



# Doomsday Clock: The Apocalypse and the scientific imaginary

Bertrand Vidal

## Abstract

According to the French specialist in sociology of science and collective knowledge, Gérald Bronner, “our worldview can be understood in two ways: knowledge or belief” (2009:21). In other words: Science of Hope, However, when science – privileged domain of objective and rational knowledge – become alarmist (ex. The scaremongering strategies about the global effects of climate change), knowledge can also be tainted by irrationality and belief. That is the case, especially, concerning the Doomsday Clock.

In fact, from sociological point of view, instead of reporting objectively and scientifically the threat, the Atomic Scientists, by capturing the pattern of Apocalypse, have allowed a secularization and deconsecration of eschatology. Henceforth, the Apocalypse is not a theological prophecy, but a secular possibility. “The danger is great, but our message is not one of hopelessness” said Kennette Benedict, BAS executive director.

## Key Words

Doomsday Clock/ scientific belief / Apocalypse/ anthropocene/ secularization/ apocalyptic imaginary

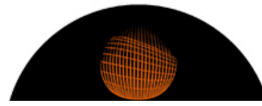
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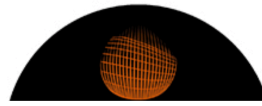
The important thing isn't the exactitude of the prediction, rather its role in social and individual therapy.

Georges Minois, *Histoire de l'avenir. Des prophètes à la perspective*, 1996.

If the history of our civilization consists of one invariable element it is surely the guarantee that one day civilization will come to pass away. Increasingly, its probable disappearance is an important factor in the handling of political decisions, of administration, its conquests and its philosophies. From the barbarian invasions to mutual dissemination to the prophecies surrounding the third Reich or Münster's theocracy, announcements and dreams of the Apocalypse add continuously to our collective memory. Despite being unrealistic the end of the world has become an obligatory myth in our history. Although "the fate of our times is characterized by rationalization and intellectualization and, above all, by the 'disenchantment of the world'" (Weber, 1958:155-6), apocalyptic motifs abound: for example the Great Flood, the Apocalypse, Armageddon, the Y2K scare, the destruction of the world by Satan, collisions between earth and planet X, the repercussions of the Large Hadron Collider operation, the myths surrounding the 2012 phenomenon (eschatological beliefs that cataclysmic or otherwise transformative events would occur on or around 21 December 2012, according to theories based on a purported ancient Maya prediction and fanned by the marketing machine behind the soon-to-be-released 2012 movie), the extinction of Sun or solar collapse, the "pole shift", the approach of a giant Black Hole twelve billion times bigger than the Sun, and so on.

"For five thousand years, not one century has come to pass without prophecies of bad omens predicting the end of civilization. At the end of the 20th century, we have come to witness these types of prophecies on a yearly basis" (Mary, 2009:6).

The theme of the end of civilization continues to develop contaminating all types of media; be they informative or used for the purposes of entertainment. At the same time, theories emerging in the environmental sciences compliment the astrologists' beliefs that the end is near: that all the warning lights are blinking, and our future is in jeopardy. After divine punishments, the instability of the natural world and the destructive appetite of human nature pose a threat to our planet's existence. In other words, providential,



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naturalist, and anthropic interpretations are multiplied in western society by embracing the secularization of the threats that gave way to the emergence of “risk societies” (Beck, 1986; Giddens, 1990).

Nevertheless, concurrently with the rise of new religious movements such as the Movement for the Restoration of the Ten Commandments of God, the Branch Davidians, the Order of the Solar Temple, the Heaven’s Gates, or even the Jehovah Witness movement and the agnostics, the doomers, the preppers, and the survivalists (Vidal, 2012), the rise in catastrophic beliefs (which is accompanied by the trivialization of catastrophes and dangers in the media) evokes an anxiety, an eschatological fear belonging to another time, rather than a clear and lucid apprehension of events to come. Paradoxically, it is as if as scientific research and advances in technology provide an increasing number of reasonable and rational solutions to everyday problems whilst at the same time there is also an increase in the anxiety concerning uncontrollable events. This is true in all fields: from the risks of climactic manipulations (for example project HAARP<sup>1</sup>), to the moral perversion introduced for some (ie. Civitas<sup>2</sup>), to the manipulation of living things and also to environmental factors (like environmental policy). As Denis Duclos (1989) makes a point of underlining that our era may be characterized by an oscillation between science-based knowledge and beliefs in which the cost of each scientific discovery or advance is an element of fear and anxiety surrounding this advance: “the technological reason resolves problems but ensues other questions that cannot be answered or even approached, which she leaves to religious movements to resolve” (Mary, 2009:7).

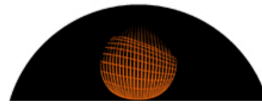
## 1. New fears (supported by scientific evidence)

Indisputably, the idea of the end of civilization is part of our cultural heritage. With the rise of risk societies - characterized more by an increasing social demand for an insurability (Beck, 1986; Ewald, 1986) than by a radical rationalization of society - this assessment continues to be true. Because of this, our culture has been marked by a swarm of “new fears” (Augé, 2013); and the portrait painted of the future is more and more one of a tragic destiny: one of technological eccentricities, biotechnological risks, environmental pollution caused by GMOs, Malthusian catastrophes, nuclear winters, mass viral mutations, pandemics and so on.

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<sup>1</sup> The High Frequency Active Auroral Research Program (HAARP) was an ionospheric research program jointly funded by the U.S. Air Force, the U.S. Navy and the Defense Advanced Research Projects Agency (DARPA).

<sup>2</sup> Civitas, also called France Jeunesse Civitas or Institut Civitas, is a right-wing Roman Catholic pressure group in France, regarded as fundamentalist Catholic and “National-Catholic”.



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This has led some to claim “[n]o doubt, we are in the final hurdle before the end of the world” (Mary, 2009:6). The only difference between previous eras and our own is that the forecasting sciences and theories have come to replace prophecies. Yesterday’s seers and soothsayers have become today’s futurologists (see Minois, 1996). Henceforth, the Apocalypse has acquired a new scientific credibility. Although the supporters of an eschatological perspective have changed, our primordial fears and anxieties have stayed sensibly the same - only the sales pitch has been modified, transforming henceforth the ancient omens into genuinely scientific, expert subject matters. The developments of modern science have given certain branches of science (economics and demography, astrophysics and geophysics, biology and epidemiology,) a badge of honor, making it possible for certain predictions, sometimes as precise as they are sinister, to both emerge and flourish.

In this regard, it was in an article published by the periodical *Nature* that a study directed by Arne Mooers, professor of biodiversity at the Simon Fraser University of Vancouver, announced “the eminence of an irreversible collapse of Earth’s ecosystems” before listing 2100 postulates of an inevitable and irrevocable End of the world. Scientific theories, organization of ecosystems, paleontological arguments and biological evidence published by the twenty coauthors of the study under the title “Approaching a state-shift in Earth’s biosphere” (Barnosky, 2012) attempted to demonstrate the imminence of our obliteration:

“The last tipping point in the history of Earth appeared 12,000 years ago, at a time when the world went from frigid to the phase current, called inter glacial. At this time, biological changes in the most extreme leading to our current state appeared in only the last 1000 years. To compare to our time scale, it is as if one could go from baby to adult in less than a year. Importantly, the planet is changing even faster now” (Mooers, 2012).

Result: this movement could very quickly get carried away and could catapult our climactic system into a new state that our ecosystems and our societies would be unable to adapt to.

According to the study, there is a specific level that absolutely must not be surpassed if there is to be any chance of survival. Scientists estimate that if more than 50% of the natural resources are exploited then our planet is doomed, because nature cannot renew itself quickly enough to counterbalance human activity and man’s impact on the environment. Thus, almost half of the climates existing today on Earth could soon disappear, giving way to conditions to which living organisms have never been exposed to on a staggering 12 % to 39 % of Earth’s surface. To add to this tragedy, these scientists estimate that we have already extracted 43% of the existing natural resources... 7% more, and we will have arrived at a point of no return:



“The next change could be extremely destructive to the planet. [...] Once a threshold-induced planetary state shift occurs, there’s no going back. So, if a system switches to a new state because you’ve added lots of energy, even if you take out the new energy, it won’t revert back to the old system. The planet doesn’t have any memory of the old state.” (Mooers, 2012).

## 2. The Anthropocene (the Demiurge Man)

Aside from this study, the majority of experts agree upon the fact that it is urgent for us as humans to change our habits and our mentalities. To begin with, we will need to act as eco-citizens, be it at home by turning off electronic devices or by choosing where we choose to spend our money - in businesses that offer local and seasonal produce and rechargeable batteries, or in our choice of transportation; such as rideshares, public transportation and so forth. Furthermore, and perhaps more importantly, we need for our politicians and governing powers to follow the same philosophy: by promoting circular industries in recycling, by encouraging alternative and sustainable energies, by fighting against the practice of planned obsolescence, and by addressing sectors directly affected by ecological and energetic transitions. According to Arne Mooers (2012):

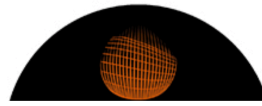
“in a nutshell, humans have not done anything really important to stave off the worst because the social structures for doing something just aren’t there. [...] My colleagues who study climate-induced changes through the earth’s history are more than pretty worried. In fact, some are terrified”.

In any case, we have changed eras and we have changed scales. For the first time in the geohistory of the planet (Grataloup, 2007), geologists and climatologists, have gravely announced the following: “the Holocene period has come to end”<sup>3</sup>.

Henceforth, anthropic activities have become the major constraint - before now other geological and natural forces had been dominant in the transformation of terrestrial ecosystems. Because of the thermo-industrial revolution traces of an urbanity, consumerism as well those associated with chemical and nuclear developments will remain forever in the geological archives of our planet. Human activity and its manipulations have become an actual geophysical force, directly affecting the planet. A popular scientific term - used as much by scientists as by activists in sustainable development and some sectors of cultural productions, to designate the period in history

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<sup>3</sup> A general meeting of the Subcommittee on Quaternary Stratigraphy (SQS). XVIII INQUA Congress. Bern, Switzerland. 26 July 2011.



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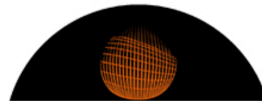
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in which human beings have had a decisive influence on the state-of-being, the dynamics, and the future of earth's systems - the term the Anthropocene has invaded numerous different medias (books, documentaries, movies, video-games, etc.) and linked the West with a new fear regime: "the new tragic destiny of the planet", according to Christian Chelebourg (2012:7).

Consequently, with this hypothesis, one that flatters our immense powers of transformation of the "ecumene" (Augustin Berque) and the "cosmo-physico-bio-anthropo-sociological complex" (Edgar Morin), there no longer exists a perfectly "natural" space, untouched by man that exempt of human traces. For "specialists of the system-Earth", the new era that we have entered will be defined by the fact that the human trace has become so intense that it is able to rival and even surpass the great forces of nature in terms of impact on the ecosystem. As a matter of fact, we are emerging out of a period of comfort and stability known as the Holocene Period, which has spanned over 12,000 years, and are advancing at exponential speed towards the fear of the unknown, towards situations of the sort that Homo has never before experienced and as a result has not adapted to biologically or culturally. Thus, "the Anthropocene period signals a junction in the geological trajectory caused [...] by a model of development that has confirmed itself and has been globalized by industrial capitalism" (Bonneuil and Fressoz, 2013:56).

What is essential to understand here is that the scientists that invented and thereafter supported the term Anthropocene to define our era - for example Paul Joseph Crutzen, Nobel prize winner in chemistry for his experiments on the formation and the decomposition of the ozone layer - didn't just gather the alarmists' theories on the state of our planet, or even systemize the uncertain future of our existence; they also participated in a enromancement (romanticization) of scientific evidence: converting scientific facts into signs and accumulation of data into scenarios. The latter, in a nutshell, can be summarized by the following: Westerners, held responsible for the achievement of the human species, have since the first Industrial Revolution, subconsciously altered system-Earth, to the point of changing its geological trajectory. Then, after the Second World War, a handful of scientists have finally made us aware of the danger, and they accorded for themselves the mission of guiding misled Humanity onto the right trajectory. Fundamentally soteriological, this account - which highlights its principal actors as a new type of human, indifferent and united by biology, the carbon footprint, that Bruno Latour refers to as *Anthropos* (2014) and its operating machines ("military equipment, the consumerist system and its infrastructure, the gaps between revenue and riches, the energetic majors and the financial interests of globalization, technological and scientific apparatus when they operate in market-oriented logics or those that shut down alternative critics" (Bonneuil and Fressoz, 2013:271---2)) - predict not only a gloomy and fatalist vision of the future, but also "green" techno-mercantile "solutions" (such as geo-engineering, use of agro fuels, synthetic biology, artificial drone bees to supplement the



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natural cycle of biodiversity). As a consequence, not only are scientists establishing themselves as the shining lights of a bashful Humanity as well as making the management of ecosystems a new position of knowledge and power, they have also, with the example of the Doomsday Clock, devised the instruments to orchestrate an “administration of fear” (Virilio and Richard, 2010).

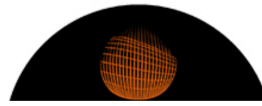
### 3. The Doomsday Clock

As already mentioned, the Doomsday Clock, presented as a universally recognized planetary indicator, is a conceptual clock which measures the time left available for Humans before they tumble over into the abyss. The clock was created in 1947 by a group of international researchers named the Chicago Atomic Scientists who had participated in the Manhattan Project in the aftermath of the atomic bombs Hiroshima and Nagasaki. These scientists wanted to unanimously warn not only politicians, but also civilians, about the threats of mass destruction that could potentially be brought about by the proliferation of nuclear weapons.

Centered on the probability (or perhaps, the imaginary threat) of a plethora of large scale global cataclysms, the adjustments of the clock (which has been adjusted 22 times since its creation in 1947) was decided by the members of the Science and Security Board of the Bulletin of the Atomic Scientists (BAS). Its countdown (on the dial of the Doomsday clock, midnight symbolically announces the End of the World), determined by a panel of experts comprised of 18 Laureates of the Nobel Prize, based upon the consensual efforts during the year passed by different countries to reduce nuclear arsenal as well as to fight against global warming and the risks linked to the emergence of new technologies (especially nanotechnologies and biotechnologies), is supposed to warn humans of the imminence of a large-scale catastrophe menacing the survival of our species (for example nuclear holocaust, global warming, a Malthusian catastrophe, the collapse of societies, or even a third World War).

During the Cold War the clock was set to 7 minutes before midnight (11: 53 PM), and has since then been updated (set back or set forward) 18 times since its creation according to the state of the world and the progression of the threat. However, on January 22<sup>nd</sup> 2015, the decision was made to set the clock forward two minutes, which now marks the clock at “three minutes to midnight” (11: 57 PM), as declared by the supervising party in charge of the estimations:

“In 2015, unchecked climate change, global nuclear weapons modernizations, and outsized nuclear weapons arsenals pose extraordinary and undeniable threats to the continued existence of humanity, and world leaders have failed to act with the speed or



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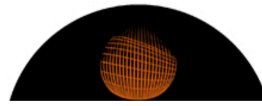


on the scale required to protect citizens from potential catastrophe. These failures of political leadership endanger every person on Earth” (Eden, 2015).

Amplification of climate change, the modernization of nuclear armaments in the United States and Russia, and problems linked to the treatment and disposal of nuclear waste, are deemed to be to blame. While we can understand that all catastrophism participates in a legitimization of mechanisms for social control from a sociopolitical perspective (Riesel and Semprun, 2008; Virilio and Richard, 2010; Debray 2011), what is astonishing is that from a socio-cognitive perspective, besides exalting the power and domination of the modern man (only a few political decisions and a few eco-citizen efforts can change the outcome of our planet), as well as the thrilling notion of an imminent and unprecedented death (11:57 PM, only three minutes until the Apocalypse!), effectively carrying a new and techno-scientific Sword of Damocles over our heads, the Doomsday Clock contributes largely to usurping the power that, up until now, was intended for only the highest elite of professionals.

This is “introversion of the Creator and creatures”, as according to the 13th Apostle, Paul of Tarse: henceforth Humanity has prepared its own end. The clock awakens immemorial Christian fears of the Last Judgment. Despite the obverse side of the diagnostics endowed upon the clockmakers, the flipside lies in a religious perspective. When all is said and done, more so than a striking image of our fears and potential self destruction, with its images of salvation and its eschatological imaginaries, this clock presents itself as a contemporary form of “scientific belief system” – perfectly embodying the constant oscillation between beliefs and knowledge, between fear and awareness, that is characteristic of our era and “which leads us to believe that ‘hard’ science and techniques and diffused irrationality are two faces of the same phenomenon” (Duclos, 1989:7). In other words, the Doomsday Clock operates as a mediator between scientific alarmists and the a return of anxiety; it has become a relay, completing the deficiencies of techno-scientists in their attempts to explain the reality of our present state: a subjective resonance, both moral and passionate, accompanied by an objective analysis of the dangers, that it supports as much as deforms.

The problem (if there is one) is that the clock tends to introduce a certain degree of nihilism. After midnight, there is nothing left! Sure enough, the alarmism that has been introduced by the temporal adjustments made in the clock is sterile and anaesthetizing. More than to incite action, it paralyzes us: it’s already too late to do anything, and there is nothing left to do but to delay the final collapse, for History will end at midnight, in any event. We are left with nostalgia of a lost paradise that we have destroyed, with regrets of the past. Thus, more so than the end of the world, the Doomsday Clock rings the death-knell on all progress. It is witness to the death of the idea of progress and the future, a refusal of the future, and in this sense has become the archetype of the failure of the idea of progress – at least in its modern dimension, namely a progress considered as



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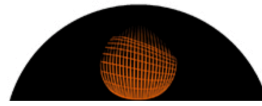


being general, continuous and indefinite, perhaps even belonging to the necessary because inscribed in the laws of History (the history of civilization is a history of the removal of the necessity and fatality).

In effect, in modernity with its industrial rationality, the system-Earth can be defined as a "large warehouse", a reservoir of resources to exploit (as Martin Heidegger observed), "where nature has prepared and stored its riches, which industry and capital of its proprietors finish off" (Say, 1815:55). With the Doomsday Clock, we are obliged to think otherwise. Our belief in progress and the force exerted on the planet by the human species, inherited from the thermo-industrial revolution, can only be turned into an acknowledgement of the subjugation of our existence to restrictions we can no longer control, and into radical uncertainties regarding our possibility of cultural and biological survival. This ideological switchover in the vision of the world also marks the end of Redemption by History (in the positivist sense of the "train of History" by idolization of the secular idea of "Better" and "the Best"). Indisputably, before, whether we were to be right wing or left wing - liberal, conservative, or protectionist - the ideology of progress was consensual. Yet this modern doxa has been consequently brushed aside by the dormant anxieties about the future that have become the central subject of apocalyptic fears. "After the gentle futurologists of modern times, driven by the myth of Progress, the future – our future – is disillusioned: on the horizon is a general darkening in the belief that humans are capable of controlling their environment" (Vidal, 2012b:18); so much so that it has almost become easier to imagine the end of the world than it is to imagine a world capable of guaranteeing a future for humanity...

#### 4. Conclusion

This shift in perspective regarding our vision of future life, the vision of our collective future and the future of the societies in which we live, is the symptom of an evolution in our customs, and bears the mark of a passage from "rosy futurologists" (dynamic eschatology and, literally, enthusiasts of modernity) to grey futurologists, or even to black ones, those that have been disillusioned. If once upon a time we lived under the promise of "freedom" (Georg Wilhelm Friedrich Hegel), or of "authentic pleasures" (Karl Marx), and even "the death of Death" (Joseph de Maistre), now "the final extinction towards which the perpetuation of the industrial society has led us has become, in very few years, our official future" (Riesel and Semprun, 2008:9). The contemporary social atmosphere is driven by an eschatological pessimism, comparable exclusively to certain periods of depression which flourished during the darkest hours of the millennia. In light of this "Apocalypse culture" (Parfrey, 1988), which manifests itself by a renewal of feverish



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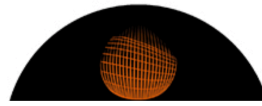
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excitement, the evidence of the End is increasingly present in the media as well as in the spirits of our contemporaries that don't miss a chance to provoke a certain number of speculations and troubled judgments which we believed to be long ago buried in the oblivion of social history such as the political, ecological, and technical millenarianism. However, there is a disquieting element in the contemporary resurgence of these doctrines, which is the narrow and unprecedented link between risk and progress. All advancements, be they scientific, technological, or industrial, are henceforth closely followed by its negative development, a potential for catastrophe waiting to happen that therefore sparks the mechanism of fear as much as it revives ancient catastrophic mythologies. "The end of the world no longer belongs to the realm of dreams of strict belief systems, and henceforth appears suddenly as a tangible potentiality" (Besret, 1965:125). Paradoxically, the responsible claim seems to be that it shows no signs of ending (the deficit of an absolute finality or the weakness of a practical outcome), that approximate to the idea of an unending progress – to the very essence of progress. As the founder of the journal *Esprit* Emmanuel Mounier pointed out in the introduction of his work *La petite peur du XXeme siècle* (The minor fears of the 20th century): "For the first time in a long time, men are haunted by the idea that end of the world is possible, and this threat follows us, our life as men could witness its completion" (1948:9).

If in its early stages this idea seems to have been backed up by the Christian intellectual circles since the middle of the 20th century, "Along with the launch of the atomic bomb, and the end of World War II, the world seems to be entering an apocalyptic era. The description of the phenomena instigated by this bomb remind us strangely of certain writings about the Apocalypse, and our minds can only be stricken by such thoughts" (Besret, 1964:125), the theologian Bernard Besret announces. According to the existentialist Christian philosopher Gabriel Marcel, "I am convinced that we are coming to the end of History. It is probable that many of us will be witnesses to the apocalyptic events that will lead to its outcome" (Marcel, 1948:119). A conviction like this one is increasingly common amongst the people, and today such beliefs are not strictly limited to religious circles. Emmanuel Mounier predicted an "end of the secular world [...]: a collective feeling [that] is a rare occurrence in the history of man, so much so that, when faced with it, we consider it to be a real fact of our times" (Mounier, 1948:6-7).

The fact of the matter remains that the outdated idea that science replaces belief, that there is a contradiction between science and rationality on one side and religion and irrationality on the other, and not an oscillation between the two, is obsolete, inept. Not only is it impossible for science to exist separately from its own belief system, which in addition to acting as its foundation, but also contributes to the resurgence of beliefs that were once thought to be obsolete, as the example of the Doomsday Clock clearly illustrates. The scientific argument should have marginalized and pushed aside any belief systems, any dogmas, not only in their religious and superstitious forms, but also in their more common forms. Instead, this contradiction between science and religion leaves in



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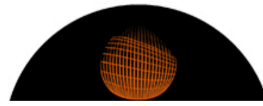


the shadows a truly prickly question, which is that of the scientific imaginary. The conceptual distinction between science and beliefs is not as clear as we think. If it is so easy to distinguish between science and superstition, if science, in its fundamentalist approach, can advance with assurance and confidence and produce not ungrounded beliefs but irrefutable certainties, when science phagocytes even the most ambiguous of our fears (the ones about the collapse of civilization) it goes beyond impervious denunciations. It is in this way that the Doomsday Clock comes back to haunt us in its imagined forms that have been suppressed by an objective discourse, showing that scientific rationality and eschatological imaginary are one in the same.



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