world of mute objects" but, on the contrary, in the sense that it "gives humans a shape," or, as one can say in English, that it is beginning to *morph* humans into a more realistic image. One could complain about the dangers of anthropomorphism only in the era when humans strutting on stage were playing roles quite distinct from their surroundings. The roles of all the previous characters in the play are in the process of being redistributed. In any case, how could we avoid the traps of anthropomorphism, if it is true that we are living from now on in the era of the Anthropocene!

FOURTH LECTURE

The Anthropocene and the destruction of (the image of) the Globe

The Anthropocene: an innovation • *Mente et Malleo* • A debatable term for an uncertain epoch • An ideal opportunity to disaggregate the figures of Man and Nature • Sloterdijk, or the theological origin of the image of the Sphere • Confusion between Science and the Globe • Tyrrell against Lovelock • Feedback loops do not draw a Globe • Finally, a different principle of composition • *Melancholia*, or the end of the Globe

I suppose that not too many of us were waiting impatiently, during the first six months of 2012, for the conclusions of the 34th International Geological Congress that was to take place in Brisbane during the summer. I confess that before then I had not been in the habit of following the work of this eminent academic body – even though their somewhat Nietzschean motto *Mente et Malleo* (By Thought and Hammer) would have suited my own profession very well! If I paid attention in 2012, it was because, like everyone else, I was eager for a clear decision about the epoch in which we are living from the International Commission on Stratigraphy, or, more precisely, the Subcommission on Quaternary Stratigraphy, a working group headed by Dr Jan Zalasiewicz of the University of Leicester.

Defining a historical epoch, and doing so officially, is no small matter! Were they going to declare that the Earth had officially

entered into a new epoch, or not?[1] And, if the answer was yes, what was the precise date of entry? The stakes are enormous: for the first time in geohistory, someone was going to make the solemn declaration that the most important force shaping the Earth was that of humanity *taken as a whole and as a single unit*. Hence the name proposed, the Anthropocene (*cene* for "new," *anthropos* for "human"). The Zeitgeist determined by a subcommission? You see why I found the suspense unbearable![2]

As I was expecting something solemn, I was a little disappointed when I read the summary report on the Brisbane meeting:

> The "Anthropocene" is currently being considered by the Working Group as a potential geological *epoch*, i.e. at the same hierarchical level as the Pleistocene and Holocene epochs, with the implication that it is within the Quaternary Period, but that the *Holocene has terminated*.[3]

"Potential" isn't very decisive. On the other hand, to declare that we are no longer living in the Holocene is more radical, since it has been precisely during these eleven thousand years of relative stability between two glaciations that human beings, or, more accurately, civilizations, have been able to develop.[4] As long as we remained in the Holocene, the Earth remained stable and in the background, indifferent to our histories. It was business as usual, as it were. In contrast,

[1]See Christophe Bonneuil and Jean-Baptiste Fressoz, eds, *The Shock of the Anthropocene: The Earth, History, and Us* (2016). (I am using the term "epoch" in a non-technical sense. Geologists distinguish time by segments in decreasing order: eons, eras, periods, epochs, and ages.)

[2]The crucial importance of the Anthropocene is that it attributes practical – that is to say, stratigraphic – truth to the notion of epoch as studied by a historian (but not a geohistorian), Hans Blumenberg, in *The Legitimacy of the Modern Age* ([1976] 1983). The Middle Ages were not viewed as "middle" by anyone living at the time, nor was Antiquity understood as "antique." But when the modern age was defined, explicitly, as the *modern* age, no one knew that it would end up being precisely defined by a subcommission on stratigraphy. In titling his book *The Archaeology of Knowledge* ([1966] 1972), Michel Foucault hadn't anticipated that the archaeological concept would be taken literally! This is another example of the great universal law of history according to which the figurative tends to become literal.

[3]Subcommission on Quaternary Stratigraphy, "What Is the 'Anthropocene'? – Current Definition and Status" (2011, emphasis added).

[4]The choice of beginning date – from very remote (since the appearance of *Homo faber*) to quite recent (since the industrial revolution) or very recent (since the Second World War) – correlates with profound political and moral differences. The more remote the date, the less the current forms of capitalism are at issue and thus the more responsibilities are diluted. It amounts to settling for saying that, "where there is humanity, there is human influence."

if "the Holocene has terminated," this is proof that we have entered into a new period of instability: the Earth is becoming sensitive to our actions and we humans are becoming, to some extent, geology!

As we can see, a decision like this requires careful reflection. If stratigraphy has revolutionized the history of the Earth, it is in part thanks to the care with which geologists treat issues of nomenclature. It is thus out of the question that just anyone may be allowed to determine haphazardly the name of the first stratum of rock he or she comes across. The report goes on:

> Broadly, to be accepted as a formal term the "Anthropocene" needs to be (a) scientifically justified (i.e. the "geological *signal*" currently being produced in strata now forming must be sufficiently *large, clear and distinctive*) and (b) *useful* as a formal term to the scientific community. In terms of (b), the currently informal term "Anthropocene" has already proven to be very useful to the *global change research community* and thus will continue to be used, but it remains to be determined whether *formalisation* within the Geological Time Scale would make it more useful or broaden its usefulness to other scientific communities, such as the geological community.[5]

To advance a proposal for naming a geological epoch through the bureaucracy of the International Geological Society is as tortuous as getting a law passed through the committees of a parliament or promoting the beatification of a saint through Vatican diplomacy. And, even if the stratigraphers agree to give humanity a decisive role, they still have to reach agreement on the date and on the marker that will allow all specialists throughout the world to recognize it in the rocks:

> The beginning of the "Anthropocene" is most generally considered to be at *c.* 1800 CE, around the beginning of the Industrial Revolution in Europe (Crutzen's original suggestion);[6] other potential candidates for time boundaries have been suggested, at both earlier dates (within or even before the Holocene) or later (e.g. at the *start of the nuclear age*).[7] A formal "Anthropocene" might be defined either with reference

[5]Subcommission on Quaternary Stratigraphy, 2011, emphasis added.

[6]An article by Paul J. Crutzen and Eugene F. Stoermer, "The 'Anthropocene'" (2000), triggered a major literary movement and led to the creation of several specialized journals: *Anthropocene*, the *Anthropocene Review*, *Elementa: Science of the Anthropocene*, and so on.

[7]A recent article confirms the date of July 16, 1945, the date of the first nuclear explosion, without taking a position on the underlying principle; it simply emphasizes the convenience of being able to identify the geological transition, everywhere in the world, thanks to the signature left by the newly introduced artificial radioactivity. See Jan Zalasiewicz, Mike Walker, Phil Gibbard, and John Lowe, "When Did the Anthropocene Begin? A Mid-Twentieth Century Boundary is Stratigraphically Optimal" (2015).

to a particular point within a stratal section, that is, a Global Stratigraphic Section and Point (GSSP), colloquially known as a "*golden spike*"; or, by a designated time boundary (a Global Standard Stratigraphic Age).[8]

A flood of technical questions that still do not allow us to find out whether or not the Holocene is over and whether the New Climate Regime identified in the earlier lectures has a correlate in the rocks. For I had forgotten that geologists are in the habit of taking their time and speaking of millions and billions of years. It took them nearly a half-century, for example, to decide on the Quaternary Era! That is why, indifferent to the pressure coming from secular voices like mine that were eager to know for certain whether the news was official or not, they calmly noted in their conclusion that they had had to defer their final vote for at least four years! "The Working Group has applied for funding to allow further discussion and networking, and is working to reach a consensus regarding formalisation by, it is hoped, the 2016 International Geological Congress."[9]

Note the nonchalant expression "working to reach a consensus" – as well as the irritating habit researchers have of always requesting more funds.[10] You can understand my disappointment: it is as though we had all the time in the world to decide on the date that attributes to humans responsibility for having become a geological force!

While the decision is pending, the papers published by Zalasiewicz's working group offer to anyone willing to read them a fascinating example of the redistribution of agency that we are following in these lectures. Here we have it, the metamorphic zone I've been trying to designate: all human activities turn out to be transformed, in part, into geological forms; everything that we used to call bedrock is beginning to be humanized – or, in any case, to bear traces of a tempestuously remodeled humanity! It is no longer a question of landscapes, of the occupation of land, or of local impact. From now on,

[8]Subcommission on Quaternary Stratigraphy, 2011, emphasis added.

[9]Unfortunately, four years later, in September 2016, almost exactly the same scene took place in South Africa, where the same working group, during the same International Geological Congress, even though it had accumulated much better arguments and data, was not able to reach a conclusion acceptable to the other stratigraphic commissions in charge of the decision. For the new data, see Colin N. Waters, Jan Zalaciewicz, et al. "The Anthropocene Is Functionally and Stratigraphically Distinct from the Holocene" (2016).

[10]See the fascinating project carried out by the Haus der Kulturen der Welt (HKW) in Berlin, "The Anthropocene Curriculum" (n.d.), which includes videos contributed by the project's principal authors. See also the many interviews on the Portail des humanités environnementales, www.humanitesenvironnementales.fr/fr/les-ressources/les-grands-entretiens.

the comparison is made on the scale of terrestrial phenomena. With its increase in energy expenditure, human civilization now "runs," so to speak, at seventeen terawatts, twenty-four hours a day, which ends up making it comparable to the expenditure of energy of volcanos or tsunamis – obviously more violent, but over short periods of time. Certain calculations even end up comparing the power of human transformation to that of plate tectonics.[11]

It is as though the stratigraphers, transporting themselves into the future through an effort of imagination, were undertaking a thought experiment that allowed them to deduce retrospectively, from the rock layers that are beginning to accumulate, what the so-called human epoch had been like.[12] In the rocks, in fact, everything can be seen: the modification, by dams, of the sedimentation of rivers; changes in ocean acidity; the introduction of previously unknown chemical products; the composite ruins of vast infrastructures unlike anything that came before; changes in the rhythm and nature of erosion; variations in the nitrogen cycle; the continual growth of atmospheric CO_2, not to mention the sudden disappearance of living species during what biologists are resigned to calling the "sixth extinction."[13] Everything can be identified all the more legibly in sediments because, as of July 16, 1945, the clear radioactive signals left by atomic explosions offer a serious candidate for the famous "golden spike," easy to detect throughout the world, and they may well allow the geologists to reach consensus.

Each item on the list, and this is what is most fascinating, could have been found throughout the nineteenth and twentieth centuries in narratives boasting of the fabulous exploits of Mankind transforming the Earth the better to master it. With just one difference: the tone is no longer triumphal; there is no longer any question of "mastering" nature. Instead, the focus is on searching the sedimentary ruins for traces of earlier humans who had been *turned to stone*. As in a new master–slave dialectic, features of both, human and stone, end up melding. *Anthropo*morphism of the critical zones, *petro*morphism of

[11]In *Eating the Sun* (2007), Oliver Morton estimates the energy of human civilization at a given moment to be 17 TW. If the entire planet lived in the American manner, an expenditure of 90 TW would be required. The energy released by tectonic plates (heat and movement) is estimated, in comparison, to be 40 TW, while primary energy – of biological origin, on earth and in the oceans – is estimated at 130 TW. All this remains negligible, obviously, compared to the 130,000 TW of energy available on Earth through the action of the sun alone.

[12]Jan Zalasiewicz's book *The Earth after Us: What Legacy Will Humans Leave in the Rocks?* (2008) describes this imaginary scene with panache.

[13]Zalasiewicz et al., 2015.

humans. In any case, we have a fusion of geohistorical forces in what truly resembles a witch's cauldron.

This would be amusing if it were not so dramatic, but what gives the members of the subcommission the most pause is the mix of time scales they have to confront. Remember how we were taught in school to stand in awe before the *slow rhythm* of geological time? At a moment when we could hardly imagine even reaching the age of twenty, our teachers bent over backwards to find good pedagogical devices that could abolish the indefinite distance that separated us from the era of the dinosaurs or the epoch of Lucy.[14] And now, suddenly, in a complete reversal, we see geologists stunned by the rapid rhythm of geo-human history, a rhythm that forces them to place their "golden spike" in a segment of two hundred or even just sixty years (depending on whether they choose a recent or very recent temporal border marker to delineate the emergence of the Anthropocene). The formula "geological time" is now used for an event that has come and gone more quickly than the Soviet Union! As though the distinction between history and geohistory has suddenly disappeared, with carbon and nitrogen cycles taking on as much importance on the cosmic scale as the last glaciations or the Manhattan Project.[15]

Let's allow the specialists in stratigraphy to proceed at their own pace, and wait patiently for them to make a decision. Given the importance of what is at stake, we cannot hold it against them if they ask for a little more time in order to adjust the acceleration of time, even if it means adopting the pace of a representative of the academic bureaucracy!

*

What makes the Anthropocene an excellent marker, a "golden spike" clearly detectable beyond the frontier of stratigraphy, is that the name of this geohistorical period may become the most pertinent philosophical, religious, anthropological, and – as we shall soon see – political concept for beginning to turn away for good from the notions of "Modern" and "modernity."

[14]Thus reproducing the long history of the extension of time by geologists, archaeologists, exegetes, and other learned scholars during the eighteenth and nineteenth centuries, a story told by Martin Rudwick in *Earth's Deep History: How it Was Discovered and Why it Matters* (2014).

[15]This crossing of historicities that had been totally incompatible before is what first attracted Dipesh Chakrabarty's attention; see his "The Climate of History: Four Theses" (2009).

I find it enticing that this oxymoron linking geology and humanity should be the product of the cogitations of serious geologists who, until recently, had been totally indifferent to the ins and outs of research in the human and social sciences. No postmoderrn philosopher, no anthropologist, no liberal theologian, no political thinker would have dared measure the influence of humans *on the same scale* as rivers, volcanos, erosion, and biochemistry. What "social constructivist," determined to show that scientific facts, power relations, or inequalities between the sexes are "only" historical episodes manufactured by humans, would have dared say the same thing about the chemical composition of the *atmosphere*? What literary critic would have extended the principles for deconstructing texts to the sedimentary strata revealing in all the deltas of the planet the irrefutable traces of *erosion* caused by humans?[16]

At the very moment when it was becoming fashionable to speak of the "post-human" in the blasé tones of those who know that the time of the human is "outdated," the "Anthropos" has come back – and with a vengeance – owing to the thankless empirical work of researchers whose lack of culture intellectuals like to mock by calling them mere "naturalists." Despite all their sophistication, the various fields of the humanities, obsessed as they have been with defending the "human dimension" against the "illegitimate encroachment" of science and the risks of excessive "naturalization," could not detect what the *historians of nature* have to be credited with bringing to light.[17] By giving a totally new *dimension* to the very notion of "human dimension," these historians are proposing the most radical term of all for putting an end to anthropocentrism as well as to the old forms of naturalism; they are thus completely reconstituting the role of human agents. The magazine *The Economist* was quite right to use this slogan on its cover in 2011: "Welcome to the Anthropocene!"[18]

In light of this conceptual advance, it is only fair to pay respectful homage to all geoscientists. Their profession well deserves its motto "*Mente et Malleo*," since it is thanks to the intelligent handling of this hammer that we have begun to realize that our most precious values, when adroitly tapped, emit a rather hollow sound! I am no

[16]The amount of erosion of human origin has been deemed comparable to erosion produced by natural forces! See J. R. Ford, S. J. Price, A. H. Cooper, and C. N. Waters, "An Assessment of Lithostratigraphy for Anthropogenic Deposits" (2014).

[17]The ancient and venerable term "natural history," which served as a label for countless "naturalists" for centuries, from Pliny through Buffon to Darwin, takes on a quite different meaning as soon as we stress the word "history" and relate it to human history. Scientists have indeed become the historians of nature.

[18]"Welcome to the Anthropocene!" (2011), p. 13.

longer astonished that Deleuze and Guattari, astute connoisseurs of the "philosopher with a hammer," were prescient enough to draw up a "geology of morality."[19]

It goes without saying that this disruption in the very definitions of the best established categories was immediately misunderstood – and for the same reason that Lovelock's efforts to extract his Gaia from the old idea of "nature" have been drowned in sarcasm. The Nature/Culture format is so powerful that people have rushed to interpret the Anthropocene as the simple superposition – or even the dialectical reconciliation – of "nature" and "humanity," each one taken as a whole; or even as a vast conspiracy on the part of scientists to "naturalize" humanity by transforming it into a stone statue; or, conversely, as an undue politicization of science.[20] It seems more interesting to me to seek to welcome this innovation coming from scientists rather than to bury it at once with yet another critique of naturalization that would increase our risk of losing the opportunity to understand the New Climate Regime.

As it happened, the major science journal *Nature*, four years after *The Economist*, put the Anthropocene on its cover as well.[21] One of the drawings featured in the accompanying article offers a great opportunity to find out whether we are capable of putting new wine in old bottles. The illustration uses the familiar principle of representation known as the "Arcimboldo effect,"[22] in which the earth sciences provide themes used to redraw a still recognizable face.

This image can be used as a personality test: in it do you see the petrification of a human face or, on the contrary, an anthropization of Nature? At first glance, it has the look of a hybrid. Yet, if we look more closely, nothing connects in the highly muddled distribution of features: are we seeing mummy wrappings, scarification, war paintings, tattoos, soil stratifications, or, rather, a blend of the *Carte du Tendre* (a seventeenth-century French allegorical map)

[19]See the well-known chapter titled "10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)," in Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* ([1980] 1987).

[20]If the label is ultimately rejected, it will probably be because of the excess of interest on the part of intellectuals, philosophers, artists, and activists in a term that the geologists, by definition, have not managed to keep for themselves, owing to the *Anthropos* that they themselves have introduced. I am not aware of any artists or activists mobilizing in favor of the Proterozoic!

[21]*Nature*, March 11, 2015.

[22]Pontus Hultén, ed., *The Arcimboldo Effect: Transformations of the Face from the 16th to the 20th Century* (1987), published on the occasion of the exhibition "The Arcimboldo Effect" at the Palazzo Grassi, Venice.

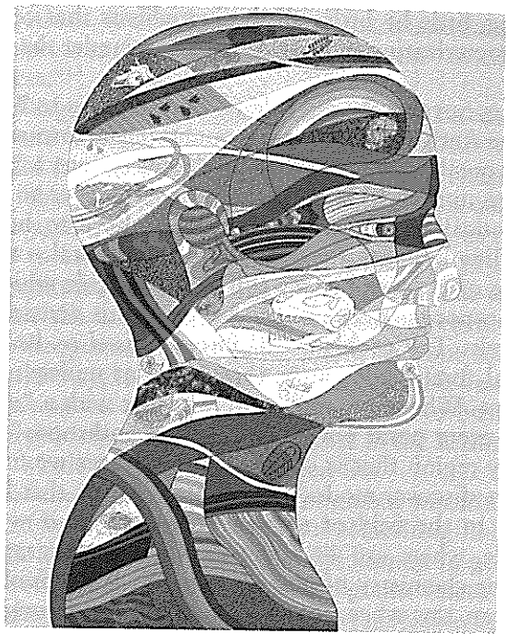

Figure 4.1 Drawing by Jessica Fortner to illustrate an article on the Anthropocene in *Nature*, March 11, 2015.

and a geological inventory designed to shape a colossal stone giant who, like the commendatore in Mozart's *Don Giovanni*, is getting ready to twist our arms to invite us to a deadly new banquet? The journal *Nature* demonstrates rather effectively that it has missed the point, since its cover story is titled "The Human Epoch," whereas the illustration clearly announces, with fanfare, the disappearance of the human! For my part, I see it rather as evidence of the attraction that this zone holds for journalists and illustrators, this metamorphic zone that we have learned to recognize and that is leading us, little by little, beneath and beyond the superficial characterizations, to a radically new distribution of the forms granted to humans, societies, nonhumans, and divinities.

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Even if the competent institutions of the International Geological Association do not end up voting to adopt "Anthropocene" as the official label for the epoch in which we find ourselves, it is still worth taking advantage of the occasion to continue the work of

disaggregating, little by little, all the ingredients that contributed to the joint characterization of people and things under the Old Climate Regime.

One thing is certain: the old role of "nature" has to be completely redefined. The Anthropocene directs our attention toward much more than the "reconciliation" of nature and society into a larger system that would be unified by one or the other. In order to bring about such a dialectical reconciliation, we would have to have accepted the dividing line between the social and the natural – the Dr Jekyll and Mr Hyde of modern history (I'll let you decide which is which). But the Anthropocene does not "go beyond" this division: it circumvents it entirely. The geohistorical forces *ceased to be the same* as the geological forces as soon as they fused at multiple points with human actions. Where we were dealing earlier with a "natural" phenomenon, at every point now we meet the "Anthropos" – at least in the sublunary region that is ours – and, wherever we follow human footprints, we discover modes of relating to things that had formerly been located in the field of nature. For example, if we follow the nitrogen cycle, where are we going to place the biography of Franz Haber and the chemistry of plant bacteria?[23] If we draw the carbon cycle, who can say when Joseph Black comes on stage and when the chemists drop out of the game?[24] Even following the course of rivers, you're going to find human influence everywhere.[25] And if, in Hawaii, you come across rocks made partly of lava and partly of a new substance, plastic, how are you going to draw the line between man and nature?[26]

For each of these aforementioned objects of the natural world, cycles like these oblige us rather to feel the effect of a finger running along a Moebius strip. We are gradually forced to *redistribute* entirely what had formerly been called natural and what had been called social or symbolic. Do you remember the gap between "physical" and "human" geography, thought to be unbridgeable, or the one between "physical" and "cultural" anthropology? The distinction between the social sciences and the natural sciences is totally blurred. Neither nature nor society can enter intact into the Anthropocene, waiting to be peaceably "reconciled." What happened to the landscape, for

[23]Bernadette Bensaude-Vincent and Isabelle Stengers, *A History of Chemistry* ([1992] 1996).
[24]David Archer, *The Global Carbon Cycle* (2010a).
[25]Mark Williams, Jan Zalasiewicz, Neil Davies, Ilaria Mazzini, Jean-Philippe Goiran, and Stephanie Kane, "Humans as the Third Evolutionary Stage of Biosphere Engineering of Rivers" (2014).
[26]Angus Chen, "Rocks Made of Plastic Found on Hawaiian Beach" (2014).

earlier generations, is now happening to the whole Earth: its gradual artificialization is making the notion of "nature" as obsolete as that of "wilderness."[27]

But the disaggregation is more radical still on the side of the aforementioned humans. Here we encounter the full irony of giving the traditional face of the Anthropos such a new characterization.[28] It would be absurd in fact to think that there is a collective being, human society, that is the new *agent* of geohistory, as the proletariat was thought to be in an earlier epoch. In the face of the old nature – itself reconstituted – there is literally *no one* about whom one can say that he or she is *responsible*. Why? Because there is no way to *unify* the Anthropos as an actor endowed with some sort of moral or political consistency, to the point of charging it with being a character capable of acting on this new global stage.[29] No business-as-usual anthropomorphic character can participate in the Anthropocene: this is where the whole interest of the notion lies.

Speaking of the "anthropic origin" of global warming is meaningless, in fact, if by "anthropic" we mean something like "the human species." Who can claim to speak for the human in general without arousing a thousand protests at once? Indignant voices will be raised to say that they do not hold themselves responsible in any way for these actions on the geological scale – and they will be right![30] The Indian nations deep in the Amazonian forest have nothing to do with the "anthropic origin" of climate change – at least so long as politicians running for election haven't given them chain saws. The same can be said of the poor residents in Bombay's shantytowns, who can only dream of having a carbon footprint more significant than the one left by the soot from their makeshift stoves.[31] No more than the

[27]See William Cronon, ed., *Uncommon Ground: Rethinking the Human Place in Nature* (1996), and Bronislaw Szerszynski, "The End of the End of Nature: The Anthropocene and the Fate of the Human" (2012).
[28]As we can see in an extraordinary book by Anna L. Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (2015), about a mushroom!
[29]This is Chakrabarty's argument: "There is no 'humanity' that can act as a self-aware agent. The fact that the crisis of climate change will be routed through all our 'anthropological differences' can only mean that, however anthropogenic the current global warming may be in its origins, there is no corresponding 'humanity' that in its oneness can act as a political agent" ("Postcolonial Studies and the Challenge of Climate Change," 2012, p. 15).
[30]This is what makes Donna Haraway reject the term (*Staying with the Trouble: Making Kin in the Chthulucene*, 2016), but to stay with the trouble it's better to stay with the word.
[31]The role of soot in global warming seems to have been neglected. See Jeff Tollefson, "Soot a Major Contributing Factor to Climate Change" (2013).

worker forced to travel long distances by car because she hasn't been able to find affordable housing near the factory where she works: who would dare shame her on account of her carbon footprint?

This is why the Anthropocene, despite its name, is not an immoderate extension of anthropo*centrism*, as if we could boast of having really been changed into Supermen of sorts, flying about in red and blue costumes. It is rather the human as a unified agent, as a simple virtual political entity, as a universal concept, that has to be decomposed into several distinct *peoples*, endowed with contradictory interests, competing territories, and brought together by the warring agents – not to say warring divinities. The Anthropos of the Anthropocene? It is Babel *after* the fall of the huge tower. Finally, humans are not universifiable. Finally, they are not off the ground! Finally, they are not outside of terrestrial history!

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What keeps us from taking advantage of this disaggregation of the traditional figures is a mental image that had remained intact throughout the whole history of philosophy, the idea of a *Sphere* that could allow anyone to "think globally and to bear on his or her shoulders the entire weight of the *Globe* – that strange Western obsession, which is the real "white man's burden." In other words, we have to put an end to what could be called "Atlas's curse." Let us recall that Atlas was one of the Titans, one of the numerous monsters that were born from the blood of those whom Gaia had planned to assassinate (I mean the mythological Gaia whom we encountered in the preceding lecture, the one whose provocative portrait was drawn by Hesiod, the goddess who was more ancient than all the Olympians).[32]

To remove some of this excess weight from our shoulders, we have to indulge in a little *spherology*, the fascinating project invented out of whole cloth by Peter Sloterdijk in his massive three-volume study of the envelopes that are indispensable to the perpetuation of life.[33] Sloterdijk borrowed von Uexküll's notion of Umwelt[34] and extended it to all spheres, all enclosures, all the envelopes that agents have had to invent to differentiate between their inside and their outside. To accept such an extension, one has to consider all the philosophical and scientific questions thus raised as being part of a very broad

[32]See the third lecture.
[33]Peter Sloterdijk, *Globes: Macrospherology* ([1999] 2014).
[34]Jakob von Uexküll, *A Foray into the Worlds of Animals and Humans* ([1940] 2010).

definition of *immunology*, viewed by Sloterdijk neither as a human science nor as a natural science but, rather, as the first *anthropocenic* discipline!

Sloterdijk is a thinker who takes metaphors seriously and fully tests how well they measure up to reality – for hundreds of pages, if necessary. His immunological challenge is to detect how an entity, whatever it may be, protects itself from destruction by building a sort of well-controlled internal milieu that allows it to create a protective membrane around itself. He asks this question at every level with stubborn determination. Even when he maliciously catches his master Heidegger up short for failing to answer questions such as the following: When you say that the *Dasein* is "thrown into" the world, "into" what is it actually thrown? What is the composition of the air it breathes there? How is the temperature controlled? What sort of materials constitute the walls that keep the *Dasein* from suffocating? In short, what is the *climate* in its air-conditioning system? As Sloterdijk sees it, these are exactly the awkward but essential questions that philosophers and scientists of all tendencies and all species have never agreed to answer with adequate precision.

For Sloterdijk, the complete singularity of Western philosophy, science, theology, and politics lies in the fact that they have infused all the virtues into the figure of a Globe – with a capital G – without paying the slightest attention to the way in which that Globe might be built, tended, maintained, and inhabited. The Globe is supposed to include everything that is true and beautiful, even if this is an architectonic impossibility that will collapse as soon as you think seriously about how and through what it *holds up* and especially *how it is traversed*.

Sloterdijk raises a set of very simple, very humble architectural questions, just as material as those the geologists raise with their hammers: Where are you residing when you say that you have a "global view" of the universe? How are you protected from annihilation? What do you see? What air are you breathing? How do you keep warm, how do you dress, how do you eat? And if you cannot satisfy these fundamental needs of life, how can you keep on claiming to speak of the true and the beautiful, as if you occupied some higher rung on a moral ladder? If you don't specify their air-conditioning system, the values that you are trying to defend are probably already dead, like plants that have been kept inside a greenhouse overexposed to the sun. In Sloterdijk's hands, even more than in Lovelock's, the notions of homeostasis and climate control take on a highly metaphysical dimension. This is what's called taking the atmosphere seriously! It's also the New Climate Regime.

As soon as elementary questions such as these come up, it becomes highly unlikely that one can see anything whatsoever from nowhere. No one has ever lived *in* the infinite universe. And no one has ever even lived "*in* Nature." Those people who frighten themselves by wandering around the infinite universe are always gazing upon a small globe with a surface area of two or three square meters in the warmth of their terrestrial offices under the comfortable light of a lamp.[35] Instead of saying that "the eternal silence of these infinite spaces terrifies me," Pascal should have reassured himself: "The murmur of the instruments confined within these limited spaces soothes me as it informs me." When the epistemologists claim that we can live "in Nature," what they are really doing is carrying out what for Sloterdijk amounts to a criminal act of destruction: breaking through all the protective envelopes necessary for the immunological function of life (and life, for him, is just as much politics as is it biology and sociology).

Every thought, every concept, every project that fails to take into account the necessity of the fragile envelopes that make existence possible amounts to a *contradiction in terms*. Or, rather, a contradiction in architecture and design: it will not have the atmospheric, climatic conditions that could make it viable. Trying to live in such a utopia would be like trying to save all your precious data in the Cloud – *without first investing* in computer clusters and refrigeration towers.[36] If you want to keep using the words "rational" and "rationalists," go ahead, but then also do the work of conceiving of the fully furnished spaces in which the presumed inhabitants can breathe, survive, equip themselves, and reproduce. The uncontrolled materialism of the air-conditioned system is another form of idealism.

Thus from page to page Sloterdijk rematerializes in a new way what it means to be *in* space, *on* this Earth, offering us the first philosophy that responds directly to the requirement of the Anthropocene that we bring ourselves back down to Earth. What interests me in particular is that, in the middle of his second volume, the author devotes some

[35]See the fascinating catalog of the exhibit devoted to the *Whole Earth Catalog* by Diedrich Diederichsen and Anselm Frank, eds, *The Whole Earth Catalog: California and the Disappearance of the Outside* (2013). On the implausibility of the Globe as a figure of the Earth, see Kenneth Olwig's research in "The Earth Is Not a Globe: Landscape versus the 'Globalist' Agenda" (2011). On the history of the recent form of the Globe, see Sebastian-Vincent Grevsmühl, *La terre vue d'en haut: l'invention de l'environnement global* (2014); its subtitle is in perfect harmony with Sloterdijk's argument.

[36]See the fascinating site that attempts to map the material infrastructure of what is called the virtual: http://newcloudatlas.org.

hundred pages to a meditation that he titles "*Deus sive Sphaera*," "God, that is, the Sphere." The point is delicate but, as we shall see later on, it allows us to remove the principal difficulty common to the sciences and the humanities when they approach the superorganism question.

The little crack that Sloterdijk is the first to point out, I believe, results from the unresolved bifocalism of the Christian imagery left over from the pre-Copernican epoch, the one we have already encountered with Galileo.[37] What looks like a simple technical defect in design in fact destabilizes the entire architecture of Western cosmology. Despite the practical impossibility of drawing the two types of globes together, theologians have striven to bring them into coincidence: one theocentric, the other geocentric. When God is placed at the center, the Earth must inevitably be relegated to the periphery and revolve around Him. At first glance, this doesn't seem too awkward, because our planet is assigned a modest role, rightly *peripheral*. But the problem becomes more complicated as soon as one puts the Earth at the center, with Hell located in the middle, under the sublunary world: then *it is God* who is removed to the periphery. This positioning is not so readily accessible: God, for rational theology, cannot be peripheral! How, Sloterdijk asks, can you construct an entire cosmology with two contradictory centers, one that revolves around God while the other revolves around the Earth?

For two millennia, Sloterdijk tells us, this little flaw in construction seems to have posed no problem for theologians, artists, or mystics:

> The bifocalism of the "world picture" had to be kept latent, and...there could be no explicit dialogue about the contradictions between the geocentric and theocentric locations of projection within the illusory bubble sphere of the Perennial Philosophy.[38]

This philosophy is eternal, perhaps, but it is entirely empty within its sphere of nonexistence. The curse of the Globe is so powerful that theologians have designed a cosmic god in the form of two wobbly spheres without worrying about its architectonic implausibility. From Dante to Nicholas of Cusa, from Robert Fludd to Athanasius Kircher, right up to modern illustrators such as Gustave Doré, the disconnect remains both patent and constantly denied. Although visually impossible, the gentle emanation of God's grace toward the human Earth was never called into question, even if no one could literally *draw* its mystic rays by continuous lines across the cleft that divided the two

[37]See the third lecture.

[38]Sloterdijk, 2014, pp. 448–9.

systems. This is why it has become so awkward to relate any history of the planet – and still less any geohistory: as soon as philosophy believes it is thinking globally, it becomes incapable of conceiving of time as well as of space.

*

You could protest that we have no reason to attribute any importance to this flaw in the construction of Christian theology. After all, coherence is not the strong suit of religious minds, and one more chink in their operation has little chance of being noted. But what fascinates me in this discovery is that exactly the same incoherence is upheld by the architecture through which *rationality* has been constructed.

What Sloterdijk has detected in Christian imagery has been detected just as clearly by the history of science in scientific texts. There is nothing surprising about this: it is the same problem repeated all over again, appearing first in the history of religion, then in the history of science, owing to the *translatio imperii* of which there are so many examples, and to which I shall return later on. It is as impossible to *situate* the Earth as it is to *stabilize* the center around which the other entity is presumed to revolve. Let us recall how precarious the "Copernican revolution" that Kant claimed to have introduced into philosophy has always been: how could he have made us believe that making the Object revolve around the human Subject could count as an abandonment of anthropocentrism? The metaphor is so badly adjusted that it has thrust every definition of the "human in nature" into oscillations that make one's head spin – and in some cases induce nausea. To return to the first meaning of the word "revolution," it is as though there had never been a stable center around which the Earth could *revolve*.

When it is a question of science as it is practiced, science in action, all of a sudden researchers have to begin to talk about their laboratory lives. The same scientists who used to levitate from nowhere are brought back into terrestrial bodies of flesh and blood in narrowly situated places. When physicists celebrate the great heroes of science, they don't hesitate to mount a plaque on a wall with a text, for example, like the one I spotted in Cambridge and found particularly delectable: "Here in 1897 at the old Cavendish Laboratory J. J. THOMSON discovered the electron subsequently recognized as the first fundamental particle of physics and the basis of chemical bonding electronics and computing."[39]

[39]A wall plaque in Free School Lane.

It is hard to discover a more *situated* piece of knowledge than this one. It starts from one precisely determined place, Free School Lane (which has become the temple of the history of science),[40] with electrons that are firmly in the hands of a great scientist, and then it extends to the whole world, since electrons are at the core of all chemical bonds and all computers! But a minute later, these same physicists will have no qualms about explaining to you how the mind of Stephen Hawking wanders through the cosmos in intimate dialogue with the Creator, naïvely ignoring the fact that Hawking's mind benefits not only from a brain but also from a "collective body" composed of a huge network of computers, chairs, instruments, nurses, aides, and voice synthesizers that are necessary for the progressive unfolding of his equations.[41] This bifocal conception of science does not allow the "view from nowhere" to be reconciled with these very particular places: classrooms, offices, laboratory benches, computer centers, meeting rooms, expeditions and field stations, the sites where scientists have to place themselves when they actually have to *obtain* data or really *write* their articles.

The two images of the world in Christian theology are just as irreconcilable as the images that would be represented, for example, by the physics of the electron that is present *everywhere* in the world even as it is safely housed *in* J. J. Thomson's Cavendish Laboratory. But this irreconcilability is denied by scientists and philosophers just as much as by theologians and mystics. Paraphrasing Sloterdijk, I could say: "The 'illusory sphere' of *philosophia perennis* maintains in latency the contradictions between Nature – centered on the cosmos – and that other Nature known by the sciences centered on the laboratory. This contradiction makes any explicit dialogue between the two visions just as impossible as reconciliation between the geocentric and theocentric 'pictures of the world' of medieval cosmology."

Following Sloterdijk's examination of the architecture of Reason, we realize that the Globe is not that of which the world is made but, rather, a Platonic obsession *transferred* into Christian theology and then *deposited* in political epistemology to put a face – but an impossible one – on the dream of total and complete knowledge.[42] A strange fatality is at work here. Every time you think about knowledge in a

[40]This is in fact where Simon Schaffer and his colleagues have their offices; historians of science have ended up occupying, after a time, the offices of scientists, who themselves have moved on, following their increasingly cumbersome instruments.
[41]Hélène Mialet, *Hawking Incorporated: Stephen Hawking and the Anthropology of the Knowing Subject* (2012).
[42]On the constitution of this "political epistemology," see Bruno Latour, *Pandora's Hope: Essay on the Reality of Science Studies* (1999).

weightless space – and this is where the epistemologists dream about dwelling – it inevitably takes the form of a transparent sphere that could be inspected by a fleshless body from a place that is nowhere. But once we restore the gravitational field, knowledge immediately loses this mystical spherical form inherited from Platonic philosophy and Christian theology.[43] The data flow in again in their original form as fragments, waiting to be put together in a narrative.

By virtue of this bifocalism, the two portraits of Atlas are equally implausible, the Atlas who is supposed to be holding the world on his shoulders (without being able to look at it, as Sloterdijk remarks), but also the one invented by Mercator, the perfect emblem of the scientific revolution – an Atlas who is supposed to be holding the entire cosmos in his hands, as if it were a soccer ball.[44] By fusing the image of the scientist with the much older metaphor of the hand of God, Mercator gave it a human form, that of an authentic Superman capable of holding everything in his palm. But if the globe is actually held in the hand of some human of average height, then, inevitably, it is a map, a model, a *globe* in the very modest and very local sense of the little instrument in papier maché that many of you, I'm quite sure, like to spin with your fingertips.[45]

Building a globe always amounts to reactivating a theological theme – even when it is a matter of lofty pedagogical sites, a panorama, a geodesic dome, an amusement park invented by compilers of information to give the encyclopedic knowledge they have accumulated a popular form. This was easy to see when Patrick Geddes, the director of the Outlook Tower in Edinburgh,[46] had to give the funeral oration for his friend, the very famous Élisée Reclus, the anarchist geographer who had asked him for help drawing the plans for the giant globe that he intended to build for the Universal Exposition in Paris in 1900 at a scale of 1:100,000. Had it been built so as to cast its immense shadow on the right bank of the Seine, the structure

[43]Readers of *Tintin* will recognize in this metaphor the adventure of Captain Haddock in *Explorers on the Moon*: when the Duponts accidentally make the artificial gravity of their rocket disappear, whisky turns into little balls floating about the cabin; see Hergé, *The Adventures of Tintin: Explorers on the Moon* ([1953] 1976).
[44]Frontispiece of the first atlas of the world, attributed to Mercator, figure 4.2.
[45]There is an immense literature on the uses of the globe, but here are two fairly recent works: Franco Farinelli, *De la raison cartographique* (2009), and the very useful survey by Jerry Brotton, *A History of the World in Twelve Maps* (2012).
[46]This tower, a sort of Palace of Discovery and a geodesic dome, is one of the most visited sites in Edinburgh; it is located just a few hundred meters from the room where the Gifford Lectures are given. I thank Pierre Chabard for introducing me to Geddes, an incredible character in his own right: Pierre Chabard, "L'Outlook Tower, anamorphose du monde" (2001).

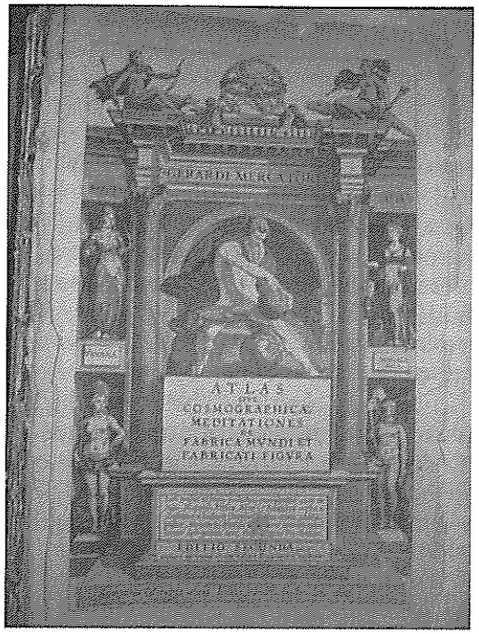

Figure 4.2 Frontispiece of Mercator's *Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura*, 2nd edn, 1609 (author's personal collection).

would have been almost as tall as the Eiffel Tower and would have cost five times as much.

> This was no mere *scientific model* in its institute, but the image, and shrine, and *temple of the Earth-Mother*, and its expositor no longer a modern professor in his chair, but an arch-*Druid* at sacrifice within his circle of mighty stones, an Eastern Mage, initiator to *cosmic mysteries*....the unity of the world now the basis and symbol of the brotherhood of man upon it; sciences and art, geography and labour uniting into a *reign of peace* and goodwill.[47]

All the words count here, in this relation between the macrocosm and the microcosm, not only the strange displacement from "scientific model" to "temple of the Earth-Mother," but also from "professor" to "arch-Druid," from geography to prophecy through the

[47]Patrick Geddes, "A Great Geographer: Elisée Reclus, 1830–1905" (1905), p. 550, emphasis added.

intermediary of poetry. And how strange it is for us, a century later, to hear a celebration of "the brotherhood of man" and "the unity of the world" thanks to the construction of a reduced model, a miniature facsimile, an Atlas of iron and plaster. One thing is certain: today, as yesterday, the same question arises: how can one escape from the excessive burden of the Globe?

To put an end to the fatality of the Globe – what I have called Atlas's curse[48] – we have to stick to the history of the sciences or to Sloterdijk's spherology, while noting that "global" is an adjective that can of course describe the form of a local device apt to be inspected by a group of humans who are looking at it, but *never the world itself in which everything is presumed to be included.* However large the size of the galaxies may be, the map of the galaxies dispersed since the Big Bang is no larger than the *screen* on which the data flows from the Hubble telescope are pixelated and colored. Contrary to the formula "think globally, act locally," no one has ever been able to think Nature globally – still less Gaia. The global, when it is not the attentive analysis of a *reduced model,* is never anything but a tissue of globabble.

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Whether we are dealing with the idea of the Anthropocene, the theory of Gaia, the notion of a historical actor such as Humanity, or Nature taken as a whole, the danger is always the same: the figure of the Globe authorizes a premature leap to a higher level *by confusing the figures of connection with those of totality.* This perilous slippage is not only the preoccupation of philosophers,[49] politicians, military thinkers,[50] or theologians;[51] it also obsesses the scientists who wish to understand the Anthropocene. I can't resist the temptation of demonstrating this for you with an exemplary case that will allow us to measure, once again, the slope that writers such as Lovelock

[48]Not to be confused with the attempt to portray a shrugging Atlas, as in Ayn Rand's infamous novel! [*Trans.: Atlas Shrugged* (New York: Random House, 1957).]

[49]This is particularly striking in the case of Michael Ruse, *The Gaia Hypothesis: Science on a Pagan Planet* (2013), in which the author does not seem to suspect for an instant that Lovelock is attempting to compose Gaia and not deducing its form on the basis of a pre-existing Globe.

[50]Grevsmühl pursues the archaeology of this obsession in *La terre vue d'en haut* (2014).

[51]Christophe Boureux, *Dieu est aussi jardinier* (2014), starts from the principle that there is a totality with a common (divine) origin and that its initial composition poses no particular problems.

and Zalasiewicz have to climb when they seek to explain the Earth's retroactive relations to human actions.

There are books that are admirable owing to the perseverance with which they misunderstand their object. This lack of comprehension is visible in the very title of *On Gaia: A Critical Investigation of the Relationship between Life and Earth.*[52] What makes the case of Toby Tyrrell – a professor of Earth System Science at the University of Southampton – so remarkable is that he claims to be producing a legitimate and "strictly scientific" refutation of the Gaia theory. Now Tyrrell cannot present Lovelock's hypothesis without at once turning Gaia into something superior that *encircles* the Earth. Amusingly, and without the slightest awareness of this on the author's part, all the theological phantoms that Patrick Geddes attributed to Élisée Reclus immediately reappear in Tyrrell's account!

Each chapter summarizes quite pedagogically the results of the disciplines traversed by the Gaia theory, and each ends with the conclusion that one cannot discern the existence of a totality that would ensure the stability of the system.[53] The author's thesis is that Lovelock is necessarily wrong because nothing makes it possible to ensure that Gaia *protects* Life on Earth, whereas it *ought to devote itself to this* if it really has the virtues of the Providence that, in Tyrrell's reading, Lovelock seems to promote. We've come back to a problem we encountered in the previous lecture: from beginning to end, Tyrrell imputes to Lovelock the idea that Gaia is a *higher* system than the life forms it manipulates. Not for a moment does he notice that Lovelock's innovation consists precisely in not letting himself get caught in the trap of that habitual trope concerning the Whole and its parts.

Even though the argument is technical, it is worth following the way an ancestral political theme – an amalgam of the fable of the bees and of divine Providence[54] – comes to take over, in parasitical fashion, the prose of a researcher who would otherwise have very respectable reasons to oppose the Gaia theory – if only it were Lovelock's![55] The paradox is that he begins by granting the main thesis:

[52]Toby Tyrrell, *On Gaia: A Critical Investigation of the Relationship between Life and Earth* (2013).

[53]A more developed version of this section is to be found in Bruno Latour, "Why Gaia Is Not a God of Totality" (2016c).

[54]Bernard Mandeville's book *The Fable of the Bees: Private Vices, Publick Benefits* ([1714] 1962), with its eloquent subtitle, is one of the many ancestors of the animal models that make it possible to explain the emergence of the optimum – in fact, the Market – on the basis of clashes between individual interests.

[55]Tyrrell rightly worries about the fact that, if Gaia were conceived as a lovable and benevolent Providence, humans would allow themselves to assault it, confident that

Lovelock claimed that life *does modify* the environment. Life is not *simply a passive passenger* living *within* an environment set by physical and geological processes over which it has *no control*. The biota have not lived *within* the Earth's environment and processed it but also, it is suggested, *have shaped it* over time.... There is no doubt that Lovelock is correct, and few now disagree.[56]

But then he asserts, toward the end of the book:

For these reasons it can be concluded that the long and uninterrupted duration of life-tolerant conditions does not prove the existence of *an all-powerful thermostat*, and does not prove the existence of Gaia.[57]

We are familiar with the obsessive determination of theologians to prove the existence of an *all-powerful* God, but why on earth attribute to Lovelock the idea that he is seeking to prove "the existence of an All-Powerful Thermostat"?! There is no doubt about it: Tyrrell let himself get carried away by the scheme of the Globe. To be sure, as we have seen, Lovelock does talk about a control system, but he goes on to be immediately suspicious of the perilous connotations that the technological metaphor would bring with it. Let us stress here all the risks that would ensue for a scientific author who remained insensitive to the tropisms of prose. It is here, however, where the nuances required for speaking of agency are best revealed. As Lovelock says, in fact:

I describe Gaia *as* a control system for the Earth – a self-regulating system *something like* the familiar thermostat of a domestic iron or oven. I am an inventor. I find it *easy* to invent a self-regulating device by *first* imagining it as a *mental picture*.... In many ways Gaia, like an invention, is difficult to describe.[58]

For Lovelock, Gaia possesses no omnipotence; it is a "mental picture," a convenience ("easy to invent"), a comparison ("something like") made in an effort to conceptualize, in the manner of an inventor – inventors being better gifted, according to him, at understanding than scientists how things really work[59] – something that he recognizes from the outset as "difficult to describe." Tyrrell

Gaia would forgive their straying. On the contrary: "Because the Earth's climate system has *transpired*, as opposed to *evolved*, there is no reason to expect it to be particularly *robust or fail-safe*" (Tyrrell 2013, p. 216, emphasis added). On this everyone agrees, and Lovelock first of all.

[56]Ibid., p. 113, emphasis added.

[57]Ibid., p. 198, emphasis added.

[58]James Lovelock, *Gaia: The Practical Science of Planetary Medicine* ([1991] 2000a, p. 11).

[59]In interviews, Lovelock often emphasized the fact that he was above all an inventor of very sensitive instruments (in particular the famous electron capture detector, or

remains completely insensitive to all these linguistic hesitations. Yet it is precisely through these hesitations that a difference arises between a naïvely theological vision – although Tyrrell claims it is "scientific" – and the secular, terrestrial, innovative version of a Lovelock seeking to capture, in the shifting of his convoluted prose, something that is seeking its path, like life on earth itself: something that produces order downstream yet that does not depend on a pre-established order upstream. The Gaia theory comes from an *inventor* talking about an *invention* that is difficult to describe.

The nearest I can reach is to say that Gaia is an *evolving system*, a system made up from all living things and their surface environment, the oceans, the atmosphere, and crustal rocks, the two parts *tightly coupled and indivisible*. It is an "emergent domain" – a system that has emerged from the *reciprocal* evolution of organisms and their environment over the eons of life on Earth. In this system, the self-regulation of climate and chemical composition are *entirely automatic. Self-regulation emerges as the system evolves*. No foresight, planning or *teleology*... are involved.[60]

It would be hard to be clearer about the absence of Providence. And yet Tyrrell remains deaf to such subtleties. Whereas Lovelock's entire effort consists in avoiding as much as possible the two-level distinction – one for the connections, the other for the regulatory totality – his adversary plunges headlong into the worst cybernetic metaphor there is:

The Gaia hypothesis is nothing if not daring and provocative. It proposes *planetary regulation* by and for the biota, where the "biota" is the collection of all life. It suggests that life has *conspired in the regulation* of the global environment, so as to keep conditions favorable.[61]

Where the one hesitates, the other does no such thing, even as he believes he can give the first, through this absence of hesitation, a lesson in the scientific method! If planetary regulation existed, the Gaia hypothesis would hardly be "daring and provocative"; in any case, it would not deserve to be published: God the Creator, the one who has always had the form of a Sphere, was there first! Lovelock is trying not to separate the two levels that Tyrrell is imposing here as self-evident from the outset:

ECD), and that it was thanks to such inventions that he became sensitive to the animation of the Earth, since he could detect the presence of chemical elements (when he began his research into pollutants) over very long distances.

[60]Lovelock, 2000a, p. 11, emphasis added.

[61]Tyrrell, 2013, p. 3, emphasis added.

> Lovelock suggests that *life has had a hand on the tiller* of environmental control. And the intervention of life in the regulation of the planet has been such as *to promote stability* and keep conditions favorable to life.[62]

The error of interpretation is flagrant, for it is precisely because there is no tiller, and thus no helmsman, no master, no captain, no engineer, no God, that Gaia is an invention that all the subtleties of science must tend to explain. But the strangest thing of all is that Tyrrell objects to Gaia only because he wants to entrust the tiller to a different helmsman, a different captain, a different providential God: Evolution! Whereas Lovelock tries to couple the environment and evolution by definitively blurring the distinction between the two, since organisms also make up their environment, in part, Tyrrell thinks it possible to *oppose* Gaia and Evolution:

> In fact the snug fit between organisms and habitats is more a testament to the *overwhelming*, transforming power of evolution to mold organisms than to the *power* of organisms to make their environment more comfortable.[63]

Here is a nice case of inversion in the figures of Totality: All-Powerful Evolution is supposed to be fully natural, Gaia dangerously providential... Tyrrell does not notice for a second that these two figures can be precisely interchanged. Whereas he thinks he is writing scientifically, we find ourselves here in full Theogony: the "powers" of Evolution struggling for supremacy against the "powers" of Gaia! Or rather in full Theodicy, since it is a matter of finding out what best protects against Evil on Earth: is it the All-Powerful Thermostat or Darwinian evolution that best privileges those who are faithful to it? Tyrrell goes so far as to order Lovelock to make an effort, as Leibniz did, to prove that his God is innocent of the disorders He has introduced here below.[64] The objection is amusing, coming from an author who uses the neo-Darwininan model without the slightest hesitation, a model itself borrowed from the Invisible Hand of the Market!

Am I splitting hairs by accusing Professor Tyrrell of being a theologian in disguise? Yes, of course, for everything depends in fact on the thread that the narrative prose allows us either to follow or to cut off. To be sure, Lovelock is neither a philosopher, nor a poet, nor

[62]Ibid., p. 4, emphasis added.
[63]Ibid., p. 48, emphasis added.
[64]Hence this astonishing passage: "to my mind this paradox of nitrogen starvation while being bathed in nitrogen is one of the strongest arguments against the Gaian idea that the biosphere is kept comfortable for the benefit of the life inhabiting it" (ibid., p. 111). It's as though we were reading Voltaire making fun of the proofs of the existence of God drawn from the harmony of nature!

a novelist, nor a historian, but he is fighting against something that resists thought. If he captures the narrative capacity of geohistory, it is because he hesitates and because *he starts over*. Tyrrell swallows metaphors so easily that he can criticize one only by relying on another, whereas Lovelock mistrusts metaphors; he handles them with precaution as the only way to avoid them, little by little.

> At first we explained the Gaia hypothesis in words *such as* "Life, or the biosphere, regulates or maintains the climate and the atmospheric composition at an optimum for itself." This definition was *imprecise*, it is true; but neither Lynn Margulis nor I ever proposed that planetary self-regulation is *purposeful*....In the arguments over Gaia quite often the metaphor not the science was attacked. Metaphor was seen as a pejorative, something inexact and therefore unscientific. In truth, real science is riddled with metaphor.[65]

It is unfair of me to go after a naturalist when the adherents to the social sciences, as I know perfectly well, do no better, and they leap without a moment's hesitation to the global level of society as soon as they have to explain any sort of connection. When they talk about "society as a whole," "the social context," "globalization," they are drawing a figure with their hands that has never been bigger than an ordinary pumpkin! But the fact is that the problem is the same whether we are talking about Nature, Earth, the Global, Capitalism, or God. Each time, we are presupposing the existence of a superorganism.[66] The passage through connections is immediately replaced by a relation between parts and the Whole, and the latter is said – without much thought – to be necessarily *superior* to the sum of its parts – whereas it is always necessarily *inferior* to its parts.[67] Superior does not mean more encompassing; it means *more connected*. One is never as provincial as when one claims to have a "global view."[68]

[65]Lovelock, 2000a, p. 11, emphasis added.
[66]Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (2005). It is fascinating to see that the problem is exactly the same at every scale, whether it is a matter of ants, as in Deborah Gordon's *Ant Encounters: Interaction Networks and Colony Behavior* (2010) or Gaia. This is the problem that Tarde placed at the heart of the social sciences and that has been swallowed up by the idea of distinct levels going from the individual to the collective; see Gabriel Tarde, *Social Laws: An Outline of Society* (1899).
[67]Bruno Latour, Pablo Jensen, Tommaso Venturini, Sebastian Grauwin, and Dominique Boullier, "The Whole Is Always Smaller Than its Parts – A Digital Test of Gabriel Tarde's Monads" (2012).
[68]There is a confusion between the cartographic globe, which is a way to register as many differences as possible through the simple device of Cartesian coordinates, and the globe of so-called globalization, which is the extension everywhere of as small a set of standard formats as possible.

Scale is not obtained by successive embeddings of spheres of different sizes – as in the case of Russian dolls – but by the capacity to establish more or less numerous relationships, and especially reciprocal ones. The hard lesson of actor-network theory, according to which there is no reason to confuse a *well-connected* locality with the utopia of the Globe, holds true for all associations of living beings.

The reason the relocalization of the global has become so important is that the Earth itself can no longer be grasped globally by anyone. This is precisely the lesson of the Anthropocene. As soon as one unifies it in a terraqueous sphere, one reduces geohistory to the limits of the old format of medieval theology, transported into the nineteenth-century epistemology of Nature, then again poured back into the mold of the twentieth-century military-industrial complex[69] – even if one is a professor of Earth System Science at the University of Southampton. Despite the unanimous enthusiasm that it has aroused, the highly celebrated "blue planet" has poisoned thought in a lasting way. It is a composite image that blends the ancient cosmology of the Greek gods, the old medieval form given to the Christian God, and NASA's complex network for data acquisition, before being projected within the diffracted panorama of the media.[70] What is certain is that the inhabitants of Gaia are not those who view the blue planet as a Globe.

Even so, it must be possible, today, to pull ourselves away from the fascination that the image of the Sphere has held for us since Plato: the spherical form rounds off knowledge in a continuous, complete, transparent, omnipresent volume that masks the extraordinarily difficult task of assembling the data points coming from all instruments and all disciplines. A sphere has no history, no beginning, no end, no holes, no discontinuities of any sort. It is not merely an idea but the very ideal of ideas. Those who pride themselves on thinking globally will never get away from the curse of Atlas: *Orbis terrarum sive Sphaera sive Deus, sive Natura.*

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To put it in still other terms, he who looks at the Earth as a Globe always sees himself as a God. If the Sphere is what one wishes to

[69]We must never forget that environmental preoccupations are first and foremost military, and that total war *through* the modifications of the climate precedes by several dozen years the war *against* the mutations of the climate. On this point, see Ronald E. Doel, "Constituting the Postwar Earth Sciences: The Military's Influence on the Environmental Sciences in the USA after 1945" (2003).

[70]As Grevsmühl shows, the canonical image is in fact a composition made one pixel at a time and is in no way, in a technical sense, a "global" image (Grevsmühl 2014).

contemplate passively when one is tired of history, how can one manage to trace the connections of the Earth without depicting a sphere? By a movement that turns back on itself, in the form of a *loop*. This is the only way to draw a path between agents without resorting to the notions of parts and a Whole that only the presence of an all-powerful Engineer – Providence, Evolution, or Thermostat – could have set up. This is the only way to become secular in science as well as in theology. But let's not hurry to identify this movement, which in the previous lecture I called *waves of action*, with feedback loops in the cybernetic sense: we would revert at once to the model with a rudder, a helmsman, and a world government![71]

Let's begin with the strange reflexive loop that historians of the environment have recently insisted upon: to speak of ecology now is to repeat almost word for word what was said in 1970, in 1950, or even in 1855 or in 1760 to protest against the damage inflicted on nature by industrialization.[72] This theme has been looping back and forth since the very beginnings of the industrial revolution.[73] This does not mean, however, that historians are giving in to their harmless little vice of unearthing, for each novelty, a host of more or less unknown predecessors. It is as though all ecologist writers were led to discover that there is "something new under the sun"; but, because they shape their views in terms that take up earlier ideas quite faithfully, they nevertheless leave us with the impression that, over the long run, there is nothing new under the sun at all.[74] This is hardly astonishing, since it is always to the vocabulary of the sempiternal Globe that we entrust our hopes as well as our anxieties. When we appeal to the blue planet, we cannot help but go around in circles!

[71]See Andy Pickering, *The Cybernetic Brain: Sketches of Another Future* (2011).

[72]The argument made by Bonneuil and Fressoz in *The Shock of the Anthropocene* is hard to refute: our predecessors have never stopped deploring the same catastrophe in the same terms, have kept on warning us of the same threats. See Stephen Toulmin, *Cosmopolis: The Hidden Agenda of Modernity* (1990); Barry Commoner, *The Closing Circle* (1971); Barbara Ward and René Dubos, *Only One Earth: An Unofficial Report commissioned by the Secretary General of the United Nations Conference on the Human Environment* (1972); Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William W. Behrens III, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (1972); Élodie Vieille-Blanchard, "Les limites à la croissance dans un monde global: modélisations, prospectives, réfutations" (2011); but we can go as far back as Eugène Huzar, *La fin du monde par la science* ([1855] 2008), or the anti-vaccination campaigns in 1760.

[73]Jean-Baptiste Fressoz, *L'apocalypse joyeuse: une histoire du risque technologique* (2012).

[74]See the contribution of Clive Hamilton and Jacques Grinevald, "Was the Anthropocene Anticipated?" (2015), and the book by John R. McNeill, *Something New under the Sun: An Environmental History of the Twentieth-Century World* (2000).

If the historians are right to criticize those who claim, with the same enthusiasm every time, that we have just entered into a radically different period,[75] they are mistaken not to see that this repetition is part of a phenomenon that must be accounted for: by definition, geohistory can never be conceptualized in the form of a Sphere whose encompassing form has been discovered *once and for all*. This is why it is just a history and not a "nature." History, for its part, surprises us and obliges us to start all over again every time. The impression of repeating the same thing comes from the form of the Globe with which everyone tries to depict what is happening to it that is new. In contrast, the discovery, shattering every time, of a dramatic new connection between previously unknown agents, and on increasingly more distant scales, and at an increasingly frenetic pace – yes, this is truly new. The Anthropocene, because it dissolves the very thought of the Globe viewed from afar, brings history back to the center of attention.[76] In this sense, despite the critique of historians, there actually has been, since 1860, since 1945, since 1970, something new under the sun.[77] If the feedback loops are similar in form, their contents, rhythms, and extensions are different in each case. This is what I mean by Gaia's *insistence*!

The notions of globe and global thinking include the immense danger of unifying too quickly what first needs to be *composed*. This is above all a material problem: we have to draw a circle before we can generate a sphere. It is also an empirical problem: only because Magellan's boat came back were his contemporaries able to fix in their minds the image of a spherical earth with which they were already

[75]I plead guilty, obviously, with the slight exception that, as we have never been modern, and as we have always suspected that we have never been modern, there have never in fact been sharp breaks to which we could hold, even if the Moderns, for reasons that we shall encounter in the sixth lecture, can only live propped up by a radical break.

[76]This return of history is quite well marked by the multiplication of alternatives proposed for the Anthropocene: the "Anglocene" (the combined carbon emission of England and the United States still remains higher than that of the developing countries); the "capitalocene" (Jason Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*, 2015), not to mention the delicious "Chthulucene" proposed by Donna Haraway in *Staying with the Trouble: Making Kin in the Chthulucene* (2016).

[77]For the moment, the most serious alternative is that of the "Plantatiocene," proposed by Tsing in *The Mushroom at the End of the World* (2015), to describe a pre-industrial regime of land-appropriation that marks the beginning of the "great Columbian exchange" (Charles C. Mann, *1493: Uncovering the New World Columbus Created*, 2011), an ideal golden spike for the beginning of the Great Divergence analyzed by Richard Grove in *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600–1860* (1995).

familiar. But it is also a moral problem: it is only when you feel the repercussions of your own action that you understand to what extent you are *responsible* for it. As Sloterdijk has noted, it is only when humans see pollution falling back on them that they begin really to feel that the Earth is in fact round.[78] Or, rather, the roundness of the Earth, known – but always superficially – from the earliest Antiquity, takes on more and more verisimilitude as the number of circles with which it can be surrounded gradually increases. Thus the loop that is required to draw any sphere is pragmatic in John Dewey's sense: you have to feel the consequences of your action before you are able to represent to yourself what you have really done and become aware of the tenor of the world that has resisted your action.[79]

This is why it is so important to move from the Globe to the quasi-feedback loops that tirelessly design it in a way that is broader and denser each time. Without Charles Keeling's observatory in Mauna Loa and the instruments that detect the carbon dioxide cycle, we *would know* less,[80] by which I mean that we would *feel* less strongly that the Earth can be made rounder by our own actions. And, before that, we had to feel the hole in the ozone layer thanks to the campaign with Dobson's instruments,[81] as we had to learn to feel the possibility of nuclear winter thanks to the new models of atmospheric circulation advanced, during the epoch of a virtual nuclear holocaust, by Carl Sagan and his colleagues.[82]

What is at stake in the Anthropocene is this order of understanding. It is not that the little human mind should be suddenly teleported into a global sphere that, in any case, would be much too vast for its small scale. It is rather that we have to slip into, envelop ourselves within, a large number of loops, so that, gradually, step by step, knowledge of the place in which we live and of the requirements of our atmospheric condition can gain greater pertinence and be experienced as urgent. The slow operation that consists in being enveloped in sensor circuits in the form of loops: this is what is meant by "being of this Earth."

[78]Peter Sloterdijk, *In the World Interior of Capital: For a Philosophical Theory of Globalization* ([2005] 2013).

[79]John Dewey, *Logic: The Theory of Inquiry* (1938).

[80]See Charles David Keeling, "Rewards and Penalties of Recording the Earth" (1998) (cf. the first and second lectures).

[81]See Grevsmühl, 2014, chapter 7.

[82]See Paul N. Edwards, "Entangled Histories: Climate Science and Nuclear Weapons Research" (2012), and Matthias Dörries, "The Politics of Atmospheric Sciences: 'Nuclear Winter' and Global Climate Change" (2011), on the link between nuclear war and the New Climate Regime. Oliver Morton offers a remarkable summary of those successive events in *The Planet Remade: How Geoengineering Could Change the World* (2015).

But we all have to learn this for ourselves, anew each time. And it has nothing to do with being a human-in-Nature or a human-on-the-Globe. It is rather a slow, gradual fusion of cognitive, emotional, and aesthetic virtues thanks to which the loops are made more and more visible. After each passage through a loop, we become *more sensitive* and *more reactive* to the fragile envelopes that we inhabit.[83]

How many supplementary loops do we have to trace around the Earth before "knowledge" is receptive enough for this shapeless Anthropos to become a real agent of history and an ever-so-slightly credible political actor? It is useless to claim that we *already* knew this and that others have said it before. How many loops have some of you had to follow before giving up smoking? It is possible that you *always knew* that cigarettes caused cancer, but there's a long way to go between that "knowledge" and really stopping smoking. "To know and not to act is not to know." Before weighing what it is to know that one must not smoke, doesn't one need to anticipate the pain in one's flesh, the pain that shocking images on some cigarette packages try to prefigure? In this case, too, there have to be complex institutions and well-equipped bureaucracies for you to reach the point of feeling in advance the effects of your actions on yourself. Similarly, how many loops do you have to go through really to *feel* the roundness of the Earth? How many supplementary institutions, how many bureaucracies do you call for, you personally, to make yourself capable of responding to a phenomenon, at first glance so remote, as the chemical composition of the atmosphere? Especially if others are working for their part to *make* you insensitive by deliberately producing ignorance?[84] (It is no accident that the same lobbies that are financing the climate skeptics have worked so long to conceal the connections between cigarettes and your lungs.)[85]

But there is another, more convincing, ultimate reason why we should be extremely suspicious of any global vision: Gaia is not a Sphere at all. Gaia occupies only a small membrane, hardly more than a few kilometers thick, the delicate envelope of the critical zones. Thus it is not global in the sense that it would work as a system starting from a control booth occupied by some Supreme Distributor, surveying and dominating the whole. Gaia is not a cybernetic machine controlled by

[83]See David Abram, *The Spell of the Sensuous: Perception and Language in a More-than-Human World* (1996).
[84]See Robert N. Proctor, *Golden Holocaust: Origins of the Cigarette Catastrophe and the Case for Abolition* (2011).
[85]See the testimony of Al Gore, *The Assault on Reason* (2007), and a more detailed account by James Hoggan, *Climate Cover-Up: The Crusade to Deny Global Warming* (2009).

feedback loops but a series of historical events, each of which extends itself a little further – or not. Understanding the entanglements of the contradictory and conflictual connections is not a job that can be accomplished by leaping up to a higher "global" level to see them act like a single whole; one can only make their potential paths cross with as many instruments as possible in order to have a chance to detect the ways in which these agencies are connected among themselves. Once again, the global, the natural, and the universal operate like so many dangerous poisons that obscure the difficulty of putting in place the networks of equipment by means of which the consequences of action would become visible to all the agencies.

This is what it means to live in the Anthropocene: "sensitivity" is a term that is applied to all the actors capable of spreading their sensors a little farther and making others feel that the consequences of their actions are going to fall back on them, come to haunt them. When the dictionary defines "sensitive" as "something that detects or reacts rapidly to small changes, signals, or influences," the adjective applies to Gaia as well as to the Anthropos – but only if it is equipped with enough sensors to feel the retroactions. Isabelle Stengers often says of Gaia that it is a power that has become "touchy."[86] Nature, the Nature of yesteryear, may well have been indifferent, dominating, a cruel stepmother, but She surely wasn't touchy! On the contrary, her complete lack of sensitivity was the source of thousands of poems, and it was what allowed her, in contrast, to unleash in us the sensation of the sublime: we humans were what She was not – sensitive, responsible, and highly moral.

Gaia, on the other hand, seems to be excessively sensitive to our actions, and it seems to react extremely rapidly to what it feels and detects. No immunology – in Sloterdijk's expansive sense – is possible unless we learn to become sensitive in turn to these multiple, controversial, mutually entangled loops. Those who are not capable of "detecting and responding rapidly to small changes" are doomed. And those who for whatever reason interrupt, eradicate, neglect, diminish, weaken, deny, obscure, discriminate against, or disconnect these loops are not merely insensitive or unreceptive. As we shall see in the following lectures, they are probably, if not criminals, in any case our enemies. This is why it makes sense to call "negationist" those who, denying both our own sensitivity and Gaia's, declare with confidence that the Earth cannot under any circumstances react to our actions.

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[86]Isabelle Stengers, *In Catastrophic Times: Resisting the Coming Barbarism* ([2009] 2015).

To follow the loops in order to avoid totalizing is obviously also to approach politics. With the concept of Anthropocene, the two great unifying principles – Nature and the Human – become more and more implausible. And it is not the intrusion of Gaia that is going to pull together and unify what is coming apart before our eyes. It is useless to hope that the urgency of the threat is so great and its expansion so "global" that the Earth will act mysteriously as a unifying magnet to turn all the scattered peoples into a single political actor occupied in reconstructing the Babel Tower of Nature. Gaia is not a kindly figure of unification. It is "nature" that was universal, stratified, incontrovertible, systematic, deanimated, global, and indifferent to our fate. But not Gaia, which is only the name proposed for all the intermingled and unpredictable consequences of the agents, each of which is pursuing its own interest by manipulating its own environment.

The multicellular organisms that produce oxygen and the humans who emit carbon dioxide will multiply *or not* according to their success, and they will win exactly the dimensions that they are capable of taking. No more, no less. Don't count on an encompassing, preordained system of retroaction to call them back to order. It is impossible to appeal to the "equilibrium of nature," or to the "wisdom of Gaia," or even to its relatively stable past as a force that was capable of restoring order every time politics divided these scattered peoples excessively. In the epoch of the Anthropocene, all the dreams entertained by the deep ecologists of seeing humans cured of their political quarrels solely through the conversion of their care for Nature have flown away. For better or for worse, we have entered into a *postnatural* period.

Obviously, behind the dreams of global unification there was, there still is, Science. Couldn't we find in Science a unifying principle of last resort that would bring the world into agreement and that could direct a mass of humans toward incontrovertible programs of action? Let's all become scientists – or at least let's spread science everywhere through education – and we'll be able to act in concert. "Facts of all countries, unite!" Unfortunately (I almost said fortunately), this solution is made impossible not only by the pseudo-controversy carried on by the climate skeptics, as we saw in the first lecture,[87] but also by the very singularity of all these disciplines, which depend on a distribution of instruments, models, international agreements, bureaucracies, standardization, and institutions whose "vast machine," to borrow

[87]See Edwin Zaccai, François Gemenne, and Jean-Michel Decroly, eds, *Controverses climatiques, sciences et politiques* (2012).

Paul Edwards's title, has never been presented in a positive light to public awareness.[88] The climatologists and the Earth System scientists have been led into a *post-epistemological* situation that is as surprising for them as it is for the public at large: it is as if both groups find themselves thrust "outside of nature."

If there is no unity either in Nature or in Science, this means that the universality we seek has to be in any case woven loop after loop, reflexivity after reflexivity, instrument after instrument. It was to make this effort of composition at least thinkable that I proposed, in the first lecture, to define collective lives through the distribution of agency and through the choice of connections that link these forms of action.[89] This is what I have called a *metaphysics* or a *cosmology*, something that may allow us to escape for good from the Nature/Culture format by leading us toward something like the *world*. These collectives – and this is what makes all the difference – are not *cultures*, as they were for traditional anthropology; they are not unified by being, after all, "children of Nature," as the natural sciences of yesteryear maintained; nor, of course, are they a little bit of both, as the impossible dreams of reconciliation or dialectic would have it.[90] The true beauty of the term Anthropocene is that it brings us very close to *anthropology*, and it makes less implausible the *comparison of collectives* finally freed of the obligation to locate any one collective with respect to the others according to the sole schema of nature (singular) and cultures (plural), where unity would be on one side, multiplicity on the other. Finally, multiplicity is everywhere! Politics can begin again.[91]

Facing the Anthropocene, once the temptation to see it simply as a new avatar of the schema "Man facing Nature" has been set aside, there is probably no better solution than to work at disaggregating the customary characterizations until we arrive at a new distribution of the agents of geohistory – new peoples for whom the term human is not necessarily meaningful and whose scale, form, territory, and cosmology all have to be redrawn. To live in the epoch of the Anthropocene is to force oneself to redefine the political task par excellence: what people are you forming, with what cosmology,

[88]Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (2010).

[89]See Philippe Descola, *Beyond Nature and Culture* ([2005] 2013).

[90]The word "collective" brings together in a single concept precisely that which *collects* a multitude of agents defined neither by nature nor by society. On all these definitions, see Latour 2005.

[91]See Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* ([1999] 2004b).

and on what territory? One thing is certain: these actors who are making their stage debuts have never before played roles in a plot as dense and as enigmatic as this one! We have to get used to it: we have entered irreversibly into an epoch that is at once post-natural, post-human, and post-epistemological! This makes a lot of "posts"? Yes, but this is exactly what has changed around us. We are no longer exactly modern humans in the old style; we are no longer living in the Holocene!

The redistribution of agency – what used to be called, not so long ago, the "environmental questions"! – is not a way to assemble the concerned parties peacefully. It divides more effectively than all the political passions of the past – it always has. If Gaia could speak, it would say, like Jesus: "Do not suppose that I have come to bring peace to the earth. I did not come to bring peace, but a sword" (Matt. 10: 34). Or, more violently still, as in the apocryphal Gospel of Thomas: "I have cast fire upon the world, and behold, I guard it until it is ablaze."[92]

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Let me conclude this lecture with another interpretation of the planetary clash at the end of a famous film by Lars von Trier.[93] The plot in part involves a stray planet named Melancholia, which is threatening to crash into the Earth; the threat reveals how the protagonists, each isolated from the rest of the world in their homes, will react to the catastrophe. Without spoiling the suspense for those of you who haven't seen it, I'll just say that it doesn't end well. The fragile tree-branch shelter built by the heroine to protect her sister and her nephew doesn't seem to suffice. Still, it is possible that the lesson of this metaphor is quite different: it might not be the Earth that is destroyed in a final, sublime, apocalyptic flash by a wandering planet; it might be our Globe, the global itself, our ideal notion of the Globe, that has to be destroyed, so that a work of art, an *aesthetic*, can emerge.[94] Provided that you agree to hear in the word "aesthetic" its

[92]Apocryphal Gospel attributed to Thomas, Logion 10, www.earlychristianwritings.com/thomas/gospelthomas10.html.
[93]Lars von Trier, *Melancholia* (2011).
[94]"For that reason, Gaia resembles planet Melancholia much more than it does the Earth. Melancholia is an image of the titanic, enigmatic transcendence of Gaia, an entity that suddenly and devastatingly falls on a world, ours, that has suddenly become all too human" (Déborah Danowski and Eduardo Viveiros de Castro, *The Ends of the World*, 2016, p. 41).

old sense of capacity to "perceive" and to be "concerned" – in other words, a capacity to make oneself sensitive that *precedes* all distinctions among the instruments of science, politics, art, and religion.

In one of his many linguistic innovations, Sloterdijk suggested that we need to pass from monotheism and its old obsession with the form of the Globe to monogeism.[95] The monogeists are those who have no spare planet, who have only one Earth, but who do not know its form any better than they know the face of their former God – and who are thus confronted with what could be called an entirely new genre of geopolitical theology. Once the Globe has been destroyed, it has space and time enough so that history may start up again.

[95]Not to be confused with monogenism, a theory about the unique origin of humanity! "The proofs of God's existence must inevitably bear the blemish of their failure, while those of the globe's existence have an unstoppable influx of evidence on their side" (Sloterdijk, 2013, p. 6).