Chapter Five

Planetary Goodbyes: Post-History and Future Memories of an Ecological Past

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> *If there is a material, technological, and industrial pollution, which exposes weather to conceivable risks, then there is also a second pollution, invisible, which puts time in danger, a cultural pollution that we have inflicted on long-term thoughts, those guardians of the Earth, of humanity, and of things themselves. If we don't struggle against the second, we will lose the fight against the first. Who today can doubt the cultural nature of what Marxists used to call the base?*
> – Michel Serres[1]

> *All techniques for reproducing existing worlds and artificially creating new ones are, in a specific sense, time media.*
> – Siegfried Zielinski[2]

When Does the Future Begin?

In a live chat organized by *The Guardian* newspaper in November 2014, science fiction author William Gibson was asked the rather blunt question by one of the web participants: 'When does the future begin'? One could easily have answered in a sarcastic or ironic way, but Gibson refrained from such negativity and took the question seriously. He observed how the question includes the reference to the future in lower case; it comes without the modernist twentieth-century idealization of one big Future waiting for us. Perhaps, meditated Gibson, we are merely in anticipation of lower-case futures, which has lost the vibrancy or energy that was around in the 1980s. He continued:

> It might represent a kind of very wide cultural maturation. Americans, for instance, no longer believe in the future as some completely other place. Europeans never believed in that, because in Europe the evidence is all around us that the future is built in the past. We're surrounded by the past in Europe. The American vision of the future was over the hill, down the highway, we'll build a new world. Americans have gotten the message. I

think that Blade Runner was very important in that, in its wonderfully European depiction of a future Los Angeles that grew perpetually out of its own ruins. A very un-American vision, radically un-American. Something came from that.[3]

Whether it is maturation or just melancholic disappointment remains to be decided. In many ways, the lack of a future has been raised as a dilemma of temporal politics that is haunted by a persistent memory of the past as a sort of a block of imagination; this is what Mark Fisher notes as the hauntological tendency of contemporary popular culture and also what is articulated in political philosophies such as Fredric Jameson's. For sure, this cannot be resolved through a nostalgic reiteration or reattachment to a past and yet it raises the question: what sort of a future and memory of a future are we then able to produce?

Futures are being constantly imagined, but the emphasis on ruins is as visible in the midst of such narratives of future projection. Much of the contemporary imaginary is full of speculations, images, and narratives of the earth before/after humans; the scientific cartographies of the sixth mass extinction are complemented with the political cartography of an audiovisual kind: the cinema of catastrophes, of the extra-planetary, of futures and future pasts without humans.[4] Philosophy and cultural theory also engage with the non-correlated world without us – possibly partly triggered by the certainty of not merely a past preceding us but also a future without us.[5]

Following Gibson, one can continue to speculate: is it that the other side of this spatialized history – the future that is still somehow tied to this planet – is not anymore imaginable in the midst of the encompassing ecological crisis? Is this imaginary instead something that needs to be rethought in relation to the automated infrastructure that encompasses the planet? But the question to Gibson had actually one potential meaning that remained unanswered. It was perhaps not so much a question about the future as such as it was about *when* it might begin. This already places time out of its joint by referring to imagined futures, which turn the historical notion of the trace on its head. If the trace refers to the past, the business of archaeologies of the future, to paraphrase Fredric Jameson, is one of utopias, their difficult ontological balancing of the existence and non-existence of the future in the present, and the reminder that despite this apparent defiance of logical order, the 'not yet being of the future' has to be considered 'no less worthy of the archaeologies we are willing to grant to the trace'.[6]

So the future might as well be the now in its uncertain existence, a fact that is underscored by the literal non-existence of a future for specific forms of life including humans. Research projects and bodies are already speaking of the sixth mass extinction under way, illuminating that instead of speculation, such a trend is rather visible.

I will continue with two parallel narratives that structure the argument of this chapter concerning the possible situations in which the escape velocity of the ecocrisis might unfold as one temporal axis to anchor our discussion in relation to memory, time, and the so-called political. Both of the narratives talk of the future and a future past that is determined in the contemporary scientific and technological imagination. In one way, this imagination could be considered a sign of the post-historical; not an episte-mological determination that history has ended (as Francis Fukuyama[7] had it) but a recognition of the role of history becoming a programmable object, a mediated narrative, and a media-technological context for understanding notions of time that cannot be reduced to the linearly written.

The post-historical comes out in different versions of contemporary media and cultural theory. This can be seen as a reference to Vilém Flusser's thoughts in the collection *Post-History*:[8] we will return to them after having presented the parallel narratives that structure an idea about different temporalities and what constitutes the present as a form of contemporane-ity[9] that sustains the past and future as creative potentialities, not merely the dead rhetorical weight of an inert, spatialized horizon.

The concept of post-history, or 'programmed history', is also used in this text to underline the way in which media-technological contexts are part of the memory of future pasts and how this envelops scientific knowledge production and narrativization in a technological culture facing a cataclys-mic collapse due to ecological crisis. While the intellectual trope of the 'end of history' has its nineteenth-century precedents in Hegel's philosophy of world history reaching its apex,[10] it is also a mode of thought that pertains to the contemporary situation of geopolitics and the memory of and from the future, in the context of the planetary era. In the 25 years that have passed since the fall of the Soviet Union and the collapse of the binary world system, the end of history has come to refer less to the 'victory' of the liberal order[11] than the sinister feeling of the liberal world order being unable and unwilling to tackle 'the end' of natural history.

But the post-historical also can be understood in terms of Steven Shaviro's notion of the post-cinematic[12]. Shaviro's focus on understanding the aesthetics and politics of audiovisual expression through new forms of cultural dominants can be also tweaked to address the question of the

post-historical. If one cannot claim that history has disappeared, it may no longer be the culturally dominant way of making sense of time or memory. It might, in fact, be in the process of being replaced by modes of thinking that interconnect natural history and social/human history, connecting the future with the past and the political imaginary with technological fabulation. Besides offering a particular narrative framework, it is also a way to address the variety of temporalities that pertain to a reality conditioned by increasingly sophisticated technologies.

Furthermore, the perspectives presented in this chapter indicate a shift in the use of the term 'archive'. Displaced from the contexts of cultural heritage institutions and the protocols and materials of bureaucratic and historical documents, it now pertains to discussions of geology, the earth, its natural history, and hence this scale of the supra-historical. This realization has found expression in recent cinema culture through films such as *Into Eternity - A film for the future* (2010) and Patricio Guzmán's documentary *Nostalgia de la luz/Nostalgia for the Light* (2010). It has also been the topic of a number of media art projects as well as theoretical discourses: a key example here is the concept of the Anthropocene discussed in Dipesh Chakrabarty's 'The Climate of History'[13] – a text addressing the joining of global social history and natural history. What all of these projects have in common is a line of argument that reframes the question of the archive and memory in planetary terms.

In short, the Anthropocene refers to the discussions in the field of geology about whether human involvement on the planet merits a new geological term that follows the Holocene. The discussions have been wide and varied over the past 10-12 years, but they have already had an impact in the humanities and arts, offering, among other things, a new conception of human and technical agency and their uneven, unequal global natures. Such perspectives displace the past and the future from the more limited horizon of historical time, relating them also to the geological time of future. We will return to this idea later, particularly related to the notion of the 'carbon-combustion complex', which offers a political-economic angle on the issue.

Post-planetary

The first narrative of post-history summons a future. In one of the odd moments offered by Erkki Kurenniemi, the Finnish media art pioneer, he gazes back from the year 2048 without a physical body, without a slimy existence of the flesh. This strange fantasy is itself not without a body

but recalls the specific historical context of 1980s cyberfantasies, where after the singularity, AI, and the quantum computer, the future is able to reproduce the past as memories for a future mankind that lives in outer space in a digital format.

If the brain is software, it has the temporal span of a different sort of a future than the one limited to our embodied existence. 'Software can be pretty much immortal in that good programming solutions and algorithms are really sustainable', to quote Kurenniemi's account from an interview with the film director Mika Taanila. Kurenniemi's vision of cultural heritage is determined by this:

> … but one clear reason is that we as humans are interested in history. We have museums and we're interested in strange things like archaeology and old music using the original instruments and arranging medieval plays using authentic costumes. We're constantly trying to reawaken the past and IT is a great tool for that, because in fifty or a hundred years when people are interested in the past they will be able to create virtual models of the entire human history. We will be able to transport ourselves into historical reconstructions of different eras in our everyday life. If we'll be able to make the reconstructions work and truly virtual it will also become an important tool to plan for the future instead of just following some new technology blindly. We can create virtual models of how society will work once it spans the entire solar system and in time, the whole Milky Way. A cloud of golf-ball-sized quantum computer servers, which 10 billion living people could inhabit.[14]

Kurenniemi jokes that by 2048 he could be one of those resurrected artificial intelligences looking back. One wonders. What happened? Why did we abandon the Earth? Why should the escape velocity discovered in the twentieth century become a vector for a whole narrative of civilization wanting to escape what became perceived as a claustrophobic trap of a planet? The emergence of planetary computation works in parallel to the modern desire or necessity of leaving the planet for other worlds, so often articulated in science fiction in the past but also in more recent productions such as Christopher Nolan's *Interstellar* (2014), a film set in an eco crisis-ridden Earth where the dust storms of the planet trigger a film-length meditation of cosmic dimensions.

Kurenniemi's vision does not give much in terms of technical detail, cultural contexts, or political and economic conditions. It's premised more on his technical and scientific view of the human being and the brain as a

finite automaton that evolution created in its specific slime-based way but that artificial intelligence would show as only one among many possible evolutionary genealogies. Fantasies of reanimation become embedded in storage capacities. They resonate with the 1980s visions, but we are constantly reminded that this belief in the technological determination of history has not in any way disappeared. It's an AI-determined way of thinking about time but also a form of reflection that takes into consideration a time of events – a temporal mode that defines future perspective in terms of technological imaginaries where intelligence is deterritorialized from human capacity to machinic entity.

The idea is not determined as part of science fiction, but the escape velocity of intelligence to synthetic intelligence is in operation across the industries of search and networking. In *Wired*, Kevin Kelly, a later contemporary of Kurenniemi, presents his vision of a future Google that is not based on search but on artificial intelligence, enabled by three major technological breakthroughs: 1) cheap parallel computing where neural network models are seen as neurons of the brain, 2) big data and the vast collections of quantified information that constitute an understanding of social life by way of collating massive data in search of patterns that surpass individual volition, 3) better algorithms to process the data.[15] If one wants to consider Kurenniemi in the context of the contemporary archival mania, one should also expand that investigation into the political economy of the algorithmic AI, since this is becoming yet another way of prescribing the conditions of memory.[16]

However, there is one interview in which Kurenniemi pursues further the rhetorical trope of leaving the planet. This short meditation complements his long-term vision of 2048 but in ways that offer a political economy of the limited resources in the planetary context. In Kurenniemi's 'premature self-obituary' entitled 'Oh, human fart', he discusses the resource basis of a post-planetary future. Kurenniemi's odd relation to environmental thinking produces the idea of turning the planet into 'Museum Planet Earth',[17] a fully-fledged planetary preservation programme that stops population growth, biosphere changes, etc. In politically and technologically enforced ways, it sees the end of change, a sort of fabulated end of history, as the solution to the material issues of the planet. The nineteenth-century birth of the museum as a preservation of non-European/Western cultures is here extended to the planetary condition.

Kurenniemi's post-welfare-state science fiction economy includes transporting all forms and dynamics of change to outer space: 'economic expansion, population explosion, genetic science and nanotechnologies

of unimaginable power, warfare'. Only a limited amount of Earth licenses allow selected people to stay on Earth. Instead, human life as we know it will be continued in data forms and in space. In a rather fragmented way, Kurenniemi explains the logic of the licenses:

> In 2100, for example, print 10 billion 'Earth licences' [sic] and distribute them to all the then-living humans. No more licences will ever be printed. Licences can be sold. This way, the people who want long life and long-lived children can have them, but only by migrating into space. This will be cheap, because there will be people wanting to stay down here, purchasing Earth licences at a price that will amply cover the price of the lift to orbit for the seller.[18]

In other words, the mythological desire of leaving the planet – a key feature of Cold-War-era science fiction too[19] – is offset by the ones desiring an unchanging sustainability of the planet, which of course is a parody of the idea of sustainability without change.

A future nomos

The second narrative also imagines a future but deals with the geopolitical changes that follow from *staying* on the planet. It is written from a different position as well, despite the somewhat similar future-past perspective. *The Collapse of Western Civilization* is a short, fact-based fabulation, a science-fact story of sorts written by Naomi Oreskes and Erik Conway, two historians of science. Subtitled 'A View from the Future', this short book offers a view of an imaginary future written by a 'future historian. Living in the Second People's Republic of China, he recounts the events of the Period of the Penumbra (1988-2093) that led to the Great Collapse and Mass Migration (2073-2093).'[20] These events are seen as milestones in a new world order catalyzed by climate change, where the shifting of land and water fronts is the key force of political changes that Carl Schmitt would have referred to in terms of the 'nomos', notably the division of the land in political-legal-economic power relations, which in European legal history was above all a question of troubled relations with the sea and with water.

Since the Renaissance and early modernity, new technologies of measurement from the compass to techniques of mapping were instrumental to the nomos of understanding and capturing global space,[21] yet they were always bordering on and negotiating the problem of water, which remained more

difficult to measure, map, and divide than land. Hence there is a certain geopolitical irony in the fact that industrially produced global warming is leading to rising sea levels and the (re)capture of the politically and economically significant dry lands, thus shifting the nomos once more. The once-mythical water now returns in the form of changing legal and governmental borders.[22]

The narrator of *The Collapse of Western Civilization* is in China, where he observes the chemical aspects of the industrial revolution. One of the most remarkable features of the Anthropocene discussions that have been going on for the past decade has been the recognition that this geological era is also one of massive chemical dosages. Oreskes and Conway remind us that the planetary placements of CO_2 have also been the industrial hot spots of the past 200-300 years: the United Kingdom (1750-1850); Germany, the United States, the rest of Europe, and Japan (1850-1980); and China, India, and Brazil (1980-2050).[23] The geopolitical order is determined by modes of production but also in terms of the role that geology and chemistry have played in establishing modern society. This order comes with its own set of temporal shifts, with multiple chemical modernities creating hot spots of production and pollution. Placed in the contemporary context, one can also delve into the differential tempos of the ecological crisis that are evidenced in the geopolitical distribution of waste. This distribution does not necessarily follow the borders of nation-states but becomes visible in statistics demonstrating that the majority of emissions come from a limited number of companies belonging to the 'carbon-combustion complex'. Among the familiar names of Chevron, Exxon, and BP, one finds the information that 'the 90 companies on the list of top emitters produced 63% of the cumulative global emissions of industrial carbon dioxide and methane between 1751 to 2010, amounting to about 914 gigatonne CO_2 emissions.'[24] This demonstrates the impossibility of talking about the Anthropocene in the singular as if it was one uniform drive; it is, rather, embedded in the accentuated actions of certain agencies, corporations, and nation-states and in the uneven impact across spaces where legal protection is less efficient or where the companies anyway have such strategic interests as to find ways to bypass legal, political, and ethical frameworks.

The geopolitical stakes of the planet are readable through the chemical levels, which also affect the heat absorbed in the atmosphere, as we know through various techniques of measurements. The narrative escorts the reader through general facts concerning the political, scientific, and policy-related determinations of environmental issues, from calculating the capacity of the planetary sinks – i.e. the places where wastes and pollutants

end up – to the emergence of practices and the idea of 'environmentality' or 'sustainability'. Different political systems respond in different ways, and the narrative reveals the sudden efficiency of the centrally governed Chinese system:

> There were notable exceptions. China, for instance, took steps to control its population and convert its economy to non-carbon-based energy sources. These efforts were little noticed and less emulated in the West, in part because Westerners viewed Chinese population control efforts as immoral, and in part because the country's exceptionally fast economic expansion led to a dramatic increase in greenhouse gas emissions, masking the impact of renewable energy. By 2050, this impact became clear as China's emissions began to fall rapidly. Had other nations followed China's lead, the history recounted here might have been very different.[25]

The planetary temperature rise of up to four degrees had a significant effect in terms of water levels and massive areas of land flooded by the Arctic sea. Yet the main thrust of the text is not yet another narrative of catastrophic proportions but a meditation on the paradoxical scientific discourse that produced such a situation. Instead of the assumed controversy concerning the interpretation of scientific data, the results concerning causalities of climate change had for years shown a one-sided result as to the causes and impact of what was to come. Oreskes and Conway introduce the term 'carbon-combustion complex' as a way of making sense of this context in terms of the political economy of the Anthropocene:

> a network of powerful industries comprising fossil fuel producers, industries that served energy companies (such as drilling and oil field service companies and large construction firms), manufacturers whose products relied on inexpensive energy (especially automobiles and aviation, but also aluminum and other forms of smelting and mineral processing), financial institutions that serviced their capital demands, and advertising, public relations, and marketing firms who promoted their products.[26]

The short book's narrative evaluates the role of public discourse on science in the post-WWII United States and its effect on political decision-making in the context of what is labelled market fundamentalism. Since the 1970s and 1980s, neoliberal policies have produced an attitude of scepticism towards

scientific positions, which from an economic perspective undermines the specific knowledge perspectives produced by research. This was a radical break with Friedrich Hayek's philosophical neoliberalism,[27] which was founded on a close relationship with the insights provided by research and scientific methods.

The future memory that is being written is at the same time a mix of the most obvious– we knew that this is happening so what's so special about it? – and the most complex: the political, scientific, and economic determinations of the geopolitically specific and yet planetary dimensions of the sink(ing) ecology. From this perspective, Félix Guattari's 'three ecologies'[28] – the idea that there is in addition to a natural ecology also a social and mental ecology – sounds almost too innocent a way of addressing the suicidal neoliberal capture of future perspectives. The collapse of the Arctic ice cap is an ecological event in an ecology of multipliers or active forms[29] that have catalytic impact on the sea, land and air as well as on the economy, urban planning, global politics, security policies and more. The water that was understood as anomalous or difficult to control/define in the political space of old Europe[30] becomes once again a determining factor of the geopolitical earth, but this time because rising ocean surfaces flood coastal areas and metropolises.

Oreskes and Conway's bestseller narrative is parallel to, but also clearly different from the framing of the planetary in Kurenniemi's visions.[31] Both raise the question of the future memories of the contemporary technological and scientific forces that determine our epistemological and ontological sense of the planetary. However, their differences have to do with accentuated takes on what the planetary as a geophysical entity actually means, and how the temporality of the future determines the ecological crisis as a point of reference that defines the contemporary. Hence I want to turn to a discussion of the contemporary and the post-historical as significant temporal-political concepts. For it is through these concepts that future-past perspectives gain currency in the evaluation of the political agenda. In short, Oreskes and Conway's short meditation on the issue of climate change produces an interesting juxtaposition to Kurenniemi's. The future memory produced by the duo and their short novel offers a political economic account of the Anthropocene, even if they choose not to use this specific term. Kurenniemi's vision is still politically undeveloped in contrast to the specific geopolitics that Oreskes and Conway offer and which – in contrast to Kurenniemi's post-planetary dreams – is based on staying in the changing planerary biosphere and geosphere. Their different narratives trigger different ways of thinking about the presence of the future in contemporary cultural discussions.

Politics of chronoscapes

In the context of this book, the alternative conceptualizations of social memory proceed by way of an explicit reference to Gabriel Tarde.[32] If Bruno Latour has used Tarde's sociological theories as a resource for rethinking the social, we should be able to think about memory and temporality in ways that offer similar effects. Latour's key idea was to abandon the blanket use of the term 'social' as if referring to a particular type of substance whose nature can be separated from, say, 'the material', 'the biological', or 'the economical'. Instead, in Latour's use of the term, the social is simply 'a movement, a displacement, a transformation, a translation, an enrollment' – a perspective becomes clearer when he refers to it as 'an association between entities which are in no way recognizable as being social in the ordinary manner, *except* during the brief moment when they are reshuffled together'.[33]

If social science becomes refashioned as a science of associations, links, and transformations, how could we use this insight to think about that other term that is so often attached to 'the social', notably memory? How is social memory to be understood once memory is understood to be fundamentally premised on a multitude of temporal determinations, situations, and techniques? We could then also address memory in terms of the various productions of figures, materials, and techniques of time. Cultural history is full of different techniques for keeping time – almanacs, calendars, clocks, and more.[34] But we can also approach the abundant techniques and associations of time as design strategies that introduce conceptual shifts in our management of temporal categories.

This work of 'design' includes narratives that are part of the material effects of design: the various techniques and technologies in which memory is embedded and which complicate linear sets of past-present-future coordinates. Instead, the contemporary moment seems to be increasingly defined by a multiplicity of times and the various ways in which we are trying to make sense of these multi-temporalities, or chronoscapes, to use Sarah Sharma's term.[35] It is against the backdrop of such a chronoscape that the entities of a 'politics of nature' – most notably the various expressions of climate change (from global warming to changing chemical balances in air, soil, and oceans to the threat of mass extinction) – are to be judged. The key premise of this chronoscape is, as already noted, the fact that the ecocrisis is not just a present dilemma but a future that acts on the now.

In terms of the notion of the contemporary, the narratives presented above are ways to get us thinking about the multitemporal stakes of this political category, so significant for modern politics.[36] They involve

implicit and explicit ways of dealing with ideas of programmed futures, future pasts, and the agenda of post-history that have penetrated the political scene since the 1990s at least. In the post-communist era – after the fall of the Berlin Wall, the Soviet Union, and other institutions and symbols of the Cold War era– discourses regarding the end of history also emerged.[37] This popular, and neoconservative populist, sense of temporality paralleled the rise of various projects, discourses, and corporations of global digital culture. Kurenniemi's ideas were partly a product of the same historical period, whereas the more recent, ecological narrativizations are the next phase of an approach that may be called 'post-historical': it ranges from popular culture examples such as the documentary series *Life After People* (History Channel, 2008), the scientific discussions of the Anthropocene, and such critical insights in fiction and scholarly work as *The Collapse of Western Civilization*. In some popular cultural narratives, such as the film *Interstellar*, commentators such as George Monbiot perceive a melancholia of political helplessness that he labels a 'politically defeatist fantasy of leaving the planet'.[38] One could easily see this relating to key features of Kurenniemi's thought and to part of a longer history of science fiction of underground and extra-planetary life.[39] However, to be clear, *Interstellar*'s view of the temporality of the planetary condition is not actually about a future perspective of leaving the planet (the future as an alternative place to be occupied): it is a twist on the familiar Spielbergian meditation on the crisis of the family system, seen in terms of the cosmic dimensions of the eco catastrophe and time-critical relativity theories.[40]

But a key argument of this chapter is the fact that the concept of the post-historical refracts into multiple historical and temporal directionalities. At this juncture, discussions of time and its involvement in the planetary political crisis is one of the most important theoretical issues to consider. One would imagine that recent debates on accelerationism could work in this direction, for at some implicit level, the 1990s cyberfantasies of Nick Land respond to the future-oriented singularities of Kurenniemi. The difference is mainly that Land produces a more explicit thematization of the 'forward investment in the future'[41] and the cybernetic mutation of the body. The post-historical comes out also in the versions of accelerationism that try to execute a determination of the contemporary moment through fabulations about a capitalist future of non-human, cybernetic artificial intelligence. These latter and more sober developments of accelerationism are premised on a temporal scheme that thinks in terms of future pasts while taking into account climate-crisis-ridden, economically stagnating

capitalist contexts[42] as well as the crises that ensue post-9/11 and the series of economic crashes and austerity measures marking the last decade.[43]

But this is not the only sort of temporal determination that is able to engage with a governmentality of the planetary or a politics of time and the political imaginary of a future memory. The current discussions concerning the Anthropocene or the microtemporalities of media culture refer back to an idea of the variety of temporalities that are constantly synchronized in relation to a horizon that we could call the contemporary and that might inform our way of understanding the present. It is in relation to this body of theory that Wendy Brown[44] articulates her concise theory of the highly significant temporal determinations of the political. Notions of genealogy, hauntology, and other temporal concepts emerging in works of cultural theory from Freud to Benjamin, Foucault, and Derrida are indispensable for the political vocabulary of modernity.

The importance of the genealogical has been already incorporated into much of contemporary media theory – especially media archaeology[45] – in ways that resonate with Brown's articulation of the task of the genealogical method: 'to denaturalize existing forces and formations more thoroughly than either conventional history or metaphysical criticism can do'.[46] But if the genealogical method opens up the past in terms of 'faults, fractures, and fissures',[47] as critical media histories have done to demonstrate the scientific and technological determinations of the now, might there be a way to expand this focus to take into account the multitemporality of our contemporary moment? Such a possibility is already implied in the genealogical method in the sense that it is a 'political ontology of the present'[48] (as Brown states referring to Foucault.) But the contemporary can be seen as a further elaboration of the immanence of temporality to both a material context as well as the 'questions, meaning, or projects'[49] that invest it. Brown draws on Walter Benjamin's theses on history as a way to develop a political notion of time that is all at once a critique of notions of linear progress, Rankean objectivity (approaching history 'the way it really was'), and other reductionist approaches to the temporality of the contemporary. But implicitly it also raises the question of how to further develop a political theory grounded in complexities of time with respect to a situation when our relation to the future is also proscribed by science, technology, and media culture.

It is no wonder, then, that recent political and cultural theory has increasingly turned to acknowledging such aspects of the future as significant for a post-9/11 world of media-informed cultural politics: I am here referring to Brian Massumi's work on the future anterior, Richard Grusin's concept

of 'premediation', and, for example, Greg Elmer and Andy Opel's work on preemptive security strategies. Albeit with different emphases, all work upon the same terrain of the future that is constantly present whether as an atmosphere of fear (Massumi) or as constantly premediated, prescribed, and through narrative techniques of controlled potentiality (Grusin).[50]

With reference to Brown's theoretical elaborations and Sharma's ethnographic research, I want to underline the possibility of thinking about the contemporaneity of the present as informed by multiple temporalities and synchronization across the time scales. The rethinking of social temporalities and memory proceeds by way of an entanglement of narratives, material contexts, and a recognition of the different ways in which the future imagined becomes a questioning of what the present-contemporary actually is. Sharma's emphasis on power chronographies becomes a way of accounting for the differentially existing timescapes that are produced in relations of labour, gender, ethnicity, and, broadly speaking, the geopolitics of contemporary capitalism. Critics who claim that homogenization of time is one of the characteristics of capitalism miss out on this more nuanced perspective on capitalism's multitemporal operational logic.

Sharma's ethnographic methodology offers ideas for a wider cultural analysis of time, media, and capitalism. It also brings a different angle to discussions of social memory. In many ways, the contemporary context for imagining future memory has been heavily influenced by the presence of a variety of concepts of *longue duree* that prescribe futures of apocalyptic proportions. The environmental crisis in particular unfolds as a production of discourses of sustainability and apocalypse, and yet both are unfulfilling when it comes to handling the complexity of the situation. A rhetoric of sustainability which dominates current policymaking is not able to question the more fundamental political and economic stakes in the situation. An apocalyptic rhetoric is, for its part, in danger of undermining all sense of agency, producing melancholic forms of subjectivity deprived of capacity for action.[51]

It's clear that we need more effective ways of making sense of the contemporary, drawing on an imaginary future and its pasts. A more satisfying solution is to think of the uneven and multiple overlapping temporalities that help to determine the otherwise broad concepts of *the political contemporary*. Indeed, in the context of discussions of the planetary and the Anthropocene, one is constantly reminded that the narratives of the contemporary technological condition have to do with the multiple temporalities they produce. It is clear that Kurenniemi's type of narrative differs from the more ecologically minded narrative of Oreskes

and Conway, despite the superficial parallels. Indeed, the concept of a sensitive co-existence of many times is a way of approaching a political imaginary of time where the projections of the future that derive from computer simulations of climate crisis and its effects (say, the changing temperature of the planet) is *already* acting on levels that all entail different temporalities: the time-critical operations of computerized epistemologies, the narrative prescriptions of possible futures, the political decisions based on such data, etc. Instead of the cyber critique of homogeneous cyber time or the homogenization of time in policy, one should actually emphasize the multiciplities of time as a way of grasping the relationship between the planetary and the computational.

Wendy Chun speaks of the (computer) modelled aspect of time in terms of the software ontology of our programmed knowledge of the future. This is most clearly stated in her analysis of the simulations concerning global temperatures and carbon emissions, where projections build on existing historical data. In her words: 'The weirdest and most important thing about their temporality is their hopefully effective deferral of the future: these predictive models are produced so that, if they are persuasive and thus convince us to cut back on our carbon emissions, what they predict will not come about.'[52]

Indeed, one can reveal a range of micro and macrotemporalities that govern the future-past temporalities of the post-historical. Any determination of the 'post' of history has to become true to the understanding of technologies and techniques of time relevant to our sense of historicity. The post-historical reveals itself through instances other than the historical writing and production of time. Hayden White's concept of 'metahistory' was important for understanding writing as a media technology that was as essential to the historical epistemology informing modernity. But it is equally important to understand Wolfgang Ernst's media-archeological emphasis on the microtemporal dimension of machinic time.[53] The various concepts of time that result from a close analysis of the circuits of cybernetic machines show us that there is a fundamental difference between the older techniques of keeping time (calendars, watches, etc.) and machines that automatically produce their own timings.

Vilem Flusser's idea of post-history might then be the necessary link between the various approaches to the future past, even if it entails taking Flusser beyond the original framework of his thinking. The idea of the programmed dimension of post-history is not envisaged as a postmodern collage but is identified in the various applications and platforms of computation, in which time is bent and twisted in a variety of ways that

resurface as distinct alternatives to history writing.[54] The post-historical is a concept of time and politics that arises once we pay attention to the actual functions of a technical apparatus removed from the programmer's intentions, argues Flusser. We can develop this claim so that its concept of 'post-history' becomes a key epistemological framework for the future past as well. Flusser notably reminds us that in order to understand the programmability of time/history/memory, '[w]e must neither anthropomorphize nor objectify the apparatus'.[55] In other words, approaching the issue of the future past and the geopolitics of capitalism does not necessitate a perspective of monorail temporality but careful analyses of multiple temporalities that in technical and in epistemological ways narrate[56] the future as an archaeological existence of projected spaces of potentiality.

Conclusions

In Maurice Halbwachs' accounts of memory, he reminds us that memory always takes place in and across collectives.[57] Memory is never determined as an individual affair but always takes place among strangers: the collective practices, techniques, and technologies of passing on cultural repetition is a way of sustaining a sense of the collective. Memory and its collective basis are, in other words, co-individuated. It is, however, extremely important to underline that the list of strangers making up memory is longer than we might imagine: with new forms of communication media, it becomes extended to new platforms, techniques, and habits. The strangers who are our memory and who help to propagate it exist in the middle of a circulation of information, goods, and people – governmentalities that extend far beyond those of the nation-state or other institutions of planetary significance (whether security and intelligence agencies, NASA, or some standard bodies of global governance).

When discussing any contemporary analysis of techniques of memory – whether platforms, practices, or technologies – one is forced to ask how this contemporaneity produces its own pasts, presents, and futures. In this chapter I have tried to address this issue through two alternative narratives of a future present engaging the contemporary moment of ecocrisis and technopolitics. Those narratives compel us to consider the cultural politics of time as one of geopolitics and temporal multiplicity, from the imaginary of outerplanetary technological futures (Kurenniemi) to tightly narrated ones that form part of the changing nomos of the planetary and of climate change (Conway and Oreskes).

Indeed, in the sense that temporal concepts such as the genealogical have become important for a politics of and out of history (to use Brown's phrasing), we are facing the crucial ecological task of creating vocabularies of the future that will help us make sense of the contemporary post-9/11, post-2008-bank-crash, post-catastrophic ecological crisis, and post-capitalism.[58] All of these events may to some extent defy traditional notions of history and instill in us the necessity of returning to the terminologies of a natural history that addresses geological periods and durations without humans. This is not in order to naturalize the contemporary cultural or economic situations but to demonstrate how the cultural politics of time is also prescribed through its relations with the non-human. To return to the point made earlier: cultural heritage, cultural memory, and social memory are increasingly debated in relation to the planetary, the geological, and the Anthropocene–scenarios involving chemical, geological, and biological processes that displace the concepts and frameworks that are normally associated with 'the social'. These are powerful reminders of the various ecological materialities that determine the times we are living in and living towards, and they sustain the idea of memory as an actively producing force, an archaeology of the future. The contemporary shift in the conceptualization of the 'archive' – from governmental instrument and cultural heritage institution to a wider understanding that comprises geophysical, ecological, and even chemical storage – is emblematic of a social memory that increasingly finds itself bound in and by nature.

Notes

1.   Serres, p. 31.
2.   Zielinski, p. 31.
3.   William Gibson Webchat, http://www.theguardian.com/books/live/2014/nov/21/william-gibson-webchat-post-your-questions-now.
4.   In the 1980s, Giuliana Bruno's early reading of postmodern culture and Los Angeles/Blade Runner already spoke of the '[t]he postindustrial city [as] a city in ruins' characterized by a loss of history in the modern sense of the trope that gives a structured sense of place, agency and meaning ('Ramble City', p. 65). Imagined futures were starting to be embedded in a state of melancholy of the imaginary surrounded by a sense of the post-historical loss of grand stories.
5.   Quentin Meillassoux' key work, *After Finitude*, offers the philosophical idea of the *arche-fossil* that signals a world before humans. Besides such a temporal figure at the centre of contemporary philosophy discussions,

one finds a wider set of arguments for non-human realities in speculative realism. In parallel to such temporal figures as Meillassoux, Ray Brassier speaks of the 'truth of extinction' that triggers the necessity to address 'time altogether without thought' (Shaviro 2014: 74). In addition, Eugene Thacker summons in his dark philosophical take the occult quality of reality as one that 'is indifferent to human knowledge' (2011: 53-54).

6.   Jameson, 2005, xv-xvi, fn. 12.

7.   Fukuyama.

8.   Flusser. Flusser's notion is one of civilizational thresholds, referring to the ontological regimes of agrarian and industrial society with their specific relations to time.

9.   See Brown, p. 171.

10.   See Jameson, 2003.

11.   See Fukuyama.

12.   Shaviro, 2010.

13.   Chakrabarty. See also Parikka, 2015.

14.   Taanila and Kurenniemi.

15.   Kelly's ideas about the emerging AI world do not, however, make the same rhetorical mistake as Kurenniemi; he emphasizes that these are not dreams of the singularity but more enhanced smart services that proceed by way of algorithmic reasoning and massive investments, quoting the figures: 'According to quantitative analysis firm Quid, AI has attracted more than $17 billion in investments since 2009. Last year alone more than $2 billion was invested in 322 companies with AI-like technology. Facebook and Google have recruited researchers to join their in-house AI research teams. Yahoo, Intel, Dropbox, LinkedIn, Pinterest, and Twitter have all purchased AI companies since last year. Private investment in the AI sector has been expanding 62 percent a year on average for the past four years, a rate that is expected to continue.'

16.   On Kurenniemi and social media culture, see Røssaak.

17.   Erkki Kurenniemi.

18.   Ibid.

19.   Beck and Dorrian.

20.   Oreskes and Conway, p. X.

21.   See Siegert, pp. 65-120.

22.   'Law precedes science and perhaps engenders it; or rather, a common origin, abstract and sacred, joins them. Beforehand, only the deluge is imaginable, the great primal or recursive rising of waters, the chaos that mixes the things of the world—causes, forms, attributions—and that confounds subjects.' Serres, p. 53.

23.   Oreskes and Conway, p. 2.

24.   Goldenberg, 'Just 90 companies caused two-thirds of man-made global warming emissions'; the article is referring to Heede, 'Tracing anthropo-

genic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854-2010'.

25.   Goldenberg, p. 6.
26.   Ibid., pp. 36-37.
27.   Ibid., p. 43.
28.   Guattari.
29.   Easterling, p. 95
30.   See Schmitt.
31.   Kurenniemi's world is closer to the familiar discourses of the singularity in science fiction; the idea that technological progress will produce a threshold moment when artificial intelligence will rapidly emerge as a significant new sort of world-changing entity that has major impact in terms of the human world. Writers interested in the singularity include Ray Kurzweill, Vernor Vinge, and also Charles Stross, and it has been discussed since the 1980s. Having said that, an earlier context for the term emerges in the work of John von Neumann and his concern for the singularity, as narrated by Stanislaw Ulam: 'One conversation centered on the ever accelerating progress of technology and changes in the mode of human life, which gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue.' (Ulam, 'John von Neumann, 1903-1957', p. 5). It is this earlier computer science context that was Kurenniemi's reference point too.
32.   It is worthwhile remembering that Gabriel Tarde wrote his own short science-fiction story, *The Underground Man* (English translation published in 1905). Tarde's novel reflects on the epochal change that the natural event brings about, crossing any social-nature division. The novel's first line is already an indication of this threshold event: 'It was towards the end of the twentieth century of the prehistoric era, formerly called the Christian, that took place, as is well known, the unexpected catastrophe with which the present epoch began, that fortunate disaster which compelled the overflowing flood of civilisation to disappear for the benefit of mankind.' The novel is available online at http://www.gutenberg.org/files/33549/33549-h/33549-h.htm.
33.   Latour, p. 65.
34.   See, for example, Kassung and Macho.
35.   Sharma. Also the notion of 'contemporary' in contemporary art discourses triggers the problematisation of linear time models; it acts as a marker of time that distinguishes contemporary art from modern art and also implies a nesting of multiple layers of time, as Peter Osborne demonstrates in *Anywhere or Not At All: Philosophy of Contemporary Art*. In other words, there would be a bigger parallel discussion between the temporalities in contemporary art projects and what I present here, but it has to wait for another context to be addressed.
36.   Lindroos and Palonen.

37. Fukuyama.

38. Monbiot's notes resonate on some level with the political critique summoned by Jameson: 'Confusion about the future of capitalism – compounded by a confidence in technological progress beclouded by intermittent certainties of catastrophe and disaster – is at least as old as the late nineteenth century, but few periods have proved as incapable of framing immediate alternatives for themselves, let alone of imagining those great utopias that have occasionally broken on the status quo like a sunburst.' (Jameson 2003: 704).

39. See Beck and Dorrian.

40. In terms of biopolitics, one is reminded that perhaps the departure had already happened. As Michel Serres puts it in *Natural Contract*, we are anyway living as astronauts, governed in relation to atmospheres and biospheres and other ecological conditions of life. 'All humanity is flying like spacewalking astronauts: outside their capsule, but tethered to it by every available network, by the sum of our know-how and of everyone's money, work, and capacities, so that these astronauts represent the current highly developed human condition.' (Serres 1995: 120).

41. Mackay and Avanessian, p. 42

42. Ibid., p. 43.

43. Williams and Srnicek.

44. Brown.

45. See Elsaesser. See also Parikka, 2012.

46. Brown, p. 103.

47. Ibid.

48. Ibid., p. 104.

49. Ibid., p. 161.

50. Massumi, Elmer, and Opel, as well as Grusin.

51. Indeed, this risk pertains to at least some forms of accelerationism. Especially Nick Land's odd version of Deleuze and Guattari offers a version of world history determined from the future perspective of the AI Capitalist World Order or the dissolved human cultures that are emerging in the forces of inhuman cognition and technosentience, to use Land's terminology (Land 2014: 255). Land's ideas seem to resonate with Kurenniemi through the rhetorical gestures acknowledging the deterritorialization from the thinking slimy human body to technology as (self-)cognizant. Despite the future past of this vision and quasi-radical rhetorics, it remains short of offering a complex notion of time that would account for the uneven and constantly contested distribution of time and planetary resources alongside exhaust. It becomes a monorail approach to the distribution of time and other planetary resources, without acknowledging the differential status of how the contemporary is being allocated. See also Massey.

52. Chun, p. 107.

53. Ernst, p. 30.

54. See again Ernst, p. 30.
55. Flusser, p. 26
56. On narrating as counting, see Ernst, chapter 1.
57. Halbwachs.
58. See Terranova.

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