



## 2012 Issue No. 21 — Rethinking the Seasons: New Approaches to Nature

### **“Nature is Us:” the Anthropocene and species-being**

By *Ben Dibley*

#### **Introduction:**

The Anthropocene and species-being: I want to immediately confess that there is something awkward about holding these two terms together. It would seem they share little conceptual ground. The former, relatively newly minted in earth system science, designates the advent of a geological era of the human species’ own making. The latter, from the annals of Marxist theory, describes humanity’s capacity to take its own “life-activity” as its object, and thus, the historical possibilities of its own self-development. Nevertheless, in this paper I follow a hunch that this is a productive coupling. For it seems to me that it offers a new line for thinking through the relations between this novel geological era, in which the human species is now a force altering the trajectory of planetary life, and the historically specific social formation, capitalism, that has ushered in this epoch, and with it, this augmented species capacity. As a means to develop this contention I wish to explore the tensions and implications of the two contrasting formulations of the human that respectively inform these two notions: that is, as a biological species with geological agency; and as a species-being, with the capacity to consciously direct its own species’ life activity.

To this end, I firstly elaborate on the key notions this paper engages – the Anthropocene and species-being. Secondly, I review an exchange between Dipesh Chakrabarty (“Climate of History”) and Slavoj Žižek (*End Times* 330-336), where the latter contests the terms in which the former constitutes, in the context of the climate crisis, the universal subject of history as the human species. Thirdly, to traverse the oppositions that emerge in this exchange, I turn to recent revivals of the notion of species-being. These I contend provide an alternative optic on the folding of the human and the geological that relies neither on Chakrabarty’s humanism nor Žižek’s Hegelianism. In particular, I consider Nick Dyer-Witherford’s formulations on the “factory planet” (*Twenty – First Century*).

#### **The Anthropocene: on looking at ourselves as a species**

For the earth system scientists who have championed the notion, the Anthropocene signals a geological interval since the industrial revolution, where, through its activities, through its numbers, the human species has emerged as a geological force now altering the planet’s bio-sphere. Inventor of the term, Nobel Prize winning atmospheric chemist, Paul Crutzen, marshals a sobering inventory of the processes through which the Anthropocene is unfolding:

During the past three centuries, the human population has increased tenfold to more than 6 billion and is expected to reach 10 billion in this century. The methane-producing cattle population has risen to 1.4 billion. About 30–50% of the planet’s

land surface is exploited by humans. Tropical rainforests disappear at a fast pace, releasing carbon dioxide and strongly increasing species extinction. Dam building and river diversion have become commonplace. More than half of all accessible fresh water is used by mankind. Fisheries remove more than 25% of the primary production in upwelling ocean regions and 35% in the temperate continental shelf. Energy use has grown 16-fold during the twentieth century, causing 160 million tonnes of atmospheric sulphur dioxide emissions per year, more than twice the sum of its natural emissions. More nitrogen fertilizer is applied in agriculture than is fixed naturally in all terrestrial ecosystems; nitric oxide production by the burning of fossil fuel and biomass also overrides natural emissions. Fossil-fuel burning and agriculture have caused substantial increases in the concentrations of 'greenhouse' gases – carbon dioxide by 30% and methane by more than 100% – reaching their highest levels over the past 400 millennia, with more to follow ("Geology of Mankind" 23).

It is contended that it is with these developments that the relatively benign planetary conditions of the Holocene – the previous 12,000 years, which enabled the establishment of agriculture and the rise of urban civilisations – are in the process of transformation. The exponential growth in the human population and the associated resource intensive practices on which this is contingent have produced various stratigraphical signals. For these scientists the most obvious of these sedimentary layers is Anthropocene rock – the concrete, steel and bitumen of the planet's cities and roads (Zalasiewicz, et al., "New World"); while the most enduring are anthropogenic bio-chemical processes – emission of greenhouse gases, acidification of the oceans, modification of soils, destruction of biota and relocation of genetic stocks and, increasingly, codes. All of these are now in the process of permanently altering the earth's systems and the evolutionary trajectory of planetary life (Zalasiewicz et al. "Living in the Anthropocene;" Steffen et al.). [1] The emergence of the human species as this geological forcing agent is an emergence that is simultaneously an emergency: [2] one imperilling the parametric boundaries necessary to maintain "a Holocene-like state," and thus "the safe operating space for humanity with respect to the earth system" (Rockström, et al. 475).

The Anthropocene is yet to be formally sanctioned by geologists and admitted as an interval on the Geological Time Scale. [3] Nor has it to date developed any particular purchase as a theoretical concept in the humanities and social sciences. [4] Nevertheless the Anthropocene is increasingly invoked in relation to various intellectual and policy practices that seek to contend with this folding of the human into the geological. [5] Exemplary here is the writing of the development economist, Jeffrey Sachs.

In taking up the theme of the Anthropocene in his book, *Common Wealth*, Sachs has proposed a cosmopolitan project for securing "peace and prosperity around the planet" (57-81; also see Sachs, "Survival in the Anthropocene"). He gives the Anthropocene an economist's gloss writing that our species's deepest pattern "has been the *appropriation* of the earth's natural systems for human use, often at a great and unwitting cost to other species and the long-term well-being of human society itself" (*Common Wealth* 57, Italics in original). With no awareness of "the long-term consequence" humans have relentlessly "harnessed nature's services to support a rising population and levels of consumption" (57). While, for most of human history, economic activity did not throw the planetary systems into jeopardy, if globalisation continues unreformed, the human species, he writes, "will hit very harsh boundaries that will do great damage to human well-being, to the earth, and to vast numbers, literally millions, of other species on the planet" (57). It is in this context that "the defining challenge of the twenty-first century" is made apparent: that, Sachs contends, of facing "the reality that humanity shares a *common fate*" (3, Italics in original).

By this account meeting this challenge rests on the human species coming to recognise itself as

such. The foreword to Sachs's book, written by the eminent evolutionary biologist, Edward Wilson, puts the position succinctly:

Humanity has consumed or transformed enough of earth's irreplaceable resources to be in better shape than ever before. We are smart enough and now, one hopes, well informed enough to achieve self-understanding as a unified species . . . We will be wise to look on ourselves as a species ("Forward" xii). [6]

### **Species-being: on the estrangement of human and external nature**

The central reference for discussions of species-being is Marx's *Economic and Philosophic Manuscripts of 1844*. These early reflections on a nascent industrial capitalism include his discussion of the forms of alienation imposed by relations of private property. These involve a fourfold deprivation. Human subjects are estranged from the products of their own labour; from the cooperative process of production; from the nature that is transformed through their activity; and, from the historical possibilities of their own self-development, or "species-being." In this context species-being refers not simply to human existence as a biological reproductive collectivity, which Marx was to term "species-life." [7] Rather, species-being concerns the power to collectively transform this natural basis, "making," as he wrote, "life activity itself an object of will and consciousness" (31).

In Marx's account it is this capacity that distinguishes the human animal from other species. However, the human is a species-being not because it possesses an "invariant and universal essence," but rather "because he makes the fate and fortune of the entire species his object" (Margolis, 322). In this sense human nature is not understood, as it is in classical idealist philosophy, as permanent and essential; rather, Marx emphasised the "primacy of human activity as effecting a change in the historical conditions of life;" that is, the human capacity for "self-changing" (333). Species being, then, for Marx, is "universal" in that it involves all humans and because it is a potentiality that has the capacity to develop along any number of trajectories. If species being is an essentialist theory of human nature, it is a paradoxical one, since that essence is transformative potentiality.

It is through its "life activity," its productive activity, that species-being comes to be constituted as much by the environment in which it is embedded, as it is by the biological body that is its substrate. Marx designates external nature as species-being's "inorganic body." He writes:

The universality of man manifests itself in practice in that universality which makes the whole of nature his inorganic body, (1) as a direct means of life and (2) as the matter, the object, and the tool of his life activity. Nature is man's inorganic body – that is to say, nature insofar as it is not the human body. Man lives from nature – i.e., nature is his body – and he must maintain a continuing dialogue with it if he is not to die. To say that man's physical and mental life is linked to nature simply means that nature is linked to itself, for man is a part of nature (*Economic and Philosophic Manuscripts* 31).

For Marx it is with industrial capitalism that this condition first appears in its alienated form as estranged labour. It is this form of labour that ultimately separates the human subject from an integral sense of being "human": "Estranged labor turns . . . Man's species-being, both nature and his spiritual species-property, into a being alien to him . . . It estranges from man his own body, as well as external nature and his spiritual aspect, his human aspect" (32).

### **The Human Species: the subject of negative universal history**

In his exploration of the consequences of anthropogenic climate change for the discipline of history, Chakrabarty ("Climate of History") has turned to the notion of the Anthropocene. This is

the context for his contention that the category species is a placeholder for a “new universal history of humanity” (221).

Initially, in standard Marxist terms, he objects to the positions of Crutzen, Sachs and others who narrate the Anthropocene in relation to a single subject – “Mankind” or the human species. Chakrabarty argues that in a period when the elites of the so-called emerging BRIC economies draw their inspiration from the recent history of the West’s expansion in pursuing their “own trajectories toward superpower politics and global domination through capitalist economic, technological, and military might,” talk of mankind or species can “simply serve to hide the reality of capitalist production and the logic of imperial domination that it fosters” (216). In these circumstances he asks:

Why . . . include the poor of the world – whose carbon footprint is small anyway – by use of . . . all inclusive terms . . . when the blame for the current [ecological] crisis should be squarely laid at the door of the rich nations in the first place and of the richer classes [within] the poorer ones? (216) [8]

Yet despite this objection Chakrabarty does see merit in the notion of species. In as much as it is a category that belongs to the deep time of the history of life, it is one that necessarily refuses the reduction of the crisis of climate change to the narrative of capital and its critique. In this sense as a marker for the history of life on the planet, the category species signals processes that are not completely assimilable to those of globalisation and belongs to an immensely longer history beyond the four hundred years or so that concern students of capitalism. Climate change, Chakrabarty writes:

refracted through global capital, will no doubt accentuate the logic of inequality that runs through the rule of capital; some people will no doubt gain temporarily at the expense of others. But the whole crisis cannot be reduced to a story of capitalism. Unlike in the crises of capitalism, there are no lifeboats here for the rich and the privileged (witness the drought in Australia or recent fires in the wealthy neighborhoods of California) (221). [9]

If the transition from the Holocene to the Anthropocene highlights the parametric boundaries for human existence on earth, for Chakrabarty these are “independent of capitalism or socialism” (218). [10] For him, the threat to the very existence of the human species that the Anthropocene signals fosters a new sense of “we” which truly embraces all of humanity. Species, he contends, is perhaps the most appropriate name for this universal new subject: it “may indeed be the name of a placeholder for an emergent, new universal history of humans that flashes up in the moment of the danger that is climate change” (221). [11] In as much as the advent of the Anthropocene would seem to be the occasion for this rediscovery of humanity, the full significance and novelty of this is its figuration as a new sense of “we,” determined not in the last instance by a particular mode of production, but the shared threat to the parametric boundaries necessary for life on earth. This universal then is not that produced by the march of Hegel’s dialectic, or the globalising thrust of capital pulling all into the world market. Rather it is one that emerges in the solidarity of impending catastrophe.

Yet Chakrabarty has drawn attention to an affinity between the categories of Anthropocene and Marxism, when he alludes to a connection between the species-thinking of the biologist Wilson and Marxist analysis. “The concept of species,” he contends:

plays a quasi-Hegelian role in Wilson’s foreword [to Sach’s *Common Wealth*] in the same way as the multitude or the masses in Marxist writings. If Marxists of various hues have at different times thought that the good of humanity lay in the prospect of the oppressed or the multitude realizing their own global unity through a process of

coming into self-consciousness, Wilson pins his hope on the unity possible through our collective self-recognition as a species (215).

If Chakrabarty suggests a kinship between Wilson's use of species and the notion of species-being (215), David Harvey makes this connection explicit. In *Spaces of Hope* he pleads that a conversation about "the nature of our 'species-being' on planet earth" is "desperately called for" (84, 207). Here Harvey is turning not only to the young Marx, but also to Wilson, finding the latter to be "deeply speculative about our species-being and species destiny" (214). [12] However, this is not the direction Chakrabarty takes his argument. Rather he qualifies this connection.

Chakrabarty notes that in contradistinction to humanist histories of capitalism, which admit the experience of capitalism as an expression of historical class consciousness, the concept of the human species affords no parallel consciousness of the Anthropocene. There can be no historical species consciousness. He argues:

When Wilson . . . recommends in the interest of our collective future that we achieve self-understanding as a species, the statement does not correspond to any historical way of understanding and connecting pasts with futures through the assumption of there being an element of continuity to human experience. . . . Who is the we? We humans never experience ourselves as a species. We can only intellectually comprehend or infer the existence of the human species but never experience it as such. ("Climate of History" 220)

The unintended consequences of human actions – climate change, mass extinction, oceanic acidification, soil degradation and so on – escape the human sensorium. These effects of our actions as a species are only brought to vision through scientific analysis. [13] As such, they remain outside experience. Under these conditions Chakrabarty contends:

Species may indeed be the name of a placeholder for an emergent new universal history of humans . . . But we can never understand this universal. It is not a Hegelian universal arising dialectically out of the movement of history, or a universal of capital brought forth by the present crisis. . . . Yet climate change poses for us a question of a human collectivity, an us, pointing to a figure of the universal that escapes our capacity to experience the world. It is more like a universal that arises from a shared sense of a catastrophe. It calls for a global approach to politics without the myth of a global identity, for, unlike a Hegelian universal, it cannot subsume particularities. We may provisionally call it a "negative universal history." (221-222)

### **Ecology: the new opium for the masses**

Žižek has taken issue with Chakrabarty's proposition (*End Times* 330-336). He rejects the mode of universalism that this notion of species would embrace. Rather, Žižek argues, it is precisely in Hegelian terms that the global ecological crisis requires comprehension if the relations between the universal (life on earth) and the particular (capitalism) are to be adequately understood. In developing his position Žižek also compares Marx's species-being with the notion of species as deployed by the earth system scientists. He contends that the way in which the new conditions of the Anthropocene force humankind to perceive itself "as a species, as one of the species of life on earth" stands contrary to what Marx meant when he designated humanity a species being – as a species with a historical capacity for self-change distinguishing it from other animals (330). Rather, in emerging as a species with geological agency, the human species is becoming a force dominating other species; as Chakrabarty notes, for these scientists humans "have become a natural condition, at least today" ("Climate of History" 214 qtd. in *End Times* 331). In the Anthropocene, as Crutzen and Schwägerl pithily put it, "Nature is us" ("Living in the Anthropocene"). Developing this point Žižek contends:

With the idea of humans as species, the universality of humankind falls back into the particularity of an animal species: phenomena like global warming make us aware that, with all the universality of our theoretical and practical activity, we are at a certain basic level just another living species on the planet Earth. Our survival depends on certain natural parameters (*End Times* 332).

Žižek objects to Chakrabarty's seemingly unqualified adoption of this concept of species as a placeholder for the subject of history. Rather, he argues: our planetary "Fate . . . is the result of the complex interaction of many individual and collective projects and acts based upon a certain understanding of what our world is – in history, we confront the result of our own endeavors" (333). Here the emphasis rests not on the inaccessibility of the concept of species to experience, but on "the full scope of the properly dialectical relationship between the basic geological parameters of life on earth and the socio-economic dynamic of human development" (333). For Žižek, this demands the acceptance of the paradox that:

in the relation between the universal antagonism (the threatened parameters of the conditions for life on earth) and the particular antagonism (the deadlock of capitalism) the key struggle is the particular one: one can solve the universal problem (of the survival of the human species) only by first resolving the particular deadlock of the capitalist mode of production. (333-334)

As he continues: "the common-sense reasoning which tells us that, independently of our class position or of our political orientation, we all will have to tackle the ecological crisis if we are to survive, is deeply misleading: the key to the ecological crisis does not reside in ecology as such" (334). Indeed, with Alain Badiou, Žižek has elsewhere proclaimed ecology to be the "new opium for the masses" (Badiou; Žižek *Censorship Today*). [14]

### **The Factory Planet, species-being and species *not* being**

Intimately tied to the notion of alienation, species-being has had a fraught history in the annals of Marxist theory. The concept was embraced by the humanist Marxism of Marcuse and Lukács and dismissed by the structural Marxism of Althusser for its Hegelianism, inimical to scientific Marxism. More recently however it has received renewed attention from diverse non-dialectical analysts such as Nick Dyer-Witherford, Jason Read, Gayatri Spivak, Eugene Thacker and Paolo Virno. In these writers Dyer-Witherford identifies a "third position:" "a diagonal move" which articulates "an anti-humanist version of species-being" (*Twenty-First Century* 2. See also "1844/2004/2044"). He credits the opening pages of *Anti-Oedipus* as the starting point for this position, contending that Giles Deleuze and Felix Guattari's notion of the "body without organs" is indebted to Marx's account of nature as humanity's "inorganic body." [15] Here they write:

There is no such thing as either man or nature now, only a process that produces the one within the other and couples the machines together. Producing machines, desiring machines everywhere, schizophrenic machines, all species of life: the self and the non-self, outside and inside, no longer have any meaning whatsoever . . . the human essence of nature and the natural essence of man become one within the form of production or industry, just as they do within the life of man as a species . . . man and nature are not like two opposition terms confronting each other . . . rather they are one and the same essential reality, the producer-product (*Anti-Oedipus* 2, 4-5).

Life in this account is one of restless mutation, where the uniqueness of the human that characterised Marx's species-being no longer holds as the distinctions break down between man and nature, between the human and other species, between nature and machines. Here the human is provisional, shaped in interchanges with and between "other entities, such as animals and machines" (*Twenty-First Century* 3). For Dyer-Witherford this presents a conjuncture in which

species-being can be thought of “as the emergent capacity of the human biological collectivity to identify and assemble itself as a species and alter itself – to be a species not only in itself, but for itself and transforming itself, directing its own evolution” (5).

Dyer-Witherford advances this formulation in an analysis of the greatly expanded circuit of capital that marks the current moment. This is characterised by “the capitalist subsumption not just of production, not just of consumption, not just of social reproduction . . . but of life’s informational, genetic and ecological dimensions” (4). Here, intellectual property regimes enclose the software basic to our networks of communication and collaboration; legal developments in biotechnologies enclose humanity’s biogenetic inheritance; while, erstwhile “externalities” of ecological exploitation are now repackaged as tradeable pollution rights privatising environmental commons such as the atmosphere. This subsumption of life by capital is the work of “factory planet,” whose output, Dyer-Witherford contends, is now “the augmentation, the production and destruction of species”; its creative destruction – that of “species-being and species *not* being” (6, italics in original). [16]

### **The Anthropocene and the rule of capital**

In one sense, the Anthropocene, in identifying the parametric boundaries necessary to sustain species-life, establishes limits that ultimately restrain the factory planet, beyond which its work is destruction without creation: species extermination. In another, the discovery of the Anthropocene, perhaps paradoxically, opens up new domains for the creation of surplus as the earth system itself become financialised and augmented.

The development of earth system science and its corollary, earth system governance, comes to posit its target, the Anthropocene, in an empirics and an informatics that establishes it at once as an autonomous object of knowledge – “a single earth system” teetering “on the edge of chaos”; and, as a field of intervention, through which “the co-evolution of human and natural systems” needs to be managed “in a way that secures the sustainable development of human society” (Biermann, 4). [17] As a field of intervention, the Anthropocene is subject to various technics connected to two processes: its financialisation and its augmentation.

Financialisation: Much of the intellectual labour invested in earth system science prepares the planet’s biosphere for the market; supplying an informatics by which the globe’s physical systems are established as stocks and services that are to be integrated into the global economy. As Timothy Luke writes: “Earth System Science aspires to scan and appraise the most productive use of . . . [the] resourcified flows of energy, information, and matter as well as the sinks, dumps, and wastelands for all the by-products that commercial products leave behind” (“Planetarian Accountancy” 133). Ecological flows thus come to be discursively framed and institutionally managed as the “terrestrial infrastructure for global capital” (Luke, “Eco-Managerialism” 106). No longer an externality of the modern industrial economy; rather, via this environmental accountancy the earth systems are to be folded into the market. [18] Integral here are the risk technologies of finance capital. Futures, derivatives, hedge funds, reinsurance instruments and so on come to figure the contingencies of planetary systems, most extensively those of climate change, as an opportunity for profit, commodifying their risk into an abstract form to be traded on global financial markets (see LiPuma and Lee; Bryan and Rafferty). Through catastrophe bonds, weather derivatives and other financial instruments advanced by the World Bank, IMF and the secondary insurance industry, [19] the contingencies of planetary systems, which unevenly threaten capital’s infrastructure, are decoded as such and recoded as financial risk. This, in turn, is distributed across global capital markets (Cooper; Pryke). [20] The discovery of the Anthropocene, then, corresponds with the opening up of new domains of surplus extraction that signal an increasingly thorough folding of ecology and economy, to which the financialisation of the earth system is central.

Augmentation: Initiatives seeking the modification of the circulation of bio-physical materials – of compounds and codes – within the earth system have been signalled as a “strategic issue” in a recent report on earth system governance. The report asks, “what are the options and caveats for technological fixes like geoengineering and genetic modification” for managing the earth system? (GAIM 1, qtd. in Lövbrand et al. 11). In this it formally puts questions of terraforming and areoforming on the table as modalities for augmenting life in the Anthropocene: as potential strategies for reducing the vulnerabilities and enhancing the capacities of the global species-body through engineering the planet’s physical systems, so as, for example, “to ‘optimize’ climate” (by injecting the planet’s atmosphere with solar deflecting aerosols) (Crutzen, “Albedo Enhancement”); or through engineering its bio-chemistry so as to design forms of life that can “survive and thrive” in the new ecologies of the Anthropocene (Nordhaus and Shellenberger, 253). [21] The case for the former has most recently been put forward by a report published by the Royal Society, *Geo-Engineering: Giving us Time to Act?* This argues that international scientific and policy communities need to be prepared for the possibility that geo-engineering will be necessary to complement global change strategies of mitigation and adaptation. [22] This is a proposition that has recently won financial backing from the philanthropist, Bill Gates (Vidal). In terms of the latter, the bioengineering of “plants to survive desertification, altered climate zones, and changes in rainfall patterns” is underway (Murphy, 56). However, it is with synthetic biology, where proposed designer bacteria will release global modernity from its ecological predicament, that the extravagant promise of the tech-fix lies; that is, with the invention of new organisms that will siphon vast volumes of carbon dioxide from the atmosphere or will generate enormous amounts of “green energy.” [23] Genomic futurist Juan Enriquez contends: “We are going to start domesticating bacteria to process stuff inside enclosed reactors to produce energy in a far more clean and efficient manner.” We are, he continues, at “the beginning stage of being able to program life” (qtd. in Specter). This is the domain famously associated with the venture capitalist, Craig Venter. The emergence of the Anthropocene, thus, corresponds with a mutation in life: no longer simply biological, life is now both geological and molecular. Concomitantly, it is along these dimensions that life itself becomes increasingly subsumed by capital in the thoroughgoing privatisation of the shared elements of our species-being.

Such a world, in which the geo and bio-engineered augmentations of species-being are directed by the rule of capital, is one destined to be, as Mike Davis warns, polarised between the “Earth’s first-class passengers” ensconced in “green and gated oases” and the dwellers of the ever burgeoning slums of the planet’s mega cities (“Living on the Ice Shelf”).

### **No return to Earth**

The Anthropocene is here to stay. There is no return to a benevolent Holocene. There is no going “back to safety.” We cannot save nature or “humanity,” “as it is, or was, or is supposed to have once been” (*Twenty-First Century* 7). In this sense the catastrophe has already happened: Man is dead; Nature has ended. All this suggests that the Anthropocene is but the ultimate confirmation of Raymond Williams’s observation made several decades ago. In “this actual world there is . . . not much point in counterposing or restating the great abstractions of Man and Nature”; for, as he continues: “We have mixed our labour with the earth, our forces with its forces too deeply to be able to draw back and separate either out” (83). If it is through estranged labour that species-being finds its first universal but alienated expression, contending with its own folding into the earth’s systems as a geological force demands the total metamorphosis of its means of production if it is to forestall the demise of its species-life and, indeed, that of thousands of other species. This is not so as to recover Man’s freedom by securing the background of a stable Nature, but rather to proceed in the necessary recognition of the thoroughgoing entanglement of the human and the nonhuman, to which capital has inadvertently committed us, and which is now in the process of determining the co-evolution of human and earth systems. If species-being is the emergent capacity to take this co-evolution as its life’s activity, collectively identifying and



assembling itself as a species and altering its own evolution, then there can be no transformation of this collectivity without the simultaneous transformation of its inorganic body, of the world it inhabits. It is in this sense that Dyer Witherford writes: “There can be no return to earth” (*Twenty-First Century* 7). Rather, there can be “only the recapture of the strange planet to which capital has abducted us” (7).

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**Ben Dibley** is a researcher and writer based in Sydney, currently working as a research associate at the Institute for Culture and Society, the University of Western Sydney. He has recent publications in the *International Journal of Cultural Studies*, *Cultural Studies Review*, *New Formations* and *Australian Humanities Review*.

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## Endnotes

1. Here, then, the notion of the Anthropocene might be seen as an implicit critique of the hegemony of the climate crisis at the level of public discourse – in as much as the latter, in its staging in policy and popular imaginaries and, indeed, those of humanities and social science scholars, frequently neglects the couplings of the earth’s systems. In this, the Anthropocene serves as a reminder that the resolution of the climate crisis will not in itself witness the return to ecological “safety,” which, however difficult to realise, would seem to be the implicit assumption of much public discourse on that crisis; cf., for example, “the back to the safety of 350 parts per million” that is the signature of Bill McKibben’s 350.org campaign. As Mike Hulme among other climatologists makes clear, the climate cannot be “fixed” in any straightforward sense. What the notion of the Anthropocene makes clear is that the human is entangled in earth system processes in ways whose complexity cannot be reduced to those of climate change alone. For climate is only one of a cohort of “planetary boundaries” whose thresholds are complexly entangled and whose “delicate balance” must be maintained to secure a Holocene-like state (Rockström, et al, 461).
2. On the emergence of life as emergency see Dillon and Lobo-Guerrero.
3. On the rigor of this process of assessment for admission see J. Zalasiewicz, et al.
4. For some examples limited to those that include the term in their titles see: Boykoff; Dalby; Gibson-Graham and Roelvink; Hodson and Marvin; Lovbrand, Stripple, and Wimand; Robin and Steffen. For a more popular account see Keats. What is striking in the term’s migration into the discourses of the humanities and social science is that it has occasioned little critical reflection on the notion itself. However, see Lovbrand, et al and Crist. These two papers take positions informed, respectively, by governmentality theory and critical theory. I have examined the notion around the theme of attachment, see Dibley.
5. The most developed of these is the proposal for earth system governance. See [www.earthsystemgovernance.org/background/](http://www.earthsystemgovernance.org/background/). This seeks to articulate the knowledge of earth system science into a global administrative regime that offers “global stewardship and strategies for Earth System management.” This project was inaugurated with the *Declaration on Global Change* (see [www.essp.org/index.php?id=41](http://www.essp.org/index.php?id=41)). In 2001 four bodies of the international scientific community investigating processes of “global change” convened in Amsterdam. There representatives of the Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP), the World Climate Research Programme (WCRP) and the International Biodiversity

Programme (Diversitas) adopted the Declaration (See W. Steffen, et al.). The Declaration contended: "Basic goods and services supplied by the planetary life support system, such as food, water, clean air and an environment conducive to human health, are being affected increasingly by global change . . . The global change programmes are committed to working closely with other sectors of society and across all nations and cultures to meet the challenge of a changing Earth . . . [and to establish] deliberate strategies of good management that sustain the Earth's environment while meeting social and economic development objectives."

6. Wilson has advanced his own term for the new geological era. He contends that with the current mass extinction event, humans are leaving the Cenozoic, the age of mammals and entering "the 'Ereozoic', the Age of Loneliness" (*Consilience* 321).
7. Spivak (74-81, 379, 388) has emphasised the importance of this distinction between what Marx terms "species life" and "species-being."
8. Indeed, while theorists of the Anthropocene proceed with the notion of the species, they perhaps belie the universality of their own category, when, historically at least, they absolve three quarters of that population from responsibility for the effects generating that epoch. "So far," Crutzen notes, these "have largely been caused by only 25% of the world population" ("Geology of Mankind" 23).
9. See Naomi Klein, however, on privatised disaster services in the United States. Here, for a fee, the wealthy can rest easy in the knowledge that, come the wildfire, a private fire service will defend their home; or, come the hurricane, a company specialising in disaster evacuation will guarantee "no standing in lines, no hassle with crowds, just a first class experience" (qtd. in Klein).
10. In a recent article Chakrabarty has further developed his argument contending that "the climate justice position is necessary but not sufficient for comprehending the current crisis" because that crisis cannot be confined to a crisis of capital ("Brute Force").
11. From a different perspective Manuel Castells has made a similar point, arguing that "green culture" opens a new kind of politics that creates a new identity based upon the universalism of species membership: that is, "a new identity as a species" (185).
12. Given Wilson's hostility to Marxian formulations there would seem to be some irony in this connection.
13. This is the condition of the "reflexive modernity" of Beck's *Risk Society*. See also Beck, "Climate for Change."
14. Žižek contends that, ecology, by impassioning subjects around the fear of catastrophe, installs a deep distrust of change because of the negative unintended consequences that it might trigger. By his reckoning this distrust makes ecology the ideal ideological ground for "the bio-political administration of late capitalism" (*Censorship Today*). For the further development of Žižek's argument against ecology see *In Defense* 420-461. Erik Swyngedouw has extended these formulations in relation to the populism of the post-political politics of climate change.
15. Spivak too points in this direction with her insistence that *unorganisch* in the 1844 Manuscripts be translated as "without organs." "Since Nature is exactly not 'inorganic,'" she writes, "there can be no doubt that *unorganisch* means 'without organs'" (Spivak, 76).
16. Dyer-Witherford turns to various "species-being movements" that refuse this enclosure of

the shared substance of species-being (*Twenty-First Century*). Also see Dyer-Witherford, *Species-beings*. A discussion of the Anthropocene and the commons is for another occasion.

17. The antecedents for this position include James Lovelock's Gaia hypothesis which, from the 1970s, popularised the notion that Earth's biosphere functions as a single-system (Lovelock and Margulis); and the economist Kenneth Boulding's formulations on the "coming spaceship Earth." These encapsulated propositions on the rational management of that system in the image of the human piloting of the planet. The notion of spaceship Earth has been further and famously elaborated by Buckminster Fuller.
18. Cf., for example, Stern's contention that climate change represents historically the most significant "market failure" – one demanding rapid correction if catastrophic tipping points are to be averted.
19. See, for examples, "News release: World's first humanitarian insurance policy issued" and "Caribbean Catastrophe Risk Insurance Facility."
20. These sentences draw on Dibley and Neilson.
21. See Murphy on the beginnings of the terms, terraforming and areoforming, in works of science fiction.
22. As one pundit put it, geo-engineering, it would seem, is "a bad idea whose time has come" ("Geoengineering"). See also Kintisch.
23. It is estimated that it requires between fifteen and eighteen terawatts of energy to power the planet per annum. Projections for energy manufactured with the tools of synthetic biology have been estimated to have the potential to produce up to ninety terawatts. As one researcher put it, "we are talking about producing five times the energy we need on this planet and doing it in an environmentally benign way" (qtd. in Specter).

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