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Dipesh Chakrabarty:

The Human

Condition in the Anthropocene

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The Human Condition in the Anthropocene

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THE TANNER LECTURES IN HUMAN VALUES

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LECTURE I.
CLIMATE CHANGE AS EPOCHAL CONSCIOUSNESS

For some time now, I have been interested in thinking about the question of how the intersecting themes of globalization—a story about the growing connectivity of the world—and global warming make up for us our sense of the times we are living through. Individually considered, these themes appear to be of different origins. The idea of a global age grew in the hands of humanistic scholars. Planetary climate change, on the other hand, was a phenomenon defined and discovered by scientists. The science of climate change has its immediate roots in the Cold War period and had in particular to do with the realities of the nuclear bomb and competitive research on atmosphere and space. Climate change—or global warming—became a public concern in the late 1980s when scientists advised governments that this was the biggest threat human civilization had ever faced and that the threat came from our civilization’s dependence on the cheap and plentiful energy that fossil fuels provided. Climate change, they said, was anthropogenic in nature and what was worse, it was going to affect the poor of the world more than the rich, who were much more responsible for the emission of excessive greenhouse gases.

Much of the debate on global warming or climate change has since turned around the question of responsibility. Both the Rio Earth Summit of 1992 and the Kyoto Protocol of 1997 emphasized the formula that countries and peoples bore “common but differentiated responsibilities” for actions dealing with climate change.¹ Today I want to discuss this expression: “common but differentiated responsibilities.” Why responsibility should be differentiated is easy to understand. Climate change is a back-loaded problem. We do not suffer immediately from the effects of our emissions today. Carbon dioxide and other greenhouse gases stay around in the atmosphere for quite a while (some dissipate sooner than others), and the consequences we suffer at any one point in time are the result of past emissions. Because the developed world has been responsible for most of the past emissions, it was agreed—on the “polluter pays” principle—that the richer countries ought to pay more for controlling, mitigating, or preventing the damages caused by climate change.

The expression “differentiated responsibilities” is what brings the story that scientists tell—about the relationship between climate and earth processes—into a relationship with the familiar stories of globalization: the uneven and iniquitous history of world capitalism, the emergence of

global media and connectivity, and so on. It situates climate change as a climactic point in the history of globalization. So much for the expression “differentiated responsibility.” But how will we understand the word *common* that is also a part of the formula: “common but differentiated”? Was “common” simply an empty and rhetorical bargaining device, used to placate the richer countries that insisted on the responsibility of emerging powers like China and India? Was it a word meant simply to defer the responsibility of the emerging powers—the idea that they would become responsible, too, but only *after* they had industrialized and had emitted enough greenhouse gases to qualify? But then there was also the recognition—and it has only grown with every report that the Intergovernmental Panel on Climate Change (1988) has published since 1990—that the problem of global warming produces its own timeline for urgent and global action, irrespective of the question of responsibility, if we are to avert the truly “dangerous” effects of climate change that unfortunately and unfairly would affect the poor more than the rich.

Scholars agree that planetary climate change cannot be addressed as a planetary problem—as distinct from the many actions we can take regionally or locally—unless there is a “global political will” that will help humans deal with their shared planetary crises. As the historian John L. Brooke writes at the very end of his magisterial *Climate Change and the Course of Global History*:

What is needed is a new legal framework to shape the transition to a new system of energy and the market. If an earth system crisis is averted, it will be because the politics of economic transformation was able to unfold quickly enough to make a difference. . . . What is necessary, what all of the pragmatists are working for, and what the pessimists despair of, and what the deniers reject in antihistorical, antiscientific ideological animus, entrenched interest, and a good bit of wishful thinking, is a global solution. We hold it in our collective capacity to address the earth system crisis that is now upon us. That capacity must be mobilized by an informed political will.²²

For a host of reasons, the global response has been much slower than needed. In countries such as India where corruption and environmental pollution are supreme concerns, global warming does not even merit the same level of public discussion as it does in Europe and North America.

Global warming is, one may be led to think, simply not as global an issue as globalization.

Bruno Latour recently remarked with his characteristically wry sense of humor that we still behave as though we were all “climate skeptics,” even those who do not deny the science.³ I do not make it my aim here to explain why global response to climate change has not been as forthcoming as many would like it to be. Some persuasive explanations have been proffered including the argument that climate change is a classic instance of a “wicked problem,” a problem you can diagnose rationally but not practically solve as it impinges on too many other problems that cannot all be solved together.⁴ These lectures, however, have a much more modest aim. I want to share some thoughts with you on the word *common* in the expression “common but differentiated responsibilities.” I submit to you that the word is much less obvious than the idea of “differentiated responsibility.” Its meaning is not given. Both the word *common* and what it may stand for have to be *composed*, in the Latourian sense of that word. These lectures are meant as a small contribution toward that task of composing the common.

The story of globalization and the idea of “differentiated responsibility” are an important but insufficient part of this project. It is true that we can never *compose* our planetary collectivity by ignoring the intensely politicized and necessarily fragmented domain of the global that understandably converts scientists’ statements about humans as the cause of climate change into a charged discussion about moral responsibility and culpability. But we cannot think the common by immersing ourselves in the international politics of climate justice either, for such politics will always reduce climate change to globalization and its discontents—that is, to the familiar themes of human power and inequalities. What Clive Hamilton said recently in response to an essay by Ulrich Beck is pertinent: “one cannot come to grips with climate change if it is cast *only* as a problem of power relations and differences between humans.”⁵ We need to start somewhere else.

EPOCHAL CONSCIOUSNESS

My starting point in these lectures is the observation that, for all their overlaps, the narratives of globalization and the stories that climate scientists tell concerning global warming have a very particular difference separating them. Humans are central to all stories of globalization, celebratory or critical. Stories of globalization are homocentric in nature. The

science of global warming, on the other hand, invites us to see humans on an expanded canvas of history, spanning the geological history of the planet and the story of life on it. By “life,” I mean natural reproductive life, *zoe*, not *bios*, to follow Giorgio Agamben’s and Hannah Arendt’s reworking of Aristotle and to bracket for the moment the disagreements that Aristotle scholars have expressed regarding Agamben’s Arendt-inspired reading of this opposition.⁶ Life, not humans, emerges as one of the main concerns of the literature on climate science. I will describe these points of view, respectively, as homocentric and zoecentric views of the world. I will spend the time at my disposal today in setting up a framework for situating and handling this distinction. Tomorrow, I will elaborate further on the implications of the distinction for thinking about the word *common* in relationship to the expression “differentiated responsibility.”

From where and how does a humanist historian begin to think in order to contribute to the work of composing “the common” without in the process denying all that divides us in the space of politics? While others may propose different starting points here, let me begin by retrieving an idea that was mooted in the period when the fear of a nuclear winter was a widely shared feeling. The particular idea I have in mind is the German philosopher Karl Jaspers’s conception of what he called an *epochal consciousness*.

Jaspers is not an arbitrary choice. Two aspects of his category “epochal consciousness” have some relevance to what I am trying to do here: (a) Jaspers’s thinking on “epochal consciousness” comes out of a particular tradition—mainly German—of taking the whole of humanity as the object of philosophy of history; and (b) the fact that Jaspers invented this category to find a form of thinking that did not foreclose the space of actual politics—in his case, the Cold War—and yet created a space of thinking, a perspectival and ethical space, that he imagined as “prepolitical.” Prepolitical in a particular sense: a form of consciousness that does not deny, decry, or denounce the divisions of political life while seeking to position itself as something that comes *before* politics or thinking politically, as a pre-position as it were to the political. In other words, the question behind my thought experiment is: is it possible to develop a shared perspectival position that can inform—but not determine—competitive and conflicted actions by humans when faced with the unequal and uneven perils of dangerous climate change?

In his book, *Man in the Modern Age*, published in German in 1931 and in English in 1933, Jaspers spelled out the idea of “epochal consciousness” as a problem that had haunted European intellectuals “for more than a century.” Furthermore, he argued that it was a problem that had become urgent “since the [Great] war” from which time “the gravity of the peril [to humanity] ha[d] become manifest to everyone.” Jaspers explained the context for “epochal consciousness” as follows: “Man not only exists but knows that he exists. In full awareness he studies his world and changes it to suit his purposes. He has learned how to interfere with ‘natural causation.’ . . . He is not merely cognisable as extant, but himself freely decides what shall exist.” Epochal consciousness was thus a “modern” phenomenon, a phenomenon possible only after Man had learned to “interfere with ‘natural causation.’” But one has to keep in mind that as a form of consciousness, it is an ideational entity, a product of thought, or as Jaspers put it, “Man is mind, and the situation of man as man is a mental situation.”⁷ Epochal consciousness is not a position to which everybody naturally gravitates; one occupies it by following a certain path of thinking.

Let us follow Jaspers a little further. Although there had been “transcendental” and universal conceptions of history before—Christian, Judaic, or Islamic—passed on “from one generation to another,” the continuity of this chain, argued Jaspers, was “severed” in the sixteenth century with “the deliberate secularization of human life.” This was the beginning of the process of European domination of the globe: “It was an age of discovery. The world became known in all its seas and lands; the new astronomy was born; modern science began; the great era of technique was dawning; the State administration was being nationalized.” The French Revolution was perhaps the first event that found expression in forms of “epochal consciousness” in the work of philosophers. It was “the first revolution whose motive force was a determination to reconstruct life upon rational principles after all that reason perceived to be the weeds of human society had been ruthlessly picked up and cast into the flames.” Even though the “resolve to set men free developed into the Terror which destroyed liberty,” the fact of the Revolution, wrote Jaspers, left men “uneasy about the foundations of an existence for which they thenceforward held themselves responsible, since [existence] could be purposively modified, and remoulded nearer to the heart’s desire.” Jaspers mentions Kant, Hegel, Kierkegaard, Goethe, Tocqueville, Stendhal,

Niebuhr, Talleyrand, Marx, and, among others, Nietzsche as bearers of different forms of epochal consciousness, ending his series with Walther Rathenau's *Zur Kritik der Zeit* (1912) and Oswald Spengler's *Untergang des Abendlandes* (The Decline of the West) (1918) as two books displaying forms of epochal consciousness that preceded his own, *Man in the Modern Age*.⁸ And we can, of course, add to this list other names of the twentieth century including those of Martin Heidegger and Hannah Arendt. Epochal consciousness, in each case, was thus tied to the question of humans' perceived capacity to project themselves into the world as collective, sovereign agents.

Epochal consciousness is both a form of thought and a genre of writing, for the form could find its fully formed expression only in writings that sought to grapple with this consciousness. Jaspers's own book, *The Atom Bomb and the Future of Man* (1958), is a case in point. It was in this book that Jaspers sought to capture an age through a critical discussion of certain historical statements that summed up for him the dominant motifs of the time. His opening sentences are ones we could use to dramatize the fundamental choices of our times: "An altogether novel situation has been created by the atom bomb. Either all mankind will physically perish or there will be a change in the moral-political condition of man. This book is an attempt to clarify what strikes us as a choice between two fantasies."⁹ You could replace "the atom bomb" with "global warming" while remembering Jasper's point that both outcomes are fantasies. But he makes it clear that he needed these fantasies to work toward a new "moral-political condition of man." I will register some differences with Jaspers in the course of these lectures, but let us stay with him a little longer before going our different ways.

Jaspers explains why dealing with epochal consciousness called for a new mode of thinking that stood at a distance from academically specialized routine disciplinary thought—that is, from modes of thinking that Jaspers called *departmental*. Because epochal consciousness seeks to ingest a slab of historical time in its entirety, it cannot be comprehended from what Jaspers calls a *departmental position*. He writes:

The purpose of this book is not to take a "departmental position," as, for example, from the viewpoint of philosophy as an academic discipline. I mean to address that part of man which is above departments. We have special fields in science, organized departments in administration, a diversity of specialists in politics; we defer to the authority

of expert knowledge, of professional standing, of official position, of membership in groups, nations, states. But all divisions *presuppose* the unity of the whole. Departments have a limited meaning. The whole which unites them also limits their realm of validity; it is their source and their guidepost. The whole, on the other hand, is common to all and belongs to no one or everyone.¹⁰

Moving forward, Jaspers explains that this nondepartmental (i.e., non-specialized) thinking is best understood from the point of view of a general “listener or reader” who listens to experts and specialists explaining their view of a global problem—“physicist, biologist, military man, politician, theologian”—who each individually “declare[s] himself incompetent outside his special field,” while the “listener or reader . . . is supposed to understand them all, to check their statements understandingly as best as he can, to gain an over-all insight and to judge them, in his turn, on an over-all basis.” But “where is this complete man?” asks Jaspers, and answers: “He is every individual including the lecturing specialist.”¹¹ Yet, clearly, this general reader or the complete man is not the empirical “every individual,” for Jaspers himself admitted that even as he was writing his book, not every individual wanted to discuss the bomb, just as, today, however portentous the crisis of planetary climate may be, not everybody feels the urgency to discuss it. Reflecting further on this problem concerning the crisis precipitated by the bomb, Jaspers wrote: “We let it stand as if it did not concern us, since at this moment, here and now, it is not yet acute. As the sick man forgets his cancer, the healthy man his mortality, the bankrupt his plight—is this how we react to the atom bomb, covering up the horizon of our existence and muddling through, unthinkingly, a while longer?” A somewhat angry and impatient question no doubt, but one that was forced to acknowledge that the “everyman” epochal consciousness addressed was not every empirical individual; and yet Jaspers struggled to produce a form of thought that issued from and addressed the position of an imagined general listener or reader, joining Jaspers in thinking at the “limit of departmental thinking,” and on “the existence of issues that concern the whole and are up to everyone.”¹²

The other important characteristic of epochal thought, as Jaspers conceived of it, was a negative one: it was not oriented to finding solutions. Such thought was “granted to man,” wrote Jaspers, “without giving him the rest of a conclusion.” Therefore, it “takes stamina” and “calls for endurance in the tensions of insolubility,” for what it brings to bear on

philosophy “is not merely a matter of academic [i.e., departmental or specialized discipline-based] training but a reality in man as a truly human, as a rational being.”¹³ Again, I will disagree later with Jaspers’s characterization of rationality as “truly human,” but let us follow his thought to its logical end. An epochal consciousness cannot be charged with the function of producing solutions for an epochal crisis because all possible concrete solutions of an epochal problem—and Jaspers welcomes them all—will be partial or departmental, one important department being that of politics, the specialization of politicians. “Purely political thinking”—thinking that calculates and calibrates conflicting interests and strategizes accordingly—is “at a loss in extremities,” where it needs “the resolve of the human being in whom a change is wrought by extremity [such as the possibility of a nuclear winter].” This resolve can only come from “something above politics,” something that Jaspers would describe as ethical, non-goal-oriented, something suprapolitical, and rational for no other reason than that it is of man’s essence, as Jaspers thinks of it. Not having faith in it was to lose “faith in man.”¹⁴ Epochal consciousness is ultimately ethical. It is about how we comport ourselves with regard to the world under contemplation in a moment of global crisis; it is what sustains our horizon of action.

Jaspers was well aware that while we can, in the gesture of a deity, “construct for ourselves an image of the whole [‘This is what God sees!’ as an astronaut once said, looking at Earth],” the “opinion that we can know what the whole, historically or at this actual moment, really is, is fallacious.” However one chooses to “regard the epoch,” it remains one of a number of obtainable perspectives of orientation.” One is never actually outside of the whole one imagines, which is why, Jaspers writes, “my original impulse to comprehend the whole was foredoomed to shipwreck through the inevitable tendency of the whole to be shattered into fragments—into particular glimpses and constellations out of which, building in reverse order, I attempt to reconstruct the whole.” But he warned at the same time that “to conceive these antitheses in too absolute a fashion would be a mistake.” For the whole remains a heuristic device. We use it to get beyond our submersion in particulars and especially in departmental thinking. It is a methodological part of “the endeavor to get to the bottom of things.”¹⁵ But if one’s image of the whole always shatters into fragments because it ultimately runs the risk of collapsing back into politics—in other words, my image of the whole can be vulnerable to the charge that it is itself political—then the point only goes to show

how precariously perched the idea of “epochal consciousness” must be. It remains a thought experiment in the face of an emergency that requires us to move toward composing the common. But it is a conceptual struggle that risks being consumed by the political and thus rendered partisan. This is a risk that someone moving toward epochal consciousness has to take.

FROM THE WORLD TO THE GLOBE OR THE PLANET

I will return to the idea of epochal consciousness in the next lecture where I will have more to say about how the crisis of climate change—or the period of the Anthropocene—marks a fundamental shift in the human condition. In order to do so, however, I need to develop two more distinctions: between what I will call *homocentric* and *zoocentric* views of the world, and a pragmatic and artificial one—for I take the words to have the same meaning in English—between the Latin *homo* and the Greek *anthropos*. I find this pragmatic distinction useful for the argument at hand.

Some of the epochal themes that have marked the writings of many European theorists of the world during the period beginning from the Cold War to the fall of the Berlin Wall in 1989 may be listed as follows: (a) the end of the Europeanization of Earth; (b) the question of constructing a multicivilizational post-European world that could counter the risk of technology promoting a culture of uniformity (the idea that technology uproots man); and (c) the emergence of the planet or the globe or the “whole earth” as a space for human dwelling as such. Some of these themes have carried over into and structured contemporary discussions of globalization. But they have done so with a difference. We have to remember also that much of the literature on globalization and post-colonial theory was directed against a particular fear that accompanied this world-historical consciousness of European, especially German, intellectuals. Thinkers such as Heidegger, Jaspers, Gadamer, and Schmitt were all concerned about the possibility that once Europe lost control of the world it had brought together under its imperial aegis, only technology would hold the world together, producing a dull uniformity in world cultures that would leave humans feeling homeless. This was one reason that they were all interested in dating the period from when Europe became only a province of the world. Hans-Georg Gadamer, from whose prose I once borrowed the expression “provincializing Europe,” wrote in 1977 that Europe got “provincialized” as early as 1914. Only in the realm

of the “natural sciences” could Europe prevail as something of an entity.¹⁶ Jaspers expressed similar sentiments in 1931: “After thousands of years during which civilisations progressed along detached and even divergent roads, the last four and a half centuries have witnessed the European conquest of the world, which the last hundred years have completed. . . . Today, however, we feel that for us this century of expansion is over and done with.”¹⁷ In his *The Nomos of the Earth*, Schmitt dated the decline of geopolitical Eurocentrism from even earlier than 1914. For him, the death of a Eurocentric construction of the world that began in the sixteenth century—the *jus publicum Europaeum*—happened in the nineteenth century, sometime between the conclusion of the Napoleonic Wars in 1815, the introduction of the Monroe Doctrine (retrospectively so-called) in 1823, and the rise of Japan as a Great Power by the turn of the twentieth century: “The transition to a new, no longer Eurocentric world order began with the inclusion of an East Asian Great Power.”¹⁸

The uniform figure of the “mass-man” haunted many German thinkers, from Heidegger to Adorno, as a nightmare of modernity. To quote Jaspers, again, in 1931:

With the unification of our planet there has begun a process of leveling-down which people contemplate with horror. That which has already become general to our species is always the most superficial, the most trivial, and the most indifferent of human possibilities. Yet men strive to effect this leveling-down as if, in that way, the unification of mankind could be brought about. . . . [Films show that p]eople dress alike. The conventionalities of daily intercourse are cosmopolitan; the same dances, the same types of thought, and the same catchwords (a compost derived from the Enlightenment, from Anglo-Saxon positivism, and from theological tradition) are making their way all over the world.¹⁹

“Technicisation,” Jaspers admitted, was “a path along which we have no choice but to advance.”²⁰ Yet the fear of technology uprooting people from their own cultures remained: “The historical civilisations and cultures have become detached from their roots, and are merged in the technico-economic world and in a vacant intellectualism.”²¹

Jaspers took these concerns into the book on the bomb he wrote some twenty-five years later: “We human beings meet each other less and less

on the ground of our respective faiths, more and more in the common uprooting vortex of our existence. Technology with its consequences is initially ruinous for all age-old traditional ways of life.”²² Heidegger made the same point in his famous or infamous interview in *Der Spiegel* in 1966: “[T]echnology tears men loose from the earth and uproots them.”²³ And Gadamer, writing on “The Future of the European Humanities,” in 1983 (before anybody could imagine the fall of the Berlin Wall), wondered if the spread of the capitalist market and technology would lead eventually to a world unity or its opposite: “will the continuation of the industrial revolution lead to the leveling of the cultural articulation of Europe and the spreading of a standardized world civilization, . . . or . . . will history remain history with all of its catastrophes, tensions, and its manifold differentiations, as has been the essential characteristic of humanity since the building of the Tower of Babel?”²⁴ “The homelessness with which the modern industrial world threatens humans,” added Gadamer, would only drive the latter “to search for home,” something that in turn could lead to the unattractive path of “catastrophes and tensions.” The “authentic task” of a globalized world would “lie in the area of human coexistence” but for that to happen each culture needed the security of its authentic identity, for “only where strength is, is there tolerance.”²⁵

These themes constitute an intellectual prehistory of the contemporary literature on postcolonial criticism and globalization. They feature also in Schmitt’s *The Nomos of the Earth*, written at the same time as Jasper’s book on the bomb. But Schmitt tells a changing story of *nomos* that was once land-bound. A certain historical dis-orienting of *nomos* begins in Schmitt’s narrative with the expansion of Europe, a process that eventually produced the vision of this planet as the globe. Once Europeans took to exploring and “conquering” the deep seas with the maritime expansion of Europe—the history of large-scale deep-sea whale hunting could be one index of this—*nomos* gradually ceased to be something land-based, thus producing, at the intellectual level of jurisprudential thought, a separation between the ought and the is, between *nomos* and *physis*. “The first *nomos* of the world was destroyed about 500 years ago when the great oceans were opened up.”²⁶ The coming of air travel and eventually the space age could only expand this separation between *nomos* and *physis* and leave humans—it is interesting that both Gadamer and Schmitt appear to agree on this—with two options in the future: either feeling “homeless” (as the globe is the home for nobody) or living in a

technologically united world in which all humans come to call the planet their home. Schmitt thought that the destruction of the separation of land and sea whereby the sea became as divisible as land, made “the whole world, our planet, . . . a landing field or an airport, a storehouse of raw materials, and a mother ship for travel in outer space.” But that only posed the question of “a new *nomos* of the earth” more powerfully than ever. Writing in a period of a bipolar world caught in the “cold war” of capitalism and so-called socialism, Schmitt saw one possible future in “an ultimate, complete unity of the world” carried out by the victor or victors in this struggle.²⁷

In a 2008 essay published in the *American Historical Review*, the historian Benjamin Lazier described this historical thinking—and, of course, historiography—as marked by a veritable lexical spill: from “world histories” to “global histories,” and then from the latter to histories of planetary concerns, to go, for instance, by Alison Bashford’s and Joyce Chaplin’s recent publications.²⁸ Of course, words like *world*, *globe*, or *planet* are not stable entities. World history once looked like global history until the 1990s, when the very phenomenon of globalization prompted historians to ask whether “world history” needed to attune itself to a distinctly “global age”—as Michael Geyer and Charles Bright put the question in 1995—and whether, indeed, the word *global* could ever be fully subsumed in the word *world*, as Bruce Mazlish asked in a seminal article in 1991.²⁹

A similar instability, I would argue, has attended the fate of the word *planetary* as it has traveled from the literature on globalization where analysts used the words *globe* and *planet* as one and the same, to the literature on climate change. Consider, for example, the use of the words *globe* and *planet* or *global* and *planetary* in the following sentences culled from Schmitt’s classic text, *The Nomos*. Schmitt would write:

The first attempts in international law to divide the earth as a whole according to the new global concept of geography began immediately after 1492. These were also the first adaptations to the new, planetary image of the world.

The compound term “global linear thinking” is . . . better than “planetary” or similar designations, which refer to the whole earth, but fail to capture its characteristic type of division.

The English island [at the time of the Treaty of Utrecht in 1713] remained a part of the European planetary order. . . .

I speak of a new *nomos* of the earth. That means that I consider the earth, the planet on which we live, as a whole, as a globe, and seek to understand its global division and order.³⁰

It can be seen from each of the above quotations that for the theoretical approach Schmitt was attempting to develop to understand the production of the global in human history, *planetary* was simply another word for *global*. They referred to the planet we live on, the earth taken “as a whole.” This is exactly how many of the later scholars of globalization would use the word *planetary*—to refer to the earth as a whole. This was, of course, a fulfillment of what many, from Heidegger to Sloterdijk, had seen as the “age of the world-picture” or “the global age.”³¹ From this point of view, the famous 1968 NASA picture of the earth taken from space portraying the planet as a sphere that rises over the horizon of the moon—the one titled “Earthrise”—may be seen as the culmination of this use of the picture of the earth as a globe, the planet on which we humans happen to live (see Figures 1 and 2). It is humans looking in and picturing the whole earth to be their home. This planet is what the globe is; other planets are not in our field of view.

These pictures symbolized for observers the theme of human dwelling, its fulfillment as well as its breakdown. Heidegger expressed this crisis well in his 1966 interview in *Der Spiegel*: “I do not know if you were frightened, but I at any rate was frightened when I saw pictures coming from the moon to the earth. We don’t need any atom bomb. The uprooting of man has already taken place. The only thing we have left is purely technological relationships. This is no longer the earth on which man lives.”³² “Should the emancipation and the secularization of the modern age,” asked Hannah Arendt in beginning her book *The Human Condition*, “end with . . . [a] fateful repudiation of an Earth who was the mother of all living creatures under the sky?”³³

Thus the epochal consciousness that the history and narrative of globalization produced—through the years of the Cold War and beyond—turned around the question of dwelling, human dwelling on earth, in a process whereby the globe, an outcome of the history of European expansion and the growth of capitalism as a world-system, encountered the planet Earth simply because the Earth was there to be so encountered. The globe and the planet in the end merge into one another insofar as the globalization theorists are concerned. This was the “lexical spill,” as Lazier puts it, “from the word ‘earth’ to the words ‘Earth,’ ‘planet,’ and



Figure 1. *Earthrise*. As seen from *Apollo 8* in orbit around the moon, 1968.

Source: NASA.

'globe.'” The parallel turn in the environmental movement, “from ‘environment’ to ‘globe’ as in ‘global environment,’” he points out, goes in tandem with this “globalization of the world picture.”³⁴

There are three things to be noted about this consciousness of globalization: (a) it turns, as I said, on the question of humans dwelling together in a global world when technology weaves the planet into a huge network of connections; (b) the history it recalls is the history of the last five hundred or so years, the history of European expansion, of globalizing capital with all its inequities, and of modern technology; and (c) although the environmental concerns of the past four decades did call attention to man’s relationship to his environment including other species, this epochal consciousness remained profoundly homocentric. Humans were at the center of this narrative, however it was told.

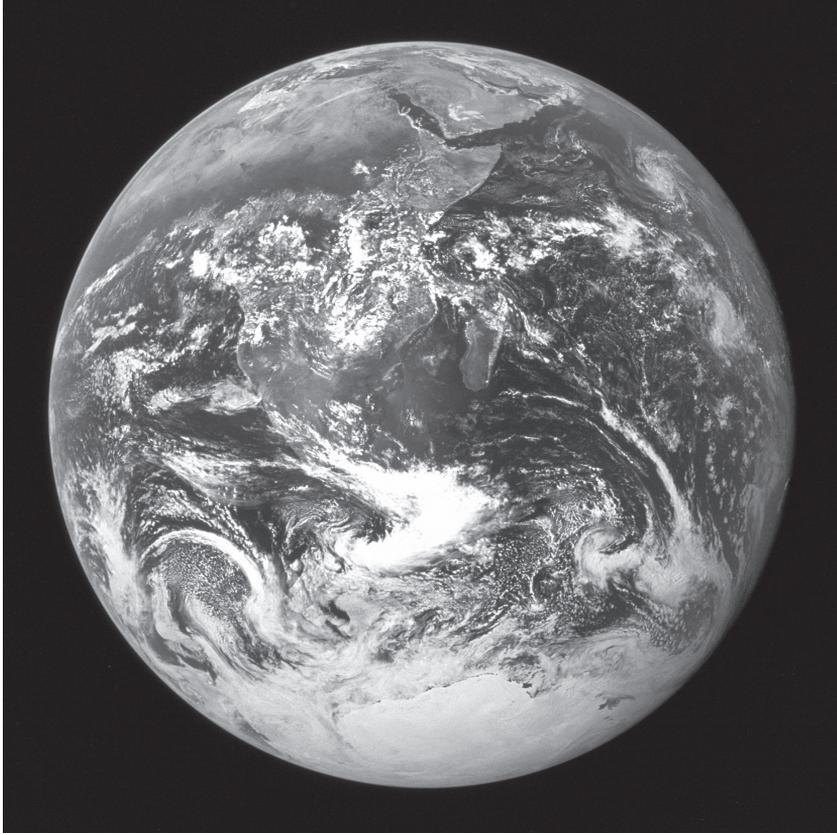


Figure 2. *Blue Marble*. As seen from *Apollo 17*, 1972.

Source: NASA.

THE PLANET/GLOBE DIVERGENCE
AND THE PLACE OF *ZOE*

The story of planetary climate change carries on with the narrative of globalization but also departs from it in a radical manner. The science of climate change has roots going back to nineteenth- and twentieth-century investigations by European and American scientists, both amateur and professional. But, more immediately, it is a product of the Cold War, the detonation of nuclear bombs that made for new oceanographic and atmospheric studies by the United States.³⁵ Spencer R. Weart and Joshua P. Howe have recently told this story in fascinating detail.³⁶ The science, one could say, was mainly American. Its immediate context lay in the competition between the United States and the Soviet Union for

mastery of space. The story of planetary climate change is not even a culminating point in the history of the “ecological crisis” for humans that Gadamer, Schmitt, and many others had acknowledged and discussed as a coming danger.³⁷ The “climate crisis” could not have been foreseen from within the logic of the available narratives of “environmental pollution” attributable to humans or with the help of the methodological tools that allow us to reconstruct something like a history of capital. Diagnosing global warming entailed the involvement of other kinds of sciences. Understanding the phenomenon of climate change required the development of a form of planetary thinking that was interdisciplinary. It involved knowledge of earth systems functioning (itself a development of the 1980s, with the beginnings harking back to the 1960s), of geology, and the history of life on the planet in addition to what globalization theorists take an interest in, which is the history of the world market for production and consumption (or to use a nontheoretical word: *capitalism*).³⁸ By introducing new questions of scale—astronomical scales for space, geological scales for time, and scales of evolutionary time for the history of life—all in search of understanding the relationship between the history of the planet’s atmosphere and its life-carrying capacity, and thus promoting what may be called a life, or zoocentric, view of the history of the planet, the literature on global warming works at a tangent to the completely homocentric narrative of globalization. This tension is best seen in the work of someone we will consider in the next lecture, James Lovelock of the Gaia fame.

Both globalization narratives and scientists’ concern over “dangerous” climate change share an interest in human well-being. But whereas globalization theorists argue about the capacity of existing economic and political institutions to deliver well-being for all humans, the science of planetary climate change ends up making the conditions for the flourishing of life in general on the planet into a condition of what Charles Taylor calls “ordinary human flourishing.”³⁹ The two sets of literature also thus develop a tension between their two master categories: humanity and the human species. Elaborating on this tension and its implications is the task I will set myself in my second lecture.

The beginnings of the divergence between homocentric perceptions of the planet and what I have called the *zoocentric* view of it, may be seen in some of the key responses to that 1968 Christmas Eve American astronauts’ view of “earthrise” over the moon, a topic on which Robert Poole has written an engrossing book.⁴⁰ Immediate responses to the sight of the

Earth seen from space evoked thoughts about human dwelling, with astronauts spontaneously expressing the hope that Fred Hoyle, the astronomer, Arthur C. Clarke, the science fiction writer (who in turn had been influenced by Arnold Toynbee's ideas about "the unification of the world"), and others had articulated in the 1950s: that humanity might now see the whole earth as their home, bringing an end to all nationalist and other ideological strife.⁴¹ Alongside these reactions that focused on man, there were others that focused on life as such. The microbiologist René Dubos remarked: "How drab and grey, unappealing and insignificant, this planet would be without the radiance of life;" and the ecologist David Worster spoke of the "thin film of life" that covered this planet.⁴²

The difference between "homocentric" and "zoocentric" views of the world is perhaps best illustrated through some remarks that James Lovelock made in passing in his book, *The Ages of Gaia*, while recalling the time when he teamed up with his friend, Michael Allaby, to write a fictional book called *The Greening of Mars*, trying to imagine how humans might begin to inhabit the red planet.⁴³ Apparently, Allaby wanted a world in which "to act out a new colonial expansion; a place with new environmental challenges and free of the tribal problems of the Earth"—a vision of "terraforming . . . a word often used when considering this act [of making a place habitable] for planets."⁴⁴ Terraforming, to Lovelock's ears, had "the homocentric flavor of a planetary-scale technological fix, redolent of bulldozers and agribusiness." He preferred the ecopoetic expression "the making of a home," a process whose imagination does not begin with humans but with life. "To make Mars a fit home for life," writes Lovelock, even as he believed that Mars was too arid to host life, "we shall first have to make the planet comfortable for bacterial life."⁴⁵ It is this latter view that places humans firmly within a larger view of life and planetary dynamics that I am calling *zoocentric* for my purposes here.

Both these views were copresent, for instance, in what the American modernist poet and the Librarian of Congress, Archibald MacLeish, famously wrote on December 25, 1968, in immediate response to the picture of "earthrise." His prose poem called "Riders on Earth Together, Brothers in Eternal Cold" was pregnant with the tension between homocentric and zoocentric views of the place of humans:

1. Homocentric: "To see the earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth

together, brothers on that bright loveliness in the eternal cold—brothers who know now they are truly brothers.”

2. Zoocentric: “For the first time in all of time men have seen . . . whole and round and beautiful and small as even Dante . . . had never dreamed of seeing it; as the Twentieth Century philosophers of absurdity and despair were incapable of guessing that it might be seen. And seeing it so, one question came to the minds of those who looked at it. ‘Is it inhabited?’ they said to each other and laughed—and then they did not laugh. What came to their minds a hundred thousand miles and more into space—‘half way to the moon,’ they put it—what came to their minds was life on that little, lonely, floating planet; that tiny raft in the enormous, empty night. ‘Is it inhabited?’”⁴⁶

Indeed, the habitability of the planet is a problem we will come back to in the next lecture.

INTRODUCING A PRAGMATIC DISTINCTION: ANTHROPOS AND HOMO

It must be of interest to scholars in the humanities that the word *human* has turned out to be one of the most contested and disputed categories of the social and political literature on climate change. The use of the word *anthropos*, for instance, in the expressions “anthropogenic climate change” or “the Anthropocene”—or for that matter the use of the word *human* in calling something “human-induced climate change”—has invited the not-unreasonable retort: why blame all humans or humans in general when the addiction to fossil fuel is shared by only a minority of humans, the global rich, the consuming classes of the world, and, of course, by interested groups such as the producers and marketers of fossil fuels and their advocates? Scholars from China, India, and other countries have often complained that the word *anthropos*, when used thus, ends up falsely and unfairly implicating the poor and their “survival emissions” of greenhouse gases in the crime of those whose “luxury emissions” are actually responsible for the current crisis of global warming.⁴⁷

The word *anthropos* in the expression “anthropogenic climate change” has a very particular orientation. Earth has seen dramatic and planetary climate changes before. When we call this particular episode of climate change anthropogenic, we do so in order to distinguish this present episode of climate change from previous ones that were caused by nonanthropic geophysical/geological forces such as shifts in tectonic plates, volcanic eruptions, impact of asteroids, and so on. Thus we put this current

episode of warming of the planet in a series of similar episodes, and the qualifier “anthropogenic” has the same function as have the different sound values of different letters in a Saussurean chain of signs: to differentiate itself from what precedes and follows it. The word does not designate or connote an inward-oriented sense of uniqueness of humans. “Anthropos” here has no moral value, for it does not signify culpability. It is there simply to suggest that the kind of geophysical force usually needed to change the climate of the planet as a whole was supplied this time—unlike at any other time in the history of the planet—mainly by actions of humans. It is a causal term that does not signify any moral culpability.

A similar point may be made about the use of “anthropos” in attempts by geologists to define and justify a naming of a new geological epoch called the Anthropocene that is meant to signify a shift from the Holocene period that is usually regarded as having begun some 11,700 years ago.⁴⁸ Some scholars, mainly from the Left, have expressed deep discomfiture with the label “Anthropocene” and attacked it for its presumed ideological nature. Why not call it “capitalocene,” they have asked, when it is the capitalist mode of production that made our greenhouse gas emissions and technologies have an impact on the climate of the planet.⁴⁹ Yet it is arguable that names of geological periods are not usually required to say something about the causes that brought particular periods about. The name Holocene, meaning “recent times,” suggests nothing about why an interglacial warm period began in the geological time it designates. Similarly, the debate about the name “Anthropocene” is more about whether or not geologists now could scientifically argue that future geologists, millions of years from today, will detect consistent and planet-wide synchronous signals in particular strata of the Earth suggesting that the planet was significantly modified by the work of a species called “Homo sapiens.”⁵⁰ The name does not assign moral responsibility.

But the moment we define climate change not just as a physical phenomenon but as dangerous—thus the expression “dangerous climate change”—we are in the realm of values and hence of disagreement and politics. Consider, again, two very different rhetorical moves from two recent books by two climate scientists—Raymond T. Pierrehumbert and David Archer, both at the University of Chicago—each dealing with questions of scale that are involved in thinking about the crisis of anthropogenic global warming. Pierrehumbert, writing a text book for college seniors and graduate students, thus writes of how the problem may seem to future humans or some other intelligent species—his tone is

calm, dispassionate, self-possessed, and does not at all sound like a call to action, for scale here is a spur to disciplinary imagination:

As seen by paleoclimatologists 10 million years in the future, whatever species they may be, the present era of catastrophic release of fossil fuel carbon will appear as an enigmatic event which will have a name of its own, much as paleoclimatologists today refer to the PETM [55 Ma] or the K-T [66 Ma] boundary event. The fossil carbon release event will show up in ^{13}C proxies of the carbon cycle, . . . through mass extinctions arising from rapid warming, and through the moraine record left by retreating mountain glaciers and land-based ice sheets. As an event, it is unlikely to permanently destroy the habitability of our planet.⁵¹

Compare this with the move with which David Archer opens his book, *The Long Thaw*, aimed at communicating to a general reading public the urgency of action needed on climate change. Confronting the question as why we “mere mortals” *should* “worry about altering climate 100,000 years from now,” Archer asks his reader: “How would it feel if the ancient Greeks . . . had taken advantage of some lucrative business opportunities for a few centuries, aware of potential costs, such as, say a stormier world, or the loss of 10% of agricultural production to rising sea levels—that could persist to this day?”⁵²

Archer clearly goes further than Pierrehumbert in speaking of agency and responsibility. His moral and rhetorical question points up an important problem in the politics of climate change. It is this: that motivating human action on global warming necessarily entails the difficult task of making available to human experience a cascade of events that unfold on different scales, at once human and *inhuman*. The problem of intergenerational ethics both straddles and illustrates this divide: if our greenhouse gas emissions are changing the climate of the planet for the next hundred thousand years, as Archer shows, how many generations beyond us should we—or even can we—really care for?⁵³ Our capacity to thus care, a capacity that has evolved over a long period of time, may not be unlimited. And Archer, in any case, is speaking here not of the “anthropos” of “anthropogenic climate change” but of a very specific cultural and ethnic branch of humanity, those to whom ancient Greeks represent an acme of civilizational achievement.

The human problem of climate change cannot be defined without some discussion of human values, ethics, suffering, and attachments—topics on which the physical sciences have limited purchase. The idea of a “dangerous climate change” is not in itself a scientific idea. Understanding and defining “planetary climate change” depend on scientific knowledge. But “dangerous” is not a scientific word. As Julia Adeney Thomas has recently said, “historians coming to grips with the Anthropocene cannot rely on our scientific colleagues to define ‘the endangered human’ for us.” “‘Endangerment,’” she points out, is never a “simple scientific fact” but “is a question of both scale and value.”⁵⁴ It is thus when we think of the climate crisis through the idea of moral—and not causal—responsibility that climate change becomes a question of justice and hence a political question as well. Who should own the moral responsibility for the emission of greenhouse gases? Who should bear the cost of mitigation and adaptation? Should the “polluter pays” principle apply? Global warming then poses problems of intrahuman justice. The figure of humanity differentiates itself from the “anthropos” (of the Anthropocene, say) at this point. We think of the political figure of humanity as having two, somewhat contradictory, characteristics. First, it is an entity that is capable of projecting itself into the future as a purposeful agency even though the purpose may not always be one that wins universal approval. But we also think of this humanity as always already divided by issues that in turn give rise to issues of justice. It is never an operative, singular agency. Its unity as a political actor is always “to come.”

One could argue that this category “humanity” is a product of the very process of the gradual mondialization of the world, the superimposition of the world with the globe or the planet. It reflects a modern formation, something brought into being by the technoeconomic networks that made this planet the home we saw from space. Let us call this figure of one-but-divided humanity by the Latin word *homo* simply to distinguish it from the Greek *anthropos* that has already been claimed by scientists. When we read the word *homo* used in this sense into the word *anthropos* (as discussed above) in the context of anthropogenic global warming, we see climate change as a continuation of the story of capitalist globalization accentuating all the human inequities that are central to that story, however told.⁵⁵ But planetary climate change and the Anthropocene are also events driven by nonhuman, nonliving vectors that work on multiple scales, some of which work on geological scales while some

have an influence within the time horizon of one or two human generations. What works over hundreds of thousands, if not millions, of years cannot be brought within the realm of policy and politics. But the moment we say “we” should do something to prevent dangerous climate change, we raise questions about damages, costs, and responsibility, and we read what I have called *homo* back into the word *anthropos* as used in the expressions “anthropogenic” or “the Anthropocene.” In the politics of climate justice, one may therefore say that *homo* comes to be where *anthropos* was.⁵⁶

NOTES

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1. J. Timmons Roberts and Bradley C. Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy* (Cambridge, MA: MIT Press, 2007), 3.
2. John L. Brooke, *Climate Change and the Course of Global History* (New York: Cambridge University Press, 2014), 558, 578–79.
3. Bruno Latour, “Facing Gaia: Six Lectures on the Political Theology of Nature,” *The Gifford Lectures on Natural Religion*, Edinburgh, 18–28 February 2013, 109.
4. Mike Hulme, *Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity* (Cambridge: Cambridge University Press, 2009), 333–35. For examples of the general idea of “wicked problem” applied to many different areas, see Valerie A. Brown, John A. Harris, and Jacqueline Y. Russell, eds., *Tackling Wicked Problems: Through the Transdisciplinary Imagination* (London: Earthscan, 2010).
5. Clive Hamilton, “Utopias in the Anthropocene,” paper presented at a plenary session of the American Sociological Association, Denver, August 17, 2012, p. 6. My thanks to Professor Hamilton for sharing this paper.
6. See, for instance, James Gordon Finlayson’s (somewhat ill-tempered) critique of Agamben in the former’s “‘Bare Life’ and Politics in Agamben’s Reading of Aristotle,” *Review of Politics* 72 (2010): 97–126, and especially the remark that “Aristotle’s distinction between mere life and the good life is not . . . captured by the semantic differences between the words *zoe* and *bios*” (111). See also the Aristotle scholar Adriel M. Trott’s disagreement with Agamben on a similar point in his *Aristotle on the Nature of Community* (Cambridge: Cambridge University Press, 2014), 6–7. There is actually a progressive restriction of the meaning of *zoe* that takes place in Agamben’s text. His citation (7–8) of a passage from Aristotle’s *Politics* shows the latter excluding forms of life incapable

of expressing the pain/pleasure distinction from the idea of “bare life,” *zoe*, and later in Agamben’s own discussion (8) it becomes clear that *zoe* in his text stands for the bare life of humans alone. Agamben’s expansion of Foucault’s idea of biopolitics still leaves out a lot of what I mean to include here in the word *zoe*. Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford, CA: Stanford University Press, 1998; first published in Italian in 1995), 1–11. But see also Agamben’s comment that “the principle of sacredness of life has become so familiar to us that seem to forget that classical Greece, to whom we owe most of our ethico-political concepts, not only ignored this principle but did not even possess a term to express the complex semantic sphere we indicate with the single term ‘life’” (6). Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2013), refers to *bios* as “the portion of life traditionally reserved for *anthropos*” and *zoe* as “the wider scope of animal and non-human life,” “the dynamic self-organizing structure of life itself,” as “generative vitality” (60).

7. Karl Jaspers, *Man in the Modern Age*, translated by Eden Paul and Cedar Paul (New York: Henry Holt and Company, 1933; first published in German, 1931), 1, 4.
8. *Ibid.*, 5–6, 7–8, 8–16.
9. Karl Jaspers, *The Atom Bomb and the Future of Man*, translated by E. B. Ashton (Chicago: University of Chicago Press, 1963), vii. An earlier 1961 edition was published under the title, *The Future of Mankind*. The original German edition was published in 1958.
10. *Ibid.*, 9 (emphasis added).
11. *Ibid.*, 16.
12. *Ibid.*, 6, 16.
13. *Ibid.*, 10, 12–13.
14. *Ibid.*, 23, 25, 26, 316.
15. Further, “Contrasted with the real situation of the individual, every generally comprehended situation is an abstraction. . . . But images of situations are spurs whereby the individual is stimulated to find his way to the root of what takes place” (Jaspers, *Man in the Modern Age*, 28–31).
16. Hans-Georg Gadamer, “Martin Heidegger,” in *Philosophical Apprenticeships*, translated by Robert R. Sullivan, 45–54 (Cambridge, MA: MIT Press, 1985; first published in German, 1977), 45.
17. Jaspers, *Man in the Modern Age*, 18.
18. Carl Schmitt, *The Nomos of the Earth in the International Law of the Jus Publicum Europaeum*, translated and annotated by G. L. Ulmen (New York: Telos Press, 2006), 191 and Part 3 generally.
19. Jaspers, *Man in the Modern Age*, 87.
20. *Ibid.*, 213.
21. *Ibid.*, 88.
22. Jaspers, *Atom Bomb*, 74.
23. Heidegger cited in Benjamin Lazier, “Earthrise; or, The Globalization of the World Picture,” *American Historical Review* (June 2011): 602–30, here 609.

24. Hans-Georg Gadamer, "The Future of the European Humanities," in *Hans-Georg Gadamer: On Education, Poetry, and History: Applied Hermeneutics*, translated by Lawrence Schmidt and Monica Reuss, edited by Dieter Misgeld and Graeme Nicholson, 193–208 (Albany: State University of New York Press, 1992), 200.
25. Gadamer, "Future of the European Humanities," 206–7.
26. Schmitt, *The Nomos*, 352.
27. *Ibid.*, 354–55.
28. Lazier, "Earthrise"; Alison Bashford, *Global Population: History, Geopolitics, and Life on Earth* (New York: Columbia University Press, 2014); Joyce Chaplin, *Round about the Earth: Circumnavigation from Magellan to Orbit* (New York: Simon and Schuster, 2012).
29. Michael Geyer and Charles Bright, "World History in a Global Age," *American Historical Review* 100 (October 1995): 1034–60; Bruce Mazlish, "Comparing Global History to World History," *Journal of Interdisciplinary History* 28, no. 3 (Winter 1998): 385–95.
30. Schmitt, *The Nomos*, 87, 88, 173, 351.
31. Heidegger, "The Age of the World-Picture," in Martin Heidegger, *The Question Concerning Technology and Other Essays*, translated by William Lovitt, (New York: Garland Publishing, 1977), 115–54; Peter Sloterdijk, "Globe Time, World Picture Time," in *In the World Interior of Capital*, translated by Wieland Hoban, 27–32 (London: Polity, 2013; first published in German in 2005).
32. Cited in Lazier, "Earthrise," 609. See also his discussion of Husserl's statement that "the planet as such could not be the proper scene for the human being" (611).
33. Hannah Arendt, *The Human Condition*, 2nd ed., introduction by Margaret Canovan (1958; Chicago: University of Chicago Press, 1998 [1958]), 1–2.
34. Lazier, "Earthrise," 614. See also Bashford, *Global Population* and Chaplin, *Round about the Earth*.
35. Sverker Sörlin, "The Global Warming That Did Not Happen: Historicizing Glaciology and Climate Change," in *Nature's End: History and the Environment*, edited by Sverker Sörlin and Paul Warde, 93–114 (New York: Palgrave, 2009).
36. Spencer R. Weart, *The Discovery of Global Warming*, rev. and exp. ed. (Cambridge, MA.: Harvard University Press, 2008 [2003]); Joshua P. Howe, *Behind the Curve: Science and the Politics of Global Warming* (Seattle: University of Washington Press, 2014). See also Joe Masco, "Bad Weather: On Planetary Crisis," *Social Studies of Science* 40, no. 1 (February 2010): 7–40; and Masco, "Mutant Ecologies: Radioactive Life in Post-Cold War New Mexico," *Cultural Anthropology* 19, no. 4 (2004): 517–50.
37. Gadamer saw weapons and the "desolation of the natural basis of our home, the earth" as the twin dangers threatening "the human conditions for life in general." Gadamer, "The Diversity of Europe" in *On Education*, p. 223. Schmitt writes: "Given the effectiveness of modern technology, the complete unity of the world appears to be a foregone conclusion. But no matter how effective modern technology may be, they can destroy completely neither the nature of

- man nor the power of land and sea without destroying themselves." *The Nomos*, 354–55.
38. For a quick history of Earth systems science, see Weart, *Discovery of Global Warming*, 144–47.
 39. Charles Taylor, *A Secular Age* (Cambridge, MA: Harvard University Press, 2008).
 40. Robert Poole, *Earthrise: How Man First Saw the Earth* (New Haven, CT: Yale University Press, 2008).
 41. *Ibid.*, 37–41, 103, 133–34.
 42. *Ibid.*, 8–9.
 43. James Lovelock and Michael Allaby, *The Greening of Mars: An Adventurous Prospectus Based on the Real Science and Technology We Now Possess—How Mars Can Be Made Habitable by Man* (New York: St. Martin's Press, 1984).
 44. James Lovelock, *The Ages of Gaia: A Biography of Our Living Planet* (New York: Norton, 1995 [1988]), 173, 174.
 45. *Ibid.*, 174, 175, 180–81; see also: "Our first objective would be to introduce a microbial ecosystem that could convert the regolith into topsoil, and at the same time to introduce surface-dwelling photosynthetic bacteria" (187).
 46. Archibald MacLeish, "Riders on Earth Together, Brothers in Eternal Cold," *New York Times*, December 25, 1968, available at <http://cecelia.physics.indiana.edu/life/moon/Apollo8/122568sci-nasa-macleish.html>.
 47. For details, see Dipesh Chakrabarty, "Postcolonial Studies and the Challenge of Climate Change," *New Literary History* 43 (2012): 25–42.
 48. Jan Zalasiewicz et al., "When Did the Anthropocene Begin? A Mid-Twentieth Century Boundary Level Is Stratigraphically Optimal," *Quaternary International* 30 (2014): 1–8, <http://dx.doi.org/10.1016/j.quaint.2014.11.045>. Thanks to Dr. Zalasiewicz for letting me see a copy of this article before publication.
 49. See, for example, the essay by Andreas Malm and Alf Hornborg's, "The Geology of Mankind? A Critique of the Anthropocene Narrative," *Anthropocene Review*, March 18, 2014 (published online January 7, 2014).
 50. Jan Zalasiewicz, Mark Williams, and Colin N. Waters, "Can an Anthropocene Series Be Defined and Recognized?" in *A Stratigraphical Basis for the Anthropocene*, edited by C. N. Waters et al., *Geological Society, London, Special Publications* 395 (2014): 39–53, <http://dx.doi.org/10.1144/SP395.16>.
 51. Raymond T. Pierrehumbert, *Principles of Planetary Climate* (Cambridge: Cambridge University Press, 2010), 66.
 52. David Archer, *The Long Thaw: How Humans Are Changing the Next 100,000 Years of the Earth's Climate* (Princeton, NJ: Princeton University Press, 2009), 9–10.
 53. For a very significant book on the problem of intergenerational ethics in the context of climate change, see Stephen M. Gardiner, *A Perfect Moral Storm: The Ethical Tragedy of Climate Change* (Oxford: Oxford University Press, 2011).
 54. Julia Adeney Thomas, "History and Biology in the Anthropocene: Problems of Scale, Problems of Value," *American Historical Review* (December 2014): 1587–88.

55. Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: A Synthesis Report. A Contribution of the Working Groups I, II, and III to the Third Assessment Report of the IPCC*, edited by R. T. Watson and the Core Writing Team (New York: Cambridge University Press, 2001), 12, cited in Steve Vanderheiden, *Atmospheric Justice: A Political Theory of Climate Change* (New York: Oxford University Press, 2008), 9.
56. This formulation was prompted by a fascinating lecture on “the philology of the Anthropocene” that I heard given by Robert Stockhammer of the LMU University of Munich at a 2014 conference on “Meteorologies of Modernity.”

LECTURE II.
DECENTERING THE HUMAN? OR,
WHAT REMAINS OF GAIA

I want to share with you some further thoughts about the fault line that runs through the nonidentity I proposed in the previous lecture: homo and anthropos, a pragmatic and artificial distinction through which I want to capture the two figures of the human that discussions on climate change help us to imagine.

CLIMATE JUSTICE AND HOMO-CENTRISM

When we think of climate change as representing a climactic point in the history of capital or of globalization, global warming appears to be entirely a matter amenable to issues of intrahuman justice, even as we acknowledge that anthropogenic climate change affects life beyond human life and impacts on the inanimate world as well. A zoocentric view is passed over in favor of a homocentric one. Consider, for instance, the following passage that occurs early in an otherwise engaging discussion on a possible “political theory of climate change” in Steve Vanderheiden’s book on atmospheric justice. It begins with what you will recognize, following yesterday’s discussion, to be a zoocentric position on the climate crisis:

Carbon is one of the basic building blocks of life on the planet earth, with CO₂ the dominant means by which carbon is transmitted between natural carbon sinks, including living things. In an exchange known as the *carbon cycle*, humans and other animals take in oxygen through respiration and exhale CO₂, while plants absorb and store CO₂, emitting oxygen and *keeping terrestrial life in balance*.¹ [emphasis added]

Vanderheiden acknowledges that without the greenhouse gases (GHG) and “the *natural greenhouse effect*,” the planet would be inhospitably cold for life in general, and for human life in particular. “While some life,” he writes, “might be possible to sustain within a small range of temperature variability beyond that seen since the last Ice Age, the climatic equilibrium produced by 10,000 years of GHG stability is responsible for the development of *all terrestrial life* [emphasis added], and even tiny changes from that equilibrium could throw those ecosystems dramatically out of balance.”²

Yet, in spite of fully acknowledging that the climate crisis concerns “the balance” of “all terrestrial life” on the planet—whatever such “balance” might mean—and therefore needs to be thought of in terms of at least thousands of years, Vanderheiden’s questions of justice and inequity circle around problems of human life and human life alone, and problems that are actionable only on much smaller, human measures of time. As he himself says: “While anthropogenic climate change is expected to visit significant and in some cases catastrophic harm on the planet’s *non-human species* [emphasis added],” his pursuit of issues of climate justice would follow the Intergovernmental Panel on Climate Change (IPCC) in focusing exclusively on “the planet’s human habitats and populations.” Vanderheiden gives a good, practical reason for this approach: we do not yet know how to compose a global climate regime that would include representation for “animals and future generations”—not to speak of non-animal life forms or even the inanimate world. He refers to the work of the political theorist Terrence Ball to argue that even if we represented these groups “by proxies in democratic institutions, giving at least some voice to their interests, . . . they would necessarily remain a legislative minority.”³ Thus it is acknowledged, on the one hand, that “the global atmosphere is a finite good” and is so not just for humans, for it is “vital for the continuation of life on this planet” while being “instrumental for human flourishing” as well. This is the lesson of the sciences. And yet, on the other hand, when it comes to justiciable issues of inequality with regard to climate change, the absorptive capacities of this “one atmosphere”—which, it is acknowledged, “must be shared between *all* the planet’s inhabitants”—are divided up *only* among humans (“the world’s nations or citizens”) with no discussion of what might be the legitimate share of nonhuman forms of life!⁴ From here it takes only one step to forget non-human life altogether and declare global warming to be synonymous with issues of human justice and even to see it as a problem that cannot be remedied *until* issues of human justice are satisfactorily addressed. See how the quotation below moves from a moral recommendation—“concern for equity and responsibility *should not be* dismissed . . .”—to a conditional statement—“anthropogenic climate change . . . *cannot be genuinely addressed unless* . . .”—and finally to a statement that posits a relation of identity between global justice and climate change:

Concern for equity and responsibility should not be dismissed as secondary to the primary goal of avoiding catastrophic climate change,

for . . . anthropogenic climate change is also a problem of justice and so cannot be genuinely remedied unless the international response aims to promote justice [including the poor nations' "right to develop"]. . . . Global justice and climate change [are] . . . manifestations of the same set of problems.⁵

LOVELOCK, GAIA, AND ZOE

If I had to illustrate in this context a point of view completely opposed to the homocentric view espoused by Vanderheiden, that is, a zoocentric point of view, I would cite a statement from James Lovelock's book, *The Vanishing Face of Gaia*. In a chapter titled "The Climate Forecast," Lovelock argues for the need to "consider the health of the Earth [as a living planet] without the constraint that the welfare of humankind comes first." "This way," he explains, "I see the health of the Earth as primary, for we are utterly dependent upon a healthy planet for survival."⁶ We know what Lovelock means by a "healthy" planet: it is one where Gaia remains in charge, that is, life acts as a self-regulatory system and plays a role in maintaining planetary conditions conducive to the continuation of life. In the language of his "Gaia hypothesis": "the Earth's atmospheric composition is kept at a dynamically steady state by the presence of life; moreover if organisms could affect atmospheric composition then maybe they could regulate the climate of the Earth to keep it favorable for life."⁷ Now, Lovelock's Gaia theory has faced many criticisms including some very well-known ones from Richard Dawkins.⁸ That "life"—thought of "as a planetary scale phenomenon"—is almost an indefinable, metaphysical category is acknowledged by many, including Lovelock himself.⁹ Toby Tyrell, a professor of earth systems science at the University of Southampton has recently published a book aiming to be a serious refutation of the Gaia theory while acknowledging that many of Lovelock's insights—though not maybe his whole theory—are accepted today as part of normal science.¹⁰

It is not necessary for our purposes either to rehearse here the details of the scientific debate around Gaia or to take sides in this debate.¹¹ Suffice it to note that Lovelock's comparative work on the issue of the presence of life on Mars and Earth gave rise to a fascinating question: Why has this planet been so consistently and continuously hospitable to life for billions of years and to multicellular life for hundreds of millions of years? How has oxygen been maintained at a constant level (21 percent) of the atmosphere for a very, very long time? Any more oxygen, and life would go up in flames; any less, a lot of life would die of suffocation.¹²

This is what led the geologists Jan Zalasiewicz and Mark Williams to call earth “the Goldilocks planet.” Mars has weather, “including spectacular planet-wide dust-storms.” “It might even harbour a few simple microbes. But it will never be a green and pleasant land.” Venus, starting its life with “probably about as much water as the Earth possesses,” suffered runaway planetary warming.

The Earth is the Goldilocks planet. . . . The Earth has been, so far and all in all, *just* right for life, not just right at any one time, but continuously so for three billion years. There have, of course, been some close calls, times of mass extinction. But, life has always clung on to bloom once more. That makes the Earth’s history more remarkable than any children’s story.¹³

Not everyone has been convinced that it is a good question to ask why the Earth has been so continuously friendly to life over such a long period of time. The question, some scientists point out, seems natural to us humans because, as complex creatures with big brains, we can come only at the end of a long line of continuous evolution of life. But life—the passage from the very first instance of life to us—may have been just a matter of enormous luck. “We are here, so it happened, but, given the number of solar systems overall—‘someone throws the dice 10^{22} times’—what else would you expect?”¹⁴ The geophysicist Raymond Pierrehumbert does not think that the success of life on this planet is a gigantic fluke but admits that “the book is far from closed” on the “habitability problem.”¹⁵ Some others, with reason, say that we need to study more earthlike planets with similar shares of oxygen in their atmospheres before we can tell what makes a planet so welcoming of life as to evolve complex, intelligent species that can formulate and contemplate this problem—but nothing can be said on the basis of a sample of one!¹⁶ Toby Tyrrell, who is critical of the idea that Gaia behaves like a homeostatic superorganism protecting life under all circumstances, settles for a position he shares with Andrew Watson (once Lovelock’s collaborator in creating the famous Daisy worlds model): the fact that the planet has never snuffed out life completely since the life began is ascribed to a combination of “both luck and environment stabilizing mechanisms, albeit mechanisms that do not work all that well.”¹⁷

The climate crisis thus raises very significant questions about the conditions for life on the planet and invites us to see humans in the context

of those questions. These questions stem from what I have called the zoe-centric view of the world. We cannot get to this point of view through the homocentric per capita emissions figures of the climate justice literature. The relevant figures here are not those for per capita emissions but the story of the expansion of the human species on the planet up to a point where we became indisputably the most dominant species putting pressures on many other life-forms. The Dutch scholar Rob Hengeveld's work explains the problem here nicely. For most of their existence, humans fitted into a pattern of life where one life-form's wastes were resources for another life-form, and life subsisted on this natural process of recycling of wastes. Now, thanks to our numbers and the sale of our production and consumption, we produce a lot of waste that cannot be decomposed or recycled. Plastics that are involved in many, many departments of our lives are one such example. And the so-called excess CO₂ is another one. At the same time, our dependence on plentiful and cheap energy—presently supplied by fossil fuels—has become unavoidable, as managing a population of the size of ten to twelve billion (predicted for the end of this century) or even the present seven billion people calls for the creation of complex organizations that produce an ever-increasing demand for energy.¹⁸

The relatively recent growth of the human population is connected to the story of fossil fuel, whether we look back on human history or anticipate our futures. After all, it was fossil fuel energy, “and only fossil fuel energy, [that] made it possible to break with the old agrarian pattern and construct the industrial world,” writes the “peak oil theorist” John Michael Greer.¹⁹ The benefits (for humans) of plentiful and cheap energy derived from fossil fuel have been innumerable: food improved, both in quality and quantity, improvement in housing and clothing, more hygienic and healthier conditions in many places, public safety (better policing), and better illumination.²⁰ The exponential growth of both human population and our average life span in the twentieth century—and here, of course, the poor are included in both figures—have generally had much to do with fossil fuels through the use of artificial fertilizers, pesticides, pumps for irrigation, and the use of petrochemicals in the manufacture of common pharmaceutical products such as antibiotic medicines.²¹

Emerging powers like India and China justify their continued use of coal (the most offending fossil fuel) and increasing emissions by referring to the need to raise billions of Chinese and Indians out of poverty. China is already the biggest emitter in the world and surpasses European Union

figures for emission in per capita terms.²² This is not simply a story about carbon emissions. It is also about the pressure humans as a species exert on the lives of other species, and thus ultimately on our own conditions of life. The issue is not unconnected to the climate crisis for, as many scholars have pointed out, the warming of the atmosphere and the seas not only raises sea levels threatening coastal settlements, cities, and islands, it also changes marine biodiversity by making the seas more acidic.²³ That increasing numbers of humans threaten the biodiversity of the world is now a commonplace of ecological writings.²⁴ And, as Vaclav Smil has pointed out, humans and the animals they eat and keep now consume around 95 percent of what the biosphere produces, leaving only 5 percent for genuinely wild animals.²⁵ The poor are a part of this species life of humans, even while it is true that they do not bear much responsibility for the emission of greenhouse gases.

The more people we have on this planet, even if the majority of them are poor, the more complex our societies become (for the administrative apparatus needed to manage populations enlarges and ramifies), and the greater the amount of “free” energy needed to maintain these societies.²⁶ If by the end of this century we have ten to twelve billion humans as predicted, we will need even more than we have today of cheap and plentiful energy to sustain such a population, not less. The Duke University geologist, Peter K. Haff, recently argued that maintaining a human population so large entails technology becoming enmeshed with biology. He has put forward a suggestive concept of “the technosphere” in “defining the world [humans] now inhabit.” Modern civilization and its “present 7×10^9 human constituents,” he argues, could not survive without “the proliferation of technology across the globe . . . the set of large-scale networked technologies that underlie and make possible rapid extraction from the Earth of large quantities of free energy and subsequent power generation, long-distance communication . . . including regional, continental and global distribution of food and other goods.” This networked technology supplying the condition of possibility for the existence of so many human lives is what he calls “the technosphere”—humans, he argues, are merely the sentient aspect of this complex whole. The human population “at anything like its current size,” writes Haff, “is deeply dependent on the existence of the technosphere.” “Without the support structure and the services provided by technology,” there would be a major collapse of the human population.²⁷ Technology, he argues, thus represents “the opening phase of a new paradigm of Earth history.” Having become the

precondition for the existence of a very large human population and for the animals humans consume, technology may thus be considered “the next biology.”²⁸ It is as if the legacy of Gaia thinking, as Latour puts it with his characteristic witticism, is “to have forced every one of us to render explicit the [growingly technical] breathing conditions we require: out of the suffocating archaic past, running toward an otherwise suffocating future!”²⁹ Haff’s thesis about the technosphere as he defines it also complicates the question of agency and the distribution of causal and moral responsibility in the process of emission of greenhouse gases. If animals whose lives humans have industrialized produce a significant share of methane in the atmosphere, if industrialized lives of humans add another significant amount of the same family of greenhouse gases, and if such lives are sustainable only on the basis of access to cheap and plentiful energy, then even the talk that blames the human species for causing the climate problem gets the question of agency wrong. Clearly, “anthropogenic” climate change results from the industrialization of both human and (certain) animal lives to a point where together they form a causal complex—an ensemble of technology and human and nonhuman lives—while only humans can be assigned some “moral” responsibility (for causal responsibility remains distributed).

It is at this point that some familiar themes regarding the finitude of the Earth suggest themselves. For if human population rose to ten or twelve billion by the end of this century and people exercised, fairly, their right to more energy and development, where would the additional, cheap, and plentiful energy come from? If it all came from renewables, it would mean humans hogging much of the finite amount of energy the Earth receives from the Sun every day; would humans then be depriving other Earth processes and life-forms of the latter’s share of the energy this planet receives? Haff imagines humans one day using geoengineering to capture “the energy of photons in space that would have missed the Earth and then transmit the energy down to the Earth’s surface (in the form of microwaves).”³⁰ Latour cites some relevant figures supplied by geologists: human civilization is “already powered by around 12 terawatts (10^{12} watts).” If the world were to be developed to the point of U.S. levels of consumption, the energy count would grow to 100 terawatts, a figure Latour rightly describes as “stunning . . . if one considers that plate tectonic forces are said to develop no more than 40 terawatts of energy.”³¹ Besides, adds Latour, we would need five more earth-size planets (to find the necessary global hectares)!³² Setting his sights somewhat lower, Vaclav Smil, the

renowned environmental scientist, writes in the very last sentence of his remarkable book, *Harvesting the Biosphere: What We Have Taken from Nature*: “If the billions of poor people in low-income countries were to claim even half the current per capita harvest prevailing in affluent economies, too little of the Earth’s primary production would be left in its more or less natural state, and very little would remain for the mammalian species other than ours.”³³

There is a case for climate justice between the rich and the poor of the world, no doubt. Yet justice arguments are not very good at thinking limits. Arguments for climate justice base themselves on per capita emissions on the democratic, humane but homocentric assumption that every human being has equal rights to the world’s carbon sinks that the developed nations have hogged for themselves so far. The popularity of this position with governments like India’s was reflected, for instance, in what the Indian environment minister, Prakash Javdekar, said in an interview with the *New York Times* in September 2014, placing the “responsibility for what scientists call a coming climate crisis on the United States, the world’s largest historic greenhouse gas polluter,” and dismissing “the idea that India would make any cuts to carbon emissions”:

“What cuts? . . . That’s for more developed countries. The moral principle of historical responsibility cannot be washed away.” . . . It would be at least 30 years, he said, before India would likely see a downturn. “India’s first task is eradication of poverty,” Mr. Javdekar said . . . “Twenty percent of our population doesn’t have access to electricity, and that’s our top priority. We will grow faster, and our emissions will rise.”

“In the coming decades, as India works to provide access to electricity to more than 300 million people,” adds the *Times* reporter, “its emissions are projected to double, surpassing those of the United States and China.”³⁴

Zoocentric views, on the other hand, do not place the emphasis so much on per capita emissions as on humanity as a species, a dominant one that has industrialized its own life-forms and those of many other species with an eye to its own flourishing alone. The size of the human population therefore matters. There are climate-justice thinkers who try to reconcile the two and create a “contraction and convergence scenario,” whereby humans attain a state where all nations are equally developed, the richer nations of today having learned to reduce their levels of

consumption, and where all humans try to control for their overall numbers and resource consumption.³⁵ But here, again, some global calendars emerge that are severely mismatched. The calendar for attaining distributive justice between humans with regard to atmospheric space is, basically, an indefinite and open calendar. We do not know when and how, using the inevitable hybrid mixture of normative and politically pragmatic and realist arguments that make up the stuff of everyday politics, the world will become more just. But the IPCC presents us with a very definite and finite calendar for global action if “dangerous climate change,” that is, an average rise of more than two degrees Celsius, were to be averted. As Toby Tyrrell puts it:

We are currently driving the Earth outside the envelope of its recent history. During the last 800,000 years . . . atmospheric CO₂ has never made up more than 0.03% (300 parts per million) of the atmosphere. In contrast, . . . we have already caused it to rise to nearly 400 parts per million, and the rate of increase is still accelerating. The speed at which we are adding carbon dioxide to the atmosphere is probably unprecedented during the last 50 million years or more.³⁶

The chances of limiting the temperature rise to 1.5 degrees and 2 degrees Celsius at the present rate of emissions decline to 66 percent in 6 and 21 years, and to 50 percent in 10 and 28.4 years, respectively.³⁷ Even this calendar may be too optimistic. “The planet has warmed by 0.8°C above the pre-industrial average already,” remarks Clive Hamilton, cautioning that the “inertia in the system means that 2.4°C is already locked in, with heating reaching 4°C perhaps in [the] 2070s.” A rise of four degrees, in Hamilton’s words, is “uncharted territory.”³⁸ The justice calendar and the calendar for global action spelled out by the IPCC probably will not harmonize. Our search for climate justice and its attendant politics may very well mean that we have to travel the *via dolorosa* of dangerous climate change; perhaps our struggles for climate justice will have to be conducted in a world that is even more climate-stressed and far more unjust than the one we have at present.

CLIMATE CHANGE AND EPOCHAL CONSCIOUSNESS

Climate change as epochal consciousness, then, is constituted around a split between the *homo*, humanity as a divided political subject, and the *anthropos*, collective and unintended forms of existence of the human, as

a geological force, as a species, as a part of the history of life on this planet. The idea of *anthropos* decenters the human by subordinating human history to the geological and evolutionary histories of the planet. Epochal consciousness, Jaspers said, “[is] granted to man without giving him the rest of a conclusion.” To inhabit such consciousness “takes stamina,” he wrote, for “it calls for endurance in the tensions of insolubility.”³⁹ To say this, as I have remarked before, is not to foreclose on the space for short-term politics and conflicts over issues of justice between humans. Nor, for this reason, do we have to rush to Malthusian solutions by calculating the carrying capacity of the planet, or indulge in genocidal-sounding conjectures of exactly how many people the planet can actually support at our current standard of living. But an epochal consciousness acknowledges the moods that drive such thinking and recognizes them as belonging to a spectrum of moods the climate crisis engenders.

Jaspers did not think of epochal consciousness instrumentally, as a pragmatic solution to planetary problems. “This kind of thinking,” he wrote, “is not a means to the self-preservation of mankind. It would be futile to incorporate it in a plan, which would always spoil it.” But he felt optimistic about the use-value of such consciousness or thinking. “Its existence,” he added, “may result in a life that would, by virtue of freedom and against the menace of the atom bomb, save mankind’s existence as well.” What gave Jaspers this confidence was his idea of reason. His idea of reason was not naive. He did not forget “human ferocity, rapaciousness, love of adventure, the lust of feeling superior to life in flinging it away, etc.” He was not unaware of the “blind selfishness” that drives a lot of economic calculations and that “alienates man from himself.” Nor was reason a matter of technological innovation “which produces instruments of production and of destruction simultaneously, to the point where both unlimited production and total destruction are possible.”⁴⁰

Jaspers addressed his thoughts to fellow humans whom he saw as capable of standing on the common ground of reason, something he defined as the “true essence” of man. In all of human history, he wrote, “only one thing is immobile and adamant: the premise of a will to reason, to boundless communication, and to the love that potentially links all men.” Further on, he writes: “If we distrust reason, if we doubt the human susceptibility to reason, we have no faith in man.” But he also saw epochal consciousness as inevitably imbricated in efforts at creating “the common”: “To refuse to give up this chance [of communication between fellow human beings] shows [a lack of] faith in man as man,” and cited Nietzsche: “Truth begins

when there are two.” Jaspers makes it very clear that he is addressing his fellow human as a thinker, and not the departmental figure of the professional philosopher: “Reason belongs to man as such. It can grow in anyone who thinks honestly, patiently, and unselfishly.” And reason has the potential to create a human brotherhood that could stand above and beyond the narrow feelings of group solidarity that divide humans. Science only links humans “purely intellectually” while “reason also belongs to all men, but it belongs to their whole being and is not merely a special field of comprehension. It links men who may differ completely in other respects, in their ways of life, their feelings, their desires; it links them more strongly than they are divided by all their diversities.”⁴¹

In the tradition of thinking to which we are all heirs, Jaspers has not been alone in finding in reason and in humans’ capacity for taking a planetary/global perspective a real potential for humanity consciously taking on the role of an intelligent species with a capacity to manage the planet for the benefit of all, including nonhumans. In the twentieth century, anti-imperial thinkers as diverse as Rabindranath Tagore and Frantz Fanon had similar thoughts. The tradition, however, is older. In a recent essay, Deborah Coen has drawn our attention to the thinking of Eduard Suess, the nineteenth-century Viennese liberal politician who was also a pioneering scholar of geology and who coined the term *biosphere*; he was optimistic that geology was a subject that could help combat narrow tribal affiliations of humans. As Coen remarks, Suess saw a “planetary perspective” leading to “a politics that would not privilege mankind over other living things.”⁴² He wrote:

Prejudices and egoism, above all the pettiness of the things with which we are accustomed to dealing . . . have placed barriers around each of us which constrict our view. If they are removed, if we resolve to leave behind the narrow conceptions of space and time which bourgeois life offers us, and no longer to view the world from the base, self-centered perspective, which sees advantages here, disadvantages there for us or our species, but rather to admit the facts in their naked truth, then the cosmos reveals to us an image of unspeakable grandeur.⁴³

Within my own field, history, this assumption that thinking on large scales leads to a sense of human solidarity or “global citizenship” has found a resurgent expression in a branch of historical scholarship that calls itself Big (or sometime Deep) History. In the hands of a pioneer

of this movement, David Christian—as in the writings of other Big Historians—the history of the human species merges seamlessly with the history of “humanity.” Christian writes:

In this expanded form, history will . . . allow individuals and communities throughout the world to see themselves as part of the evolving story of an entire universe, just as they once mapped themselves on to the cosmologies of different religious traditions. . . . Understanding of this shared history will help educators generate a sense of global citizenship, just as nationalist historiography once created a sense of solidarity within different nation-states.⁴⁴

In support of his proposition, Christian directly cites the world-history pioneer William McNeill’s 1986 presidential address to the American Historical Association as a source of his inspiration. McNeil had written:

Instead of enhancing conflicts, as parochial historiography inevitably does, an intelligible world history might be expected to diminish the lethality of group encounters by cultivating a sense of individual identification with the triumphs and tribulations of humanity as a whole. This, indeed, strikes me as the moral duty of the historical profession in our time. We need to develop an ecumenical history, with plenty of room for human diversity in all its complexity.⁴⁵

Cynthia Stokes Brown’s version of human history ends up “trusting to the demonstrated capacity for innovation that humans have shown in their history” the hope “that . . . sustainable techniques will emerge.”⁴⁶ J. L. Brooke, at the end of his masterful survey of the role of climate in human evolution and history, acknowledges that “the emergence of the modern economy has made humanity an agent in abrupt climate change and, more broadly, in abrupt planetary change.” He writes:

In a flash of either geological or human evolutionary time, human populations have doubled and redoubled to more than 7 billion, twenty-four times the number inhabiting the earth 1,000 years ago; six times the number two centuries ago. In just the past sixty years, human populations have more than doubled, . . . and our role in building greenhouse gases has tripled, and we have begun to disrupt the natural systems and services that have sustained us for millions of years.

His hope, however, is vested in “our collective capacity,” our “wits,” and in our ability to develop a political will that he hopes “will suffice to ensure the sustainability of future generations.” His final words: “We hold it in our collective capacity to address the earth system crisis that is now upon us. That capacity must be mobilized by an informed political will.”⁴⁷

The idea that humanity, a subject that can project itself into the world, is capable of exercising sovereignty over what humans do as a dominant species or as a geophysical force, also turns up in many other areas of the literature on the climate crisis. There are those who acknowledge the anthropogenic nature of global warming and yet find the ultimate solution in some understanding of the specialness of humans, in their ability to be not just “humanity” but a rational “species” as well. Mark Lynas, the climate change journalist, literally exhorts humans to become the “god species” in his book by that name, by cheerfully adopting geoengineering as a way to solve or manage the problem of climate change. “Can humanity manage the planet—and itself—towards [the] transition to sustainability?” he asks. His answer: “grounds for optimism are at least as strong as the grounds for pessimism, and only optimism can give us motivation and passion we will need to succeed. . . . The truth is that global environmental problems are soluble. Let us go forward and solve them.”⁴⁸ Erle Ellis, a geographer at the University of Maryland, wrote in the *New York Times* of September 13, 2013, that the idea that “humans must live within the natural environmental limits of our planet denies the reality of our entire history, and most likely the future. . . . The only limits to creating a planet that future generations will be proud of are our imaginations and our social systems. In moving towards a better Anthropocene, the environment will be what we make it.” In fact, he calls *this* “the science of the Anthropocene.”⁴⁹

These ideas find an echo in Toby Tyrrell’s book on Gaia, but an echo that reverberates twice, as it were, and thus interferes with itself. “Because our own activities are already having a great impact on the natural world and show no signs of slowing,” Tyrrell thinks that humans will be left with no option but to “embark on some degree of active . . . management” of the Earth. He goes further and adds the reassuring remark that “safely managing a planet is in some ways analogous to safely managing an airplane.” But then he points out the most critical distinction: we designed and built the airplane, while the planet “is a system we do not fully understand.”⁵⁰ To apply to his own argument the criticism he makes of

Lovelock: the fact that the Earth has a history does not mean that it was designed (while the airplane was!). As he additionally points out, we often discover disasters after the fact. The ozone hole crisis was “accidental and unintentional” and “it is only thanks to a minor quirk of fate that this wasn’t very much worse.”⁵¹ Managing the planet may not at all be similar to managing an airplane! Who would want to get on an airplane whose design we did not fully understand?

It indeed seems fallacious to think that homo (in our scheme) could take the place of anthropos—or humanity that of the human species—though many see this as possible. Consider a recent statement of Amartya Sen on the climate crisis and on human responsibility to other species. Sen argues for the need for a normative framework in the debate on climate change, one that he thinks—and I agree—should recognize the growing need for energy consumption by humans if the masses of Africa, Asia, and Latin America are going to enjoy the fruits of human civilization and to acquire the capabilities needed for making truly democratic choices. Sen also recognizes that human flourishing can come at the cost of other species and therefore advocates a form of human responsibility toward nonhumans. Here is how his argument goes:

Consider our responsibilities toward the species that are threatened with destruction. We may attach importance to the preservation of these species not merely because the presence of these species in the world may sometimes enhance our own living standards. . . . This is where Gautama Buddha’s argument, presented in *Sutta Nipata*, becomes directly and immediately relevant. He argued that the mother has responsibility toward her child not merely because she had generated her, but also because she can do many things for the child that the child cannot itself do. . . . In the environmental context it can be argued that since we are enormously more powerful than other species, . . . [this can be a ground for our] taking fiduciary responsibility for other creatures on whose lives we can have a powerful influence.⁵²

Think of the problems that follow from this purely homocentric placing of humans in loco parentis with regard to “creatures on whose lives we can have a powerful influence.” We never know of all the species on which our actions have a powerful influence; often we find out only with hindsight. Peter Sale, the Canadian ecologist, writes about “all those species that may be able to provide goods [for humans] but have yet to be

discovered and exploited, and those that provide services of which we simply are unaware.”⁵³ Moreover, human flourishing directly puts us at war with many bacteria and viruses, not to speak of the animals we have already—or almost—squeezed out of existence. Could we ever be in a position to value the existence of viruses and bacteria hostile to us, except insofar as they influence, negatively, our lives? How could the work of humans either anticipate or replace the work we do also as a species, where our history happens, as in the case of all species, through natural selection processes that are random and blind?

FALLING INTO DEEP HISTORY

We can now turn to the problem that distinguishes our situation from the threat of a nuclear winter that Jaspers faced in conceiving his idea of epochal consciousness. A novel and singular phenomenon shapes our age, *planetary* climate change, something that humans never had to face in recorded or remembered history. They faced regional climate changes and other environmental problems to be sure, but something is profoundly different about our times. The time of human history—the pace at which we tell stories of individuals and institutions—has now collided with the timescales of two other histories, both deep time, the time of evolution of life on the planet, and geological time. The latter are histories whose paces we used to take for granted in telling the human story, in particular the story of human motives, aspirations, and the psychosocial dramas and institutions that make up our social lives. These narratives were all built on the assumption that geological and evolutionary developments were like a backdrop on the stage on which our very human dramas unfolded for our own enjoyment. These earth-scale phenomena—earthquakes, for instance—sometimes erupted into our narratives, no doubt, but they provided, for the most part, a background to our actions. In our own lifetime, however, we have become aware that the background is no longer just a background. We are part of it, both in contributing to the loss of biodiversity that may become the Sixth Great Extinction Event, and at the same time as a geophysical force, changing the climate and the geology for the planet for millennia to come. It appears that we are ringing out the Holocene and ushering in a new geological epoch whose proposed name is the Anthropocene, for it signifies the extent and the duration for which our species has modified the physical nature of the Earth.⁵⁴

This temporary (in terms of earth history) collapsing of the human and geological chronologies has not gone unnoticed by scientists. A

recent publication by the geologist Jan Zalasiewicz and his collaborators, who have been working to substantiate and formalize the name of the epoch of the Anthropocene, cite a series of worldwide and synchronic stratigraphic signals enabling them to suggest with confidence that “the Anthropocene . . . be defined to begin historically at the moment of the detonation of the Trinity A-bomb at Alamogordo, New Mexico, . . . [on] July 16, 1945.” They write: “With the onset of the Industrial Revolution, humankind became a . . . pronounced geological factor, but . . . it was from the mid-20th century that worldwide impact of the accelerating Industrial Revolution became both global and near-synchronous.” The date thus combines both an important event in human history—the test explosion—and “the source of a chemostratigraphic [global] signal.”⁵⁵ If the Anthropocene is ever formalized by the International Union of Geologists, it will mean that long after fossil fuel-based civilizations are gone, the Earth will still bear in its rocks the signs of “our” having been here.⁵⁶

But who is that “we?” We are simultaneously a divided homocentric humanity, and a dominant species and thus a part of the history of life on this planet; and we are also the sentient-moral aspect of Peter Haff’s “technosphere,” and a geological agent, to boot. With this collapsing of multiple chronologies—of species history and geological times into our very own lifetimes, within living memory—the human condition has changed. This changed condition does not mean that the related but different stories of humans as a divided humanity, as a species, and as a geological agent have all fused into one big story, and a single story of the planet and of the history of life on it can now serve in the place of humanist history. As humans we have no way of experiencing—as distinct from cognitively knowing or deducing (from the effects of our human desires and actions)—these other modes of being that are also open to us today. Humans, humans as a species, and humans as the makers of the Anthropocene are three distinct categories; we construct their archives differently, and employ different kinds of training, research skills, tools, and analytical strategies to construct them as historical agents, and they are agents of very different kinds.⁵⁷ It is obvious that humans cannot live denying their evolved characteristics—the designing of all human artifacts, for instance, will always be based on the assumption that humans have binocular vision and opposable thumbs—but having big and complex brains may very well mean, contrary to the argument that proponents of Big and Deep History have put forward, that our big and deep histories can exist alongside our small and shallow pasts, that our

internal sense of time—that phenomenologists study, for instance—will not always align itself with evolutionary or geological chronologies.⁵⁸

But the relatively recent collapsing of these differently scaled chronologies now stares us in the face creating an affect that I liken to the affect of falling: we have fallen into “deep” history, into deep, geological time. This falling into “deep” history carries a certain shock of recognition—recognition of the otherness of the planet and its very large-scale spatial and temporal processes of which we have, unintentionally, become a part.⁵⁹ What do I mean by falling into deep history? It is somewhat like pasts flashing up at a moment of emergency, as Walter Benjamin once famously put it. Being from the Indian subcontinent where diabetes has acquired epidemic proportions, I sometimes explain this experience by drawing an analogy with how an Indian person’s sense of his or her own pasts suddenly undergoes a rapid expansion when he or she is diagnosed as diabetic. You go to the doctor with (potentially) a historian’s view of your own pasts: a biography that you could place in certain social and historical contexts. The diagnosis, however, opens up completely new, impersonal, and long-term pasts that could not be anybody’s own in the possessive-individualist sense of which the political theorist C. B. Macpherson once wrote brilliantly. Subcontinental people will most likely be told that they have a genetic propensity toward diabetes because they have been rice eaters (for at least a few thousand years); if they were academic and from a Brahmin or upper caste family in addition, then they had practiced a sedentary lifestyle for at least a few hundred years; and it would perhaps also be explained to them that human muscles’ capacity for retaining and releasing sugar was still related to the fact of humans having been hunters and gatherers for the overwhelming majority of their history—suddenly, evolution!⁶⁰ You do not have experiential access to any of these longer histories but you fall into a sudden awareness of them!

Such falling into deep or big history is what the tension in epochal consciousness between the homocentric and the zoocentric views of the world is all about. One can inhabit the tension but not resolve it (for, as categories constructed here, *anthropos* is not *homo*). I accepted Jaspers’s category of epochal consciousness as something that, with revisions, may be of use to us as we struggle to compose the “common” of the Kyoto formula of “common but differentiated responsibilities.” I also found it helpful to work with Jaspers’s idea that such consciousness denoted a thought space that came before and above/beyond politics, without however foreshortening the space for political disputation and differences.

But Jaspers grounded this consciousness in “reason” that he saw as the essence of the human being. I argued that, given our falling into the times of evolutionary and geological histories, reason could not be a satisfactory resolution of the tension between the homocentric and zoocentric views of the place of human.

How do we think of this tension then? A certain slippage in Jaspers’s prose suggests a way forward. Jaspers writes: “Reason is more than the sum of acts of clear thinking. These acts, rather, spring from a life-carrying basic mood, and it is this mood we call reason.”⁶¹ The word for “basic mood” in the original German text is *Grundstimmung*, a profoundly Heideggerian word pointing to the problem of attunement.⁶² Moods, an ontological and not psychological category, disclose the world, claimed Heidegger, in more primordial ways than does cognition: “the possibilities of disclosure which belong to cognition reach far too short a way compared with the primordial disclosure belonging to moods, in which Dasein is brought before its Being as ‘there.’”⁶³ And then again: “From the existential-ontological point of view, there is not the slightest justification for minimizing what is ‘evident’ in states-of-mind, by measuring it against the apodictic certainty of a theoretical cognition of something which is purely present-at-hand.”⁶⁴

Heidegger thus points out two aspects of “mood” that are relevant to our discussion here. Moods disclose the world more primordially or in a more profoundly phenomenological sense than does cognition. Cognition is present-at-hand, general conceptions mediated by abstract categories. It is also placeless. Climate change, as defined by climate scientists, is such a present-at-hand description of the world. It is placeless in being, literally, planetary. Moods, on the other hand, are about place: they are what brings Dasein before its Being “as there.” What is translated in John Macquarrie and Edward Robinson’s edition of *Being and Time* as “state-of-mind” is actually the German word *Befindlichkeit* (“the state in which one may be found”) that, as the translators point out, has no etymological connection with the English word “mind,” “which fails to bring out the important connotation of finding oneself.”⁶⁵

So the question that arises is: If we take into account the basic moods that underlie human responses to scientists’ present-at-hand propositions about planetary climate change, moods that range from fear, denial, skepticism, pragmatism, to optimism (even of the undue kind), what is the nature of the world, not the abstract concept of the Earth, but the lived world, the place that is disclosed, where epochal consciousness finds

itself? Here I would suggest, as I have already suggested elsewhere, our falling into deep or big history is also about a Heideggerian “thrownness,” the shock of the recognition that the world-earth is not there simply as *our* place of dwelling, as the astronauts thought looking at the floating sphere from space. This thrownness is about the recognition of the otherness of the planet itself: an awakening to the awareness that we are not always in practical and/or aesthetic relationship with this place where we find ourselves. Its very long-term and dynamic pasts that we could, in the history of “civilization,” mostly take for granted in going about our daily business, are now something that our smaller histories of conflicting attachments, desires, and aspirations have run up against, suddenly leaving us not only with an identifiable range of moods but also with our own sense of having been decentered from the narratives that we ourselves tell of this place. The expression “anthropogenic climate change” sounds as if it is all about humans—only until we realize that what we call “global warming” is merely a very particular case of the more generic category “planetary warming” that, in its most general theory, has nothing to do with humans at all, for it has happened on this planet long before there were humans, just as it happens even on planets that have no life. The fact that this planet has life and processes that support life—the story of *zoe*—only forces on us the recognition that however we strategize, the planet remains a coactor in the processes that will delay or hasten climatic shifts.

Given this phenomenological aspect to epochal consciousness, our affective responses to climate change—from denial to moods of heroism—all seem understandable and will no doubt continue to influence the politics of global warming. Motivating globally coordinated human action on global warming necessarily entails the difficult, if not impossible, task of making available to human experience a cascade of events that unfold on multiple scales, many of them inhuman. This act of persuading humans to act brings us up against the politics of climate change. Politics means having to deal with divisions among humans. It is precisely because we humans are not politically one that histories of intrahuman (in)justice and welfare will remain relevant and necessary to the efforts we make to cope with climate change. But at the same time the crisis of climate change, by throwing us into the inhuman timelines of life and geology, also takes us away from the homocentrism that divides us. As I said before, epochal consciousness is not about thinking politically. It is about thinking around politics while taking care that the space for politics is

not foreclosed by that move. Our political histories will continue to divide us as we muddle our way through this crisis. But we may have to think of these divisive political histories not simply in the context of the history of capitalism but on the much larger canvas of geological and evolutionary histories.

We can follow Lovelock and ask: Will humans, even in and through all their conflicts and differences, recognize “the needs of the Earth even if [their] response time is slow?”⁶⁶ That remains the critical question for the future. How we answer it will also shape our understanding of the word *common* in the expression “common but differentiated responsibilities.”

NOTES

1. Steve Vanderheiden, *Atmospheric Justice: A Political Theory of Climate Change* (Oxford: Oxford University Press, 2008), 6. See also the discussion on p. 79.
2. *Ibid.*, 7.
3. *Ibid.*, 264n8.
4. *Ibid.*, 79, 104.
5. *Ibid.*, 251–52.
6. James Lovelock, *The Vanishing Face of Gaia: A Final Warning* (New York: Basic Books, 2009), 35–36.
7. *Ibid.*, 163.
8. Lovelock deals with some of these criticisms in his *The Ages of Gaia: A Biography of Our Living Earth* (New York: Norton, 1995 [1988]), 30–31.
9. “We all know intuitively what life is. It is edible, lovable, or lethal. Life as an object of scientific inquiry requiring precise definition is much more difficult. . . . All branches of formal biological science seem to avoid the question.” *Ibid.*, 16–17; see also 39, 60, 200–201.
10. Toby Tyrrell, *On Gaia: A Critical Investigation of the Relationship between Life and Earth* (Princeton, NJ: Princeton University Press, 2013). For an (a)stringent critique of Tyrrell, see Bruno Latour, “How to Make Sure Gaia Is Not a God of Totality? With Special Attention to Toby Tyrrell’s Book on Gaia” (unpublished ms., presented at the colloquium “The Thousand Names of Gaia,” Rio de Janeiro, September 2014). Michael Ruse, in his book *The Gaia Hypothesis: Science on a Pagan Planet* (Chicago: University of Chicago Press, 2013), helpfully points out how much of the scientific debate on Gaia still turns around the divide of reductionist/holistic approaches. Latour also comments on this point.
11. For some recent views of scientists, see Timothy Lenton, “Testing Gaia: The Effect of Life on Earth’s Habitability and Regulation,” *Climatic Change* 52 (2002): 409–22; James E. Lovelock, “Gaia and Emergence: A Response to Kirchner and Volk,” *Climatic Change* 57 (2003): 1–3; Tyler Volk, “Seeing Deeper into Gaia Theory: A Reply to Lovelock’s Response,” *ibid.*, 5–7; James W. Kirchner, “The Gaia Hypothesis: Conjectures and Refutations,” *Climatic Change* 58 (2003): 21–45; Tyler Volk, “Natural Selection, Gaia, and Inadvertent

- By-Products,” *ibid.*, 13–19; and Ruse, *Gaia Hypothesis*. For a history of these debates—apart from Lovelock’s own books—see Ruse, *Gaia Hypothesis*, and John Gribbin and Mary Gribbin, *James Lovelock: In Search of Gaia* (Princeton, NJ: Princeton University Press, 2009), chs. 7–10.
12. Lovelock, *Ages of Gaia*, 28–29; see also the chapter, “The Contemporary Atmosphere,” in James Lovelock, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University Press, 1995; first published in 1979), ch. 5.
 13. Jan Zalasiewicz and Mark Williams, *The Goldilocks Planet: The Four Billion Year Story of Earth’s Climate* (Oxford: Oxford University Press, 2012), 1–2.
 14. Ruse, *Gaia Hypothesis*, 219. The number 10^{22} was an estimate of the number of solar systems based on the then-prevailing assumption that all of the universe was visible.
 15. Raymond T. Pierrehumbert, *Principles of Planetary Climate* (Cambridge: Cambridge University Press, 2010), 14.
 16. Tyrrell, *On Gaia*, p. 176.
 17. *Ibid.*, 188–89.
 18. See figures for global population and energy use, 1750–2010, given in Will Steffen et al., “The Trajectory of the Anthropocene,” *Anthropocene Review* (2015): 1–18. See also Rob Hengeveld, *Wasted World: How Our Consumption Challenges the Planet* (Chicago: University of Chicago Press, 2012), part 2, ch. 1, section D.
 19. John Michael Greer, “Progress vs. Apocalypse,” in *The Energy Reader*, edited by Tom Butler, Daniel Lerch, and George Wuerthner, 96–99 (Sausalito, CA: Foundation for Deep Ecology, 2012), 97. Early modern historians might justifiably debate the relationship between the transition from traditional to modern agriculture and onset of the Industrial Revolution. In broad terms, however, the deep dependency of both industrialization and modern agriculture on fossil fuels is clear. I have benefited from discussion with Gerard Siarny on this topic.
 20. Hengeveld, *Wasted World*, 53, 98.
 21. See Vaclav Smil, *Harvesting the Biosphere: What We Have Taken from Nature* (Cambridge, MA: MIT Press, 2013), 221; Butler, Lerch, and Wuerthner, *Energy Reader*, 11–12. See also Hengeveld, *Wasted World*, 31: “almost throughout human history, life expectancy was short—normally up to only some thirty-odd years.” See also 50–51.
 22. Steffen et al., “Trajectory of the Anthropocene.”
 23. Lisa Ann-Gershwin, *Stung! On Jellyfish Blooms and the Future of the Ocean* (Chicago: University of Chicago Press, 2013), ch.10; Naomi Oreskes, “Scaling Up Our Vision,” *Isis* 105, no. 2 (June 2014): 379–91, especially 388; James Hansen, *Storms for My Grandchildren: The Truth about the Coming Climate Catastrophe and Our Last Chance to Save Humanity* (New York: Bloomsbury, 2009), 165–66.
 24. Hengeveld, *Wasted World*, 164–65.
 25. See Smil, cited in Dipesh Chakrabarty, “Climate and Capital: On Conjoined Histories,” *Critical Inquiry* (Fall 2014): 1–23.
 26. Hengeveld, *Wasted World*, 66–70, 129.

27. P. K. Haff, "Technology as a Geological Phenomenon: Implications for Human Well-Being," in *A Stratigraphical Basis for the Anthropocene*, edited by C. N. Waters et al., *Geological Society, London, Special Publications* 395 (2014):, 301–9, here 301–2, <http://dx.doi.org/10.1144/SP395.4>.
28. *Ibid.*, 302.
29. Bruno Latour, "Facing Gaia: Six Lectures on the Political Theology of Nature," Being the Gifford Lectures on Natural Religion, Edinburgh, February 18–28, 2013, Lecture 5, 107.
30. Haff, "Technology," 308.
31. Latour, "Facing Gaia," Lecture 4, 76.
32. *Ibid.*, Lecture 5, 126.
33. Smil, *Harvesting the Biosphere*, 252.
34. "Emissions from India Will Increase, Official Says," report by Coral Davenport, *New York Times*, September 23, 2014. I am grateful to Sheldon Pollock for drawing my attention to this report.
35. See Thomas Athanasiou and Paul Baer, *Dead Heat: Global Justice and Global Warming* (New York: Seven Stories Press, 2002), 75, cited in Vanderheiden, *Atmospheric Justice*, 74.
36. Tyrrell, *On Gaia*, 212–13. The ppm concentration of atmospheric carbon dioxide was 394.28 in December 2012, 396.81 in December 2013, 398.78 in December 2014, and 400.18 during the week of February 1, 2015. These figures are averages prepared by the Mauna Loa Observatory in Hawaii, and obtained from <http://co2now.org/>.
37. Carbon Brief, <http://www.carbonbrief.org/blog/2014/11/six-years-worth-of-current-emissions-would-blow-the-carbon-budget-for-1-point-5-degrees/>.
38. Clive Hamilton, "Utopias in the Anthropocene," paper presented at the plenary session of the American Sociological Association, Denver, August 17, 2012, p. 3. My thanks to Professor Hamilton for sharing this paper. See also Robert J. Nicholls et al., "Sea-level Rise and Its Possible Impact Given a 'Beyond 4°C World' in the Twenty-First Century," *Philosophical Transactions of the Royal Society A* 369 (2011): 161–81; and Richard A. Betts et al., "When Could Global Warming Reach 4°C?" *ibid.*, 67–84. Betts et al. report that their "best estimate is that a temperature rise of 4°C would be reached in the 2070s, and if the carbon-cycle feedbacks are strong, then 4°C could be reached in the early 2060s" (83), while the calculations of Nicholls et al. suggest that the number of people displaced from the coastal regions of south, southeast, and east Asia, if adaptations measures failed, would range, under different scenarios, from 72 to 187 million people (172).
39. Karl Jaspers, *The Atom Bomb and the Future of Man*, translated by E. B. Ashton (Chicago: University of Chicago Press, 1963), 10, 12–13.
40. *Ibid.*, 217–18, 213–14.
41. *Ibid.*, 222, 223, 307, 229.
42. Deborah R. Coen, "What's the Big Idea? The History of Ideas Confronts Climate Change," unpublished ms. (2014), 19. I am grateful to Dr. Coen for sharing a copy of this essay with me.

43. This quotation from Suess is taken from Brigitte Hamman, "Eduard Suess als liberaler Politiker," in *Eduard Suess zum Gedenken*, edited by Günther Hamman, 70–98 (Vienna: Akademie der Wissenschaften, 1983), 93, cited in Coen, "What's the Big Idea?" 18–19.
44. David Christian, "The Return of Universal History," *History and Theory* 49 (December 2010): 6–27, here 7–8.
45. McNeill cited in *ibid.*, 26.
46. Cynthia Stokes Brown, *Big History: From the Big Bang to the Present* (New York: New Press, 2012 [2007]), xvii.
47. John L. Brooke, *Climate Change and the Course of Global History* (New York: Cambridge University Press, 2014), 558, 578–79.
48. Mark Lynas, *The God Species: How the Planet Can Survive the Age of Humans* (London: Fourth Estate, 2011), 243–44.
49. Erle C. Ellis, "Overpopulation Is Not the Problem," *New York Times*, September 13, 2013. Clive Hamilton's book, *Earthmasters: The Dawn of the Age of Climate Engineering* (New Haven, CT: Yale University Press, 2013) powerfully argues that geoengineering could indeed endanger human flourishing. See also Mike Hulme, *Can Science Fix Climate Change?* (London: Polity, 2014).
50. Tyrrell, *On Gaia*, 210–11.
51. *Ibid.*, 213.
52. Amartya Sen, "Energy, Environment, and Freedom: Why We Must Think about More Than Climate Change," *New Republic*, August 25, 2014, 39.
53. Peter F. Sale, *Our Dying Planet: An Ecologist's View of the Crisis We Face* (Berkeley: University of California Press, 2011), 223.
54. Oreskes, "Scaling Up Our Vision," 388. On the question of extinctions and why they pose a problem for human existence, see the discussion in Sale, *Our Dying Planet*, 102, 148–49, 203–21, 233. Also Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Henry Holt, 2014).
55. Jan Zalasiewicz et al., "When Did the Anthropocene Begin? A Mid-Twentieth Century Boundary Level Is Stratigraphically Optimal," *Quaternary International* 30 (2014): 1–8, <http://dx.doi.org/10.1016/j.quaint.2014.11.045>. Thanks to Dr. Zalasiewicz for letting me see a copy of this article before publication.
56. We should acknowledge here the deeply contested nature of this yet-to-be-formalized term, *Anthropocene*, debated not only by social scientists but by geologists themselves. See S. C. Finney, "The 'Anthropocene' as a Ratified Unit in the ICS International Chronostratigraphic Chart: Fundamental Issues That Must Be Addressed by the Task Group" and P. L. Gibbard and M. J. C. Walker, "The Term 'Anthropocene' in the Context of Geological Classification," in *A Stratigraphical Basis for the Anthropocene*, pp. 23–28, 29–37. See also the exchanges between Zalasiewicz et al. and Whitney J. Autin and John M. Holbrook in "Is the Anthropocene an Issue of Stratigraphy or Pop Culture?" *GSA Today*, October 2012.
57. See Dipesh Chakrabarty, "Postcolonial Studies and the Challenge of Climate Change," *New Literary History* 43 (2012): 25–42.

58. Here I register—with respect and admiration—a small but significant conceptual disagreement with some of the propositions that Daniel Lord Smail has put forward in his thought-provoking book, *On Deep History and the Brain* (Berkeley: University of California Press, 2008). The book opens with the statement: “If humanity is the proper subject of history, as Linnaeus might have well have counseled, then it stands to reason that the Paleolithic era, that long stretch of the Stone Age before the turn to agriculture, is part of our history” (2). I agree, and I do not: it depends on how one understands the words *humanity* and *our*. They are open to multiple meanings. Smail similarly remarks (201), with regard to the genes (“of considerable antiquity”) that are “responsible for building the autonomic nervous system,” that “this history is also world history since the equipment is shared by all humans though it is built, manipulated, and tweaked in different ways by different cultures.” But the physical feature of the autonomic nervous system is something humans share with many other animals, so this could not quite be a world history of humans alone. I elaborate on these differences in a forthcoming paper provisionally titled, “From World-History to Big History: Some Friendly Amendments.”
59. See Dipesh Chakrabarty, “Climate and Capital: On Conjoined Histories,” *Critical Inquiry* (Fall 2014): 1–23.
60. The archaeologist Kathleen D. Morrison states that the “codification of several elite cuisines based on irrigated produce, especially rice” can be documented from “the first millennium C.E. in South India.” See her “The Human Face of the Land: Why the Past Matters for India’s Environmental Future,” NMML Occasional Paper, History and Society, New Series no. 27 (New Delhi: Nehru Memorial Museum and Library, 2013), 1–31, here 16.
61. Jaspers, *Atom Bomb*, 218.
62. Karl Jaspers, *Die Atombombe und die Zukunft des Menschen* (Munich: R. Piper & Co Verlag, 1958), 300.
63. Martin Heidegger, *Being and Time*, translated by John Macquarrie and Edward Robinson (Oxford: Basil Blackwell, 1985; first published in 1962), 173.
64. *Ibid.*, 175.
65. *Ibid.*, 172n2.
66. Lovelock, *Ages of Gaia*, 171.