaction between human and non-human ecology. Thus, there is a multifaceted environmentalist agenda attached to the re-imagination of our historical visions, which are, however, all generally sympathetic to the conclusion offered by the scientist Edward O. Wilson: 'Human behaviour is seen as not just the product of recorded history, ten thousand years recent, but of deep history, the combined genetic and cultural changes that created humanity over hundreds of years. We need this longer view, I believe, not only to understand our species but more firmly to secure its future.'¹² For Wilson, the annals of so-called 'recorded history', what the Harvard-historian Daniel Lord Smail christens 'sacred history', monumentalises an attenuated history of humanity's global exertions.¹³ Not only are the time-lines of these breeds of histories far too curtailed, but they serve the purpose of establishing and legitimating the hubristic hegemony of humanity as a planetary species. What Wilson and Smail implicitly gesture towards is, of course, the tendency for history and historiographical methodologies to service presiding political investments. For both scientist and historian, our understandings and our procedures as historical, meaning-hungry species deliberately skew narratives of the past, which result in the manufacture of anthropocentric global histories.

4

While Wilson's interventions are directly environmental in their preoccupations, Smail's programme for 'deep' history is underwritten by neurohistory. In *On Deep History and the Brain*, Smail does not deliver any concrete environmentalist arguments vis-à-vis 'deep' history.¹⁴ Nevertheless, his general historiographical arguments, which seek to wed the workings of neurohistory and mainstream academic historical practice, converse easily with equivalent positions on the value of the 'deep' past within ecological criticism. The kernel of Smail's proposed subversion of established historical perspectives is his belief that written evidence, teleology, and civilisational progress have been the narrow structural frames and thematic focuses of historiography since the seventeenth century. Furthermore, the study of history has become increasingly limited in its temporal parameters – ever more confined to later and more recent historical events and personalities – approaching

what we might term, in the light of work of the historian Paul Carter, 'monumental history'.¹⁵ With these reservations in mind, Smail proceeds to decentre the evidential primacy of the written word; a further indice of mainstream history's anthropocentric and presentist values:

So what does it matter that the evidence from the deep past comes not from written documents but from the other things that teach – from artifacts, fossils, vegetable remains, phonemes, and various forms of modern DNA? Like written documents, all these traces encode information about the past. Like written documents, they resist an easy reading and must be interpreted with care [. . .] This is the logic that makes the deep past legible.¹⁶

The kinds of historical perspectives targeted by Smail reduce what they term as 'pre-history' to a barely accessible time of stasis; this delimitation of human historical action and development, then, sanctions the dominant narrative of inexorable progress away from barbarism toward civility. And, for Smail, these practices are both politically motivated and historically disingenuous. Under such stadial conceptualisations of history, humanity has fully outgrown its 'deep' historical origins, as it has evolved from relative unsophistication to self-conscious civility. As a mark of this arrival at civilisational settlement, humanity – certain 'advanced' constituencies of humanity, mainly sited in the 'West' – has achieved historical awareness, and thereby created its own historical narratives. Historical self-consciousness and the written, textual archive, then, are two of the factors that diminish the import of 'deep' history. In line with Collingwood's 'idea' of history, traced earlier, without historical consciousness and the capacity to record history in textual form, our ancestors in the 'deep' past were not 'historical' and, *ipso facto*, could not create their own histories. As Smail's point above illustrates, however, the 'deep' past does furnish a host of evidential artefacts with which trace elements of that past can be accessed and comprehended. From another viewpoint, the kind of historiographical practice contested by Smail was also deployed against contemporary 'others': native peoples, women, and other subordinated communities were deprived of historicity, or received peripheral (mis-) representation in hegemonic historical narratives. Cumulatively, Smail's 'deep' historical approach reaches back over time to the Palaeolithic era, yet it bares enabling insights for recent and contemporary historiography. And his methodology attempts to dissolve the boundaries between biology and culture, between natural and human histories, all of which has the potential to impact upon ecological criticism.

While Smail's concentration on the human brain and on human neurochemistry might appear remote from, and tangential at best, to

considerations of the historicity of our current ecological crisis, his discussion of human brain chemistry in relation to political and religious authorities, and commerce and capital, do, in fact, impact upon ecological concerns. One of his more compelling arguments centres on the notion of 'psychotropy'; in simple terms, the capacity and ease with which human moods can be manipulated and altered – consciously and unconsciously – through self-direction and external stimulation. For Smail, psychotropy is a foundation stone of human history; indeed he goes so far as to insist: 'Psychotropy is one of the fundamental conditions of modernity, and explaining its historical trajectory is one of the most valuable results of a deep historical perspective.'¹⁷ Psychotropy, then, underwrites pleasure, pain, anger, fear, serenity, but also dominance, subjection and exploitation. And in turning his historical lens on this biological phenomenon, which relates to the emotive facets of humanity, Smail, again, complicates complacent understandings of the historical and contemporary relationship between biology and culture. If addiction to narcotics, intoxicants and/or commodities and services are culturally and historically specific – i.e. qualitatively different in the eighteenth century from those that proliferate in the twenty-first century – in Smail's view this contextual, cultural divergence is matched by a biological convergence in the brain. He does not suggest that hegemonic constituencies always deliberately manipulate and are aware of psychotropic malleability, but that under capitalist modernity optimum levels of psychotropic management and/or excitation are pursued.

For Smail, the brain's chemistry dismantles the false dichotomy between modern history and the 'deep' past:

For reasons that lie deep in our biological history, the human central nervous system is highly sensitive to the wash of neurotransmitters that comes from everyday experiences and interactions. The advent of civilization and sedentarism brought with it an economy and a political system organized increasingly around the delivery of sets of practices, institutions, and goods that alter or subvert human body chemistry.¹⁸

And, consequently, from a historiographical viewpoint: 'the deep history remains essential to the story, as it is the only way to really understand why our brains operate the way they do. Our susceptibility to psychotropic mechanisms lies in the fact that we are social creatures.'¹⁹ In this light, Smail makes two complementary points: firstly, that human neurochemistry is inescapably implicated in grasping and in critiquing dominant historical and contemporary politico-economic systems, in particular, commodity capitalism. And, secondly, that while human neurochemistry is, and has been, the object of historical manipulation through political, economic and moral mechanisms, on the other hand, a

redemptive feature of the human brain, which is equally its weakest point, is its plasticity. Thus Smail's case is built on a dual assault on the ways in which mainstream historiographical practice has singularly failed in its representations of the macro-histories of humanity. Smail's historical agenda seeks to travel deep in historical time, but also deep into the cerebral functioning and cerebral genealogy of humanity. In both of these ways, his assertion of the importance of the 'deep' past and of neurohistory furnish supporting ideas with which to confront the ecological degradation of consumer capitalism, and with which to disabuse humanity of its self-fashioned status as history's principal and unassailable historical actor. And providing a projective conclusion on the exigency of re-orienting our historiographical procedures in these directions, Smail ends by arguing: 'We need not dig away only in the dusty topsoil of the strata that form the history of humanity. The deep past is also our present and future.'²⁰ Smail's reconfiguration of how we relate to, and how we apprehend, our 'deep' past, recasts presiding relations between biology and culture – but it does not replace division with an easy collapse of one into the other. Again, the plasticity of human neurochemical pathways, together with transhistorical contextual/cultural variables, are held in constellation by Smail. But significantly, neither autonomous human volition nor contextual determinants retain exclusive agency over global historical development, as he contends:

The evolution of psychotropic mechanisms has had a big impact on the shape and nature of human cultural evolution. And because this evolution was and is undirected, many aspects of history itself can be seen as random and undirected. We are being swept along by the things that have arisen as our physiologies have interacted in unpredictable ways with the new ecology forged by our Neolithic ancestors.²¹

Rather than attribute historical credit to the actions of the human mind, Smail redirects attention to the deeper influences of the brain and human physiology. This 'deep' historical schema, then, houses neurohistorical, environmental historical, and human historical agencies.

5

As we move into more manifestly ecological terrain, but remaining fully cognisant of Smail's enlivening propositions on 'deep' history and neurohistory, the formalisation of time in terms of historical eras and geological epochs becomes an arena of signal importance and of ongoing contention. Smail's historiographical revisionism attends to historical time as longevity and as duration, but in adjacent conversations on planetary chronology, human history, and natural history, time has taken

centre-stage in current debates on environmentalism. Responding to a term first coined over a decade ago, an editorial commentary in the scientific periodical *Nature*, in May 2011, posed the question: 'Are we living in a new geological epoch – the Anthropocene?'²² The geological designation, the Anthropocene, is generally acknowledged as the innovation of atmospheric scientists Paul J. Crutzen and Eugene

F. Stoermer, appearing in their co-authored essay 'The Anthropocene', in the newsletter of the *International Geosphere-Biosphere Programme* in 2000. This coinage is a reflection of the perceived and quantifiable impact of mankind on the ecological functioning of the planet's atmosphere, and it is traced back to the period that witnessed the commencement of the Industrial Revolution:

we proposed the latter part of the 18th century [. . .] we choose this date because, during the past two centuries, the global effects of human activities have become clearly noticeable. This is the period when data retrieved from glacial ice cores show the beginning of a growth in the atmospheric concentrations of several 'greenhouse gases', in particular CO₂ and CH₄(7). Such a starting date also coincides with James Watt's invention of the steam engine in 1784. About at that time, biotic assemblages in most lakes began to show large changes.²³

Though Crutzen and Stoermer's geological nomination has attained significant assent within climatic and geological scientific communities, and has been provocative within ecological criticism, the scientific body that governs the assignation of geological periodisations, the International Commission on Stratigraphy, has not, as yet, approved of an official redrafting of existing geological periods. Motivated by the tangible acceleration of anthropogenic degradation of the non-human natural world, and by their accumulated scientific evidence of the irreparable scars inflicted on the global environment by humanity, Crutzen and Stoermer diagnosed that humanity has, in fact, ascended to the role of geological agent. In other words, religious and philosophical questions on man's relation to nature – which assumed its dominance – have, through increased industrialisation and its attendant corruption of natural resources and pollutant run-offs, become a devastating ecological reality. As Crutzen details, in a more recent piece with Christian Schwageral: 'we humans are becoming the dominant force for change on Earth'.²⁴ And this assumption of power presents itself in profound qualitative alterations to global ecosystems:

Changing the climate for millennia to come is just one aspect. By cutting down rainforests, moving mountains to access coal deposits and acidifying coral reefs, we fundamentally change the biology and the

geology of the planet [. . .] We spread our man-made ecosystems [. . .] as landscapes characterised by heavy human use – degraded agricultural lands, industrial wastelands, and recreational landscapes – become characteristic of Earth's terrestrial surface.²⁵

In seeking official scientific ratification of the Anthropocene, Crutzen and his associates anticipate that humanity's responsibility for ecological depletion will be fully accepted and advertised. Counter-intuitively, though not symptomatic of further anthropocentric hubris, confirmation of the Anthropocene as a geologically legitimate epoch, will certainly endorse humanity's destructive capabilities, but, Crutzen believes, this temporal marker 'would highlight the immense power of our intellect and our creativity, and the opportunities they offer for shaping the future'.²⁶ In this respect, and in utopian fashion, Crutzen's agenda chimes with the marriage of the 'deep' past and future prospects proposed in different ways by Smail. But, as we shall see, Crutzen's pioneering refiguration of geological time-frames also impacts on our assumptions about the relativity of human and natural histories, and on the valence of the 'deep' past to act as a critical resource in ecological critical engagements with the deleterious outputs of industrial and consumer capitalism.

Working within, and often against, the disciplinary field of historiography, Dipesh Chakrabarty's subalternist challenges to Eurocentric historical narration were, and remain, cornerstones of postcolonial criticism. Given the recent profusion of texts in the forms of monographs, edited volumes, themed issues of scholarly journals, and individual essays that have forged political, economic and historical mutualities between postcolonial and ecological criticisms, it is perhaps of little surprise to see Chakrabarty intervene in the debate between the two fields.²⁷ Reflecting on the relative novelty and, by implication, dearth, heretofore, of exchanges between ecocriticism and postcolonialism, Pablo Mukherjee leans on the obvious materialist ties that bind the two fields: 'considering both positions are fundamentally concerned with the environments and cultures of capitalist modernity, it seems to me that there has been nothing like the degree and intensity of cross-fertilisation that potentially offer each other'.²⁸ Indeed, tracking the genealogical origins of both ecocriticism and postcolonialism, Mukherjee discloses a high rate of common ground between the two discourses. If, as he suggests, 'both fields claimed nothing less than a comprehensive critique of European modernity, in particular, its core component of capitalism, colonialism/imperialism and patriarchy', then it is all the more lamentable, and currently exigent that a critical alignment of ecocriticism and postcolonialism is facilitated.²⁹ Such potential solidarity is voiced by another prominent advocate of 'green'

postcolonial studies, Graham Huggan, in equally bold terms: 'both are equally concerned with critically analysing the representational mechanisms that lend legitimacy to these practices [corporate expansionism and technological managerialism], demonstrating the power of culture to (re)shape the word, and through it, the world'.³⁰ As we have argued, Smail's expansion of the historical continuum provides one moment of critical utopian reflex, but Huggan's, and others', twinning of ecocriticism and postcolonialism is, undeniably, another instance of just such anticipatory critical consciousness. Though, in the above extract, Huggan appears to confine his argument to the 'representational mechanisms' that underwrite global capitalist modernity, elsewhere, with Helen Tiffin, he clarifies his position on this point: 'Both postcolonialism and ecocriticism are [. . .] aimed at providing conceptual possibilities for a *material* transformation of the world [original emphasis]'.³¹ These latter aspirations are freighted with still more utopian intent, and in their materialist impulses find common cause with Mukherjee's earlier agenda for the critical convention of ecocriticism and postcolonialism. Having learned the hard way for many years under critical and political scrutiny from Marxist commentators within and without the field, it seems that 'green' postcolonialists are now more sensitised to the material dimensions of the objects and subjects of their criticism. Convening postcolonialism and ecocriticism under a materialist banner is, then, one of a skein of philosophical and critical coalitions rooted in broadly ecocritical circles. And within this proliferating nexus of theory and praxis, Chakrabarty's most recent intervention takes us further into discussions on the temporal boundaries of contemporary historiography; the value of studying the 'deep' past; and the implications of bringing both of these into constellation.

Chakrabarty's 'The Climate of History: Four Theses' opens with a provocative question to historians of all schools and of all political persuasions: 'How does the crisis of climate change appeal to our sense of human universals while challenging at the same time our capacity for historical understanding?'³² Taking its lead from Crutzen's attribution of geological agency to anthropogenic factors since the late eighteenth century, Chakrabarty's query dispenses with the received notion that humanity's history of progress toward civility and modernity is the pre-eminent global narrative. The prevailing, and impending, effects of global climate change are, and will have, dramatic consequences for vast tracts of the planet and swathes of its human and non-human inhabitants and, for Chakrabarty, this fundamentally alters our historical role. Crutzen's proposition of the Anthropocene, then, prompts Chakrabarty to re-evaluate the very composition of human history, and leads him to

conclude: 'Humans have become geological agents very recently in human history. In that sense, we can say that it is only very recently that the distinction between human and natural histories [. . .] has begun to collapse [. . .] Now it is being claimed that humans are a force of nature in the geological sense.'³³ Though industrial capitalism – a cultural phenomenon – must be understood in terms of its systemic environmental impacts, for Chakrabarty this is not simply a question of undertaking materialist critiques of capital under guises of ecocriticism or postcolonialism, or an aggregation of both. It is his conviction that we must begin to appreciate the long-term causes and accruals of global climate change as anthropogenic and enduring. In sundering the barriers between human and natural histories, Chakrabarty, crucially, disestablishes part of the culture/nature dyad and, additionally, locates humanity within the narrative of deep-time, geological change on Earth. As Smail intimates in another sphere, and as the scientific authors of 'Understanding Earth's Deep Past' suggest, the temporal extremities of the 'deep' past mean that it is too often decommissioned as a usable historical informant. Simply, its antiquity is not just temporally remote, but also evacuates it of concern and relevance to contemporary academic and political audiences. For Smail, and climate scientists, as we have seen, deep-time is instructive and educational, with viable progressive potentialities in the fields of ecological criticism and historiography. And this is precisely Chakrabarty's case; in his assessment, redefining human history in relation to geological time – the inauguration of the Anthropocene – is a subversive challenge to the norms of historical knowledge. The 'deep' past is, in his view, vital to the fashioning of a new historical paradigm:

Without such knowledge of the deep history of humanity it would be difficult to arrive at a secular understanding of why climate change constitutes a crisis for humans [. . .] The task of placing, historically, the crisis of climate change thus requires us to bring together intellectual formations that are somewhat in tension with each other: the planetary and the global; deep and recorded histories; species thinking and critiques of capital.³⁴

Each of these respective couplings are declensions of the demise of the demarcated territories of human and natural histories and this, of course, has reverberations for all forms of cultural and political criticism, including postcolonialism and ecocriticism, as well as Marxism and feminism. In assuming the role of geological actor, with the advent of the Anthropocene, humanity's history cannot be read comprehensively by any of these traditional critical methodologies. For Chakrabarty, all available and extant forms of human historical knowledge and understanding are ineffectual and impotent as stand-alone reading

strategies when confronted with humanity's geological agency and its ecological yields. This is not to say that they are rendered entirely redundant; as he concedes: 'for the Anthropocene would not have been possible, even as a theory, without the history of industrialisation'.³⁵ But, in a congruent argument to that expounded in his earlier subalternist publications – chiefly, *Provincializing Europe*³⁶ – Chakrabarty's ecological 'turn' advocates a decentring of history away from a humanity that assumes historical consciousness and historical knowledge will inevitably and always furnish historical understanding. Chakrabarty's target is the latter idea, one that transfuses humanity's reckless disposition vis-à-vis its non-human co-habitants and its own environmental surroundings. The urgency of the global climate change crisis is such that Chakrabarty's insistence that we cannot achieve historical understanding because of our relocation in 'deep' time, within the continuum of natural history, is part of a radical reappraisal of the ontological and epistemological base of humanity's increasingly destructive treatment of the planet, and its sundering of its limited natural resources. The solution is not offered by Chakrabarty, but a methodology is proffered. Global climate change might well be sourced to the exercises of long-term industrialisation and commodity capitalism, but the climatic symptoms and terminal effects of these combined human institutions outstrip the capacity of materialist critiques. Chakrabarty's conclusion, then, accommodates the materialist 'green' postcolonialism canvassed by Mukherjee, Huggan and Tiffin, but, as we have seen, his argument partakes of the recent orientation towards 'deep', geological time as a frame through which to view planetary histories, as well as to the case made for humanity's geological agency in the Anthropocene. In conclusion, he notes: 'The crisis of climate change calls for thinking simultaneously on both registers, to mix together the immiscible chronologies of capital and species history. This combination, however, stretches, in quite fundamental ways, the very idea of historical understanding.'³⁷

6

From the pages of scholarly scientific periodicals to those of more popularly targeted volumes, the historical continuum of climate change discourse and argumentation is necessarily protracted. In outlining, and interpreting, carbon dioxide emissions; the volumes of its presence in the Earth's atmosphere; rates of species endangerment and extinction; trends in oceanic acidification; effects of melting on polar icecaps on sea levels, climatic conditions and wildlife survival, scientists invariably cast their findings over extended periods of time. Such temporal expansiveness is,

of course, required in order to understand, and to communicate, the specifics and processes of the planet's climatic response to anthropogenic pollution. With this in mind, it seems to be logical, then, that turning to and appreciating the planet's and humanity's mutually implicated 'deep' pasts are vital ecocritical strategies. The narrow, indeed celebratory, history of Western modernisation, with its hubristic glow, might well document and ratify a self-image of high attainment and civility. But from an environmentalist standpoint, pursuing a 'deep' historical view permits one to track the deleterious ecological accruals of industrialisation in a longer-term context. Part of the project of ecological criticism, which can draw on other critical discourses, such as postcolonial studies, for instance, is to interrogate the histories and the historiographies that have enabled and been complicit in global ecological degradation. To deny, or to devalue the historicity of the 'deep' past is symptomatic of a damaging and, potentially, ecologically destructive politics.

In *Foucault*, Gilles Deleuze concludes that 'the world is made up of superimposed surfaces, archives or strata. The world is thus knowledge.'³⁸ Deleuze's conceit is part of his, and Felix Guattari's, federated project to disestablish the primacy of the 'historical' in relation to the 'geographical'. As they wrote in their 1994 *What is Philosophy?*: 'Geography is not confined to providing historical form with a substance and variable places.'³⁹ While the latter point is more concerned with underscoring the dynamic processes of 'becoming' inherent to geographies – physical and psychological – the former point places the disciplinary exclusivity of history under duress. There is, then, a necessary link, an intellectual continuity, between these two arguments; and both are germane to the preceding explication of ecology, deep-time, and historiography. Deleuze's former assertion figurates the topography of the planet as a storehouse of information, but there is also a literal ecological argument on display here. In this view, the planet's geological layers embody both time/duration and historical information. Sedimented within the body of the planet, scripted onto its accreted subterrains, are the geological, environmental clues and revelations that, as we have seen, are crucial to deep-historical informants of our current climatic emergencies. Likewise, Deleuze's final, aphoristic statement that 'the world is knowledge', encapsulates the transgressive and, frankly, democratic, reorientation of historical consciousness endorsed by Small and Chakrabarty, from within the discipline of history. In a way, this reorientation is accomplished through a radical transvaluation of both our 'deep' past and its geological archival presence in the contemporary. Our prevailing understandings of and approaches to time and historicity, then, have become part of a new vanguard within ecological and 'green' postcolonial criticism. 'That crushed reef of memory, that living stone,

organic history squeezed into massive mountain tombs', in the novelist Anne Michaels' terms, has become, quite literally, the touchstone of our efforts to learn about and to contest the anthropogenic causes of accelerated climate change, together with the dire consequences of this change in the present and into the future.⁴⁰

Notes

- 1 James Lovelock, *The Revenge of Gaia* (London: Allen Lane, 2006), 162.
- 2 Tim Flannery, *Here on Earth: A New Beginning* (London: Allen Lane, 2010), 39.
- 3 Francis Gooding, 'Of Dodos and Dutchmen: Reflections on the Nature of History', *Critical Quarterly*, 47:4 (2005), 32. Gooding is referring to the ideas outlined in R. G. Collingwood's *The Idea of History* (1946; Oxford: Oxford University Press, 1993).
- 4 *Ibid.*, 32–3.
- 5 *Ibid.*, 33.
- 6 *Ibid.*, 34.
- 7 *Ibid.*, 44.
- 8 Term used in this geological, environmental sense by Tim Flannery in *The Weather Makers: How Man Is Changing the Climate and What it Means for Life on Earth* (London: Penguin, 2005), 174.
- 9 Committee on the Importance of Deep-Time Geologic Records for Understanding Climate Change Impacts, *Understanding Earth's Deep Past: Lessons for our Climate Future* (Washington DC: National Academies Press, 2011), 1.
- 10 *Ibid.*, 3.
- 11 *Ibid.*,
- 94.
- 12 Edward O. Wilson, *In Search of Nature* (London: Penguin, 1996), viii.
- 13 Daniel Lord Smail, *On Deep History and the Brain*, (Berkeley LA and London: University of California Press, 2008), 12–39.
- 14 See also Andrew Shryock and Daniel Lord Smail (eds), *Deep History: The Architecture of Past and Present* (Berkeley: University of California Press, 2011).
- 15 See Paul Carter, *The Road to Botany Bay: An Essay in Spatial History* (London: Faber and Faber, 1987).
- 16 Smail, *On Deep History and the Brain*,
6. 17 *Ibid.*, 162.
- 18 *Ibid.*, 162–3.
- 19 *Ibid.*
- 20 *Ibid.*, 202.
- 21 *Ibid.*, 189.
- 22 Editorial, *Nature*, 473 (19 May 2011), 254.
- 23 Paul J. Crutzen and Eugene F. Stoermer, 'The Anthropocene', *International Geosphere-Biosphere Programme Newsletter* (2000); <http://www3.mpch-mainz.mpg.de/~air/anthropocene/>.

- 24 Paul J. Crutzen and Christian Schwageral, 'Living in the Anthropocene: Toward a New Global Ethos', *Yale: Environment*, 360 (24 January 2011); http://e360.yale.edu/feature/living_in_the_anthropocene_toward_a_new_global_ethos/2363/
- 25 Ibid.
- 26 Ibid.
- 27 Representative texts include: Graham Huggan and Helen Tiffin, *Postcolonial Ecocriticism: Literature, Animals, Environment* (London: Routledge, 2010); a special issue of *Interventions: International Journal of Postcolonial Studies*, ed. Graham Huggan and Helen Tiffin, 'Green Postcolonialism', 9:1 (2007); Pablo Mukherjee, *Postcolonial Environments: Nature, Culture and the Contemporary Indian Novel* (Basingstoke: Palgrave, 2010); Elizabeth DeLoughrey and George B. Handley (eds), *Postcolonial Ecologies: Literatures of the Environment* (Oxford: Oxford University Press, 2011); Bonnie Roos and Alex Hunt (eds), *Postcolonial Green: Environmental Politics and World Narratives* (Charlottesville and London: University of Virginia Press, 2010); Deane Curtin, *Environmental Ethics for a Postcolonial World* (Oxford: Rowman and Littlefield, 2005).
- 28 Mukherjee, *Postcolonial Environments*,
17. 29 Ibid., 57.
- 30 Graham Huggan, 'Postcolonial Ecocriticism and the limits of Green Romanticism', *Journal of Postcolonial Writing*, 45:1 (2009), 6.
- 31 Huggan and Tiffin, 'Green Postcolonialism', 10; original emphasis.
- 32 Dipesh Chakrabarty, 'The Climate of History: Four Theses', *Critical Inquiry*, 35:2 (Winter 2009), 201. See also Chakrabarty's 'Postcolonial Studies and the Challenge of Climate Change', *New Literary History*, 43:1 (2012), 1–18.
- 33 Chakrabarty, 'The Climate of History', 207.
- 34 Ibid., 213.
- 35 Ibid., 219.
- 36 Dipesh Chakrabarty, *Provincializing Europe: Postcolonial Thought and Historical Difference* (Princeton: Princeton University Press, 2000).
- 37 Chakrabarty, 'The Climate of History', 220.
- 38 Gilles Deleuze, *Foucault* (Minneapolis: University of Minnesota Press, 1988), 98.
- 39 Gilles Deleuze and Felix Guattari, *What is Philosophy?* (New York: Columbia University Press, 1994), 96.
- 40 Anne Michaels, *Fugitive Pieces* (London: Bloomsbury, 1997), 32.