

## Beyond Holocene: The question of Peak oil in Eco-fiction

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### Abstract

*During the latest decades, significant issues that are correlated with maintaining the ecosystem and the depletion of oil started to gain wide popularity amid serious challenges the world is facing today. It is clear that nature-writings and sciences are interacting with each other in imaging, picturing out and forming the humans' life. The question that comes to mind is what about the contribution of literary works in stirring up the cultural imagination? In a point of fact, many Eco-critics and scholars started to promote for a deeper invest in geological and ecological disciplines, noting that Eco-criticism is regarded as the interdisciplinary field that calls for a broader understanding of both the humans and nonhumans' world. Hence, Eco-fiction works have come to evaluate the sustainable means of life, by referring to cases that strained the dominant culture like the impact of peak oil on the Holocene. In response to the challenges that contemporary societies pose to literature, it is important to bring into view novels that demonstrate different attitudes in quest to see what is the relevance of fossils fuel to the upcoming geological era after the Holocene? Considering the fact that Michael Crichton's State of Fear still fuels contradicted views and attitudes, however, focusing on the debated work aforesaid in addition to Alex Scarrow's Last light is an attempt to show that as an acknowledged approach, Geoscience in literature is better suited to arouse common sense on many phenomena in the surrounding world. It can be argued that, by adopting this understanding, the two novels are able to hold on to the traditional literary concepts; thereby, constructs the route by which the development of Eco-fiction is likely to take.*

**Keywords:** Anthropocene; Chemtrail; Geo-Engineering; Golden spike; Peak Oil; Petro-Apocalypse.

After the World War II, literary critics and writers started to focus on a set of debated key concepts, within them culture, colonialism, history, race, sex, societies, in addition to the ecology. However, the Eco-centric approach in literature has significantly evolved by the end of the twentieth century. These attitudes started to appear in various branches of knowledge as in the art, culture and technology. Noticeably, the continual progress in scientific discoveries has a big role in formalizing new conceptions about the people's lifestyle and how to adapt with these day-to-day changes. On a side note, the speeding up geologic discoveries gave rise to the awareness of the primeval and unsettled tenets about the origin of earth and mankind.

The completion of "geologic records" that imply mass extinction of different creatures throughout the history of earth have strongly influenced the cultural attitudes and given rise to the thinking about the growing up ecological crises and to what destiny the industrial progress is leading humanity (qtd. in Julie Carnage et al., 2016). On account of that progress in sciences, the geological discoveries have triggered concerns about the earth's ecosystem and the environmental equilibrium, to the extent that the lines between the natural sciences and the environmental humanities started to disappear since the scientific facts produce the knowledge and the culture as well.

It is widely agreed that the preservation of the earth ecosystem is not only the responsibility of certain group or individuals; it is the responsibility of everyone, and in order to effectuate the required change, the dominant culture must bridge the gap between the humans' world and the world of nature. To attach emphasis on this point, Serpil Oppermann and Serenella Lovino consider that the Geologists and other nature scientists are not the only ones who feel interest about the environmental problems that face the earth ecosystem, since these challenges "are also social and cultural, philosophical and political" (Oppermann, 2016).

This sense comes in harmony with the views of the anthropologist Margaret Mead when she states, “We won’t have a society if we destroy the environment” (qtd. in Castree et al., 2014). Hence, Christopher Brawley makes reference to this construct as a focus shift from an anthropocentric to the Eco-centric approach, which is the core when the Eco-centric attitudes and reality come together to reconsider the important role of non-human world (qtd. in Chris Baratta, 5).

Within the most important reasons that affect the ecology is the human per se, since the profit-driven systems are seriously affecting the nature whenever the patterns of life get complicated. Obviously, the indispensable need for oil in industry has become one of the prominent factors that started to decimate ecology in countless ways; as in the consequences of depleting the Ozone on the atmosphere. As reported by many scientists, the depletion of Ozone is taking place as a result of the greenhouse phenomenon; the concept was described by Joseph Fourier in 1824 that refers to the gaseous constituents of the atmosphere, both natural and anthropogenic (qtd. in Mike Hulme, 4-7). It is presumed that relying on oil and the increasing rates of carbon dioxides in the atmosphere have pushed the climate into a state of immoderation, in a way that the ice will be disappeared within the next three decades (Carl Franzen, 2013).

Considering these contemporary issues, William McClenney illustrates that Geologists and Environmentalists are examining whether the alterations in the atmosphere and the lithology of rocks are evident signs that the latest geological era has come to end, which spanned 11000 years (McClenney, 2014). The author argues that humans did not interfere in the environmental changes but in the latest two centuries of the Holocene, to the extent that the anthropogenic effects have exceeded the natural fluctuations that pose a transitional period between every two glacial eras. McClenney concludes that Geologists will look for what are known as the “golden spike,” a point in the geologic time record that identifies the boundaries after which the earth will turn to another geologic era (McClenney, 2014).

The idea that we got in to an “Anthropocene” era has literally gained its momentum during the recent years, suggesting that human activities began to have a significant impact on the geologic features of the earth and its ecosystems. The term ‘Anthropocene’ was firstly coined by the ecologist Eugene F. Stoermer and popularized by Paul Crutzen in 2000s as a reference to the impacts of humans on the ecosystem. However, it serves, by far, as a call to preserve the Ecology (qtd in Christopher Schliephake, 280). Moreover, Dipesh Chakrabarty calls the activities of human beings during the Industrial Revolution as “geological agents,” and affirms that the impacts of any environmental decline will extend to everyone; thereby, there will be no advantage of wealth to reduce that damage (Chakrabarty, 206). On his part, Will Steffen considers that the industrial communities have become part of the geophysical factors and worked on speeding up the transition from the Holocene era at the present time to the Anthropocene (Will Steffen et al., 2007).

Kate Rigby raises questions about the future of the ecosystem after the end of Holocene and the beginning of a frightening “ecocidal era,” and concludes by saying that any notion about the looming Anthropocene era would embrace connotations of destruction and death; this is why Eco-critical narratives should be written in a “prophetic witness” mode (Rigby, 2016). According to Oppermann, it can be noticed that changing the Earth ecosystem bears the humans’ imprints in a way that almost every part of the world has become a “contact zone” (Oppermann, 2016). To encounter this problematic attitude Oppermann argues, “We need more and more critical and imaginative tools to comprehend the Anthropocene” (Oppermann, 13). Hence, writing in the Anthropocene is not just a dive to draw attention to the beauty of nature or for the sake of art, but it also serves to disclose the ecocide path when the human-nature relationship becomes unbalanced.

To that end, and motivated by the global concern in the non-human world, the shift in literary approach comes to reconsider the physical effects of destabilizing the ecosystem that governs the humanity and the non-human world. According to Oppermann, the Eco-centric attitude in literature is “in a process of inventing and shaping itself, borrowing largely from other disciplines and the natural sciences” (Oppermann, 1999). However, the attempts to bridge the gap between the challenges of environmental change and literature are still characterized by non-effectiveness. This is why, the critic makes clear that “the deep ecological crisis is a global phenomenon that needs to be addressed in literary studies as well” (Oppermann). So far, the overexploitation of natural resources during the last two centuries has stirred up the scholars to take issues with such alterations. Glen Love argues that the environmental problems are real; accordingly, “it’s time to heal the breach between the hard sciences and the humanities” (qtd. in David Carter, 139).

In a relevant context, Isaac Asimov asserts that the world is facing a real environmental challenge that may pose a threat to the whole existence, and that there must be a kind of global consensus on how to deal with this significant issue and confront its impacts (qtd. in Reed Critchfield, 166). To get broader attention, it is significant to bring into view that recent environmental phenomena like the separation of Larsen C ice shelf in Antarctica that took place few weeks ago could be the prefaces to more climatic complications as in the subsequent storms that hit the southern coasts of America at the present time. This is why the poet Judith Wright states in her *Because I was invited that* “we must regenerate ourselves if we are to regenerate the earth” (Wright, 206). Whatever the stakes of this debate, there are possible ways to reduce the factors that contribute in breaching this balance, within them, raising the environmental awareness among the people, which can be mostly achieved through several ways, including education, digital media and literature.

It becomes clear that natural sciences are regarded as the essential means to convey different notions about the ecology and the non-human world through literary works. At this point, Oppermann states, “Alliances between the humanities and the social and natural sciences are vital in addressing and finding viable solutions to our planetary predicaments” (Oppermann, 2016). That is, crystallizing an Eco-centric sense can be achieved through the collective interaction of literary discourses with the other disciplines and fields of knowledge, especially the natural sciences. However, there are still some reservations about this approach. In this respect, Harry Crockett states, “We’re informed by “hard” science. For critics of most stripes, the natural sciences are, at best, irrelevant. For us, they’re vital. Too bad we can’t say (yet) that the reverse is also true” (qtd. in Ralph Black, 1994).

It is by showing the risk of pollution; Rachel Carson expresses her regret for the excessive specialization in the field of natural sciences and the lack to communicate with literature. Carson’s approach is focusing on the toxic effects of pesticides and other chemicals on organisms. However, her historical *Silent Spring* ignited many environmental movements since the early 1960s; simply because it is presenting a pattern that can be understood by the public. For instance, the book does not go deep into environmental details; rather, it quotes research articles in an annexed appendix so as not to pose obstacles in the way of the readers.

By far, Carson’s views that attract much larger attention to the inseparable connection between humans’ world and the physically existing world can be regarded as a starting point, by which, broadening these Eco-centric attitudes in literature has become essential to understand the problematic issues that are connected with any apocalyptic scenario at the global scale. In the introduction part of his *Ecocriticism*, the critic Greg Garrard refers to several phrases from Carson’s *Silent Spring* could be directed into environmental benefits. In a relevant context, the critic Robert Macfarlane considers the environmental crises as multi-dimensional when he asserts that the fate of humanity and their surrounding are inseparable.

As rejuvenated approach in literature, the Eco-centric attitude is constantly being enriched in line with the advancement of natural sciences that share the fundamental concepts upon which Eco-criticism is founded. This literary genre can be regarded as an interdisciplinary approach that takes a deeper and more sensitive attitude concerning the mutual relationship between humans and nature when it incorporates narratives that are intelligently dealing with environmental, geological, political and economic-constructed issues together, for the most part, to draw futuristic outlines of the lifestyle and its necessities in this changing world. This understanding comes in line with Barulkar Jeetendrasingh who states, “Ecocriticism is by nature interdisciplinary. It involves knowledge of environmental studies, natural sciences, cultural and social studies, all of which play a part in answering the questions it poses” (Jeetendrasingh, 2012).

Eco-criticism, then, is a comprehensive view and a practice as a value-centered approach to respond to the real crises that may globally take place. Accordingly, it is important to examine the efficacy of the Eco-critical approach that adapts to various disciplines with the aim at constructing an influential role within the contemporary discourses. Hence, the debate about what is the relevance of the Eco-fiction works that exhibit Petro-apocalyptic themes comes as the axial concern in this article. It can be noted that Eco-fiction has the potentiality to evaluate the sustainable means of life, by referring to cases that have strained the dominant culture like the impacts of the world-wide immoderation of climate, pollution and the depletion of oil. So, how to equate this approach with others that promote technology and industrialization? Aside from any environmental decline, the growing up economies that depend on the intensive use of oil are, by far, the main reasons behind any possible depletion of the oil formations. Whatever the case may be, it is clear that any solution to avoid Petro-apocalyptic scenes should imply the reliance on clean and sustainable sources of energy, since appreciating the ecosystem has to come first and at the expense of the other intentions.

The question that comes to mind is how can Eco-fictional works take an active role in stirring up the cultural imagination? Like any other genre of literature, creativity in Eco-fiction can be attained when the modes of knowledge are unable to make the needed change inside the communities. To a considerable extent, the worldwide awareness of the environmental responses in addition to the emergence of Geo-engineering as a scientific discipline to solve the environmental problems did not go unnoticed on the cultural scene. Categorically, the emergence of Geo-engineering discipline has inspired the ideological and Eco-critical debates derived from the prevailing cultural awareness about the progress of sciences that may offer suitable solutions. Accordingly, articulating the Geo-engineering conceptions with fiction works has gained widespread popularity as one of the highest priorities. This engagement does not contradict the creativity when addressing purposeful thoughts at the global scale. Hence, expanding the Eco-centric limits in literature to include the Geo-engineering themes has become an inevitable necessity to explain the scientific arguments about the transition to sustainability amid many contemporary challenges that are facing the world. This consideration is not only a range of large-scale innovative ways to alter climate change thought to be once mere a science fiction; it comprises new challenges concerning how to maintain the status quo and the futuristic strides of civilization.

Jeremy Moss considers that Geo-Engineering discipline “should be available in case of any environmental change” (Moss, 48). The critic also points out to Caldeira& Keith when they state, “The stakes are simply too high for us to think that ignorance is a good policy” (48). Equally, Emily Barber argue that people are accustomed not to believe in Geo-engineering concepts, but as the indications of climatic crisis started to appear and became evident, the International community acknowledged the seriousness of the situation and set in search for sustainable solutions to preserve the life and environment (Barber, 2015). However, the interaction between this Eco-centric approach and literature has reflected in many fiction works, some of them are stirring the senses and minds, while others are used to baffle rather than to illuminate.

The challenge is to present purposeful works with a rate of sophistication in order to attract the people of all levels of society to the environmental problems. It appears evident that features of thrill and action have become the cornerstone of all thinking about environment. Chris Palmer argues that there is nothing to believe that most of the relevant films have the profound impact (Palmer, 2002). At this point, Susan Sontag comments that Eco-fiction movies concentrate more on bringing out the scenes of destruction and chaos (Sontag, 213). Hence; the exaggerated thrill and the steering away from the scientific fundamentals in addressing these topics lose any environmental fiction its credibility or the required impact in developing environmental sense as a dominant culture.

To that end, it is important to give insight on popular Eco-fiction films that came to light in the 2000s with respect to the suggested causes of Global change like Gases Emission, Aerosols, and Electromagnetic Field instability. In addition, to present a critical analysis and expose the contradictions with facts when there is a lack of environmental agenda. As an example, the premise of Roland Emmerich’s *The Day After Tomorrow*, which cannot be scientifically accepted, suggests that at a pace far beyond any climatic speculation, the temperatures across the whole northern hemisphere of the earth are suddenly plunging in less than a week and transforming the recent Holocene era to a new glacial age. In whatever manner, drawing analogy between the environmental changes of the old epochs and the present one was not successful; considering that looking to the past can be useful for understanding the climate system during the ancient eras, but it does not mean that predicting the future should follow the same pattern.

Additionally, many people assume a presence of dangerous chemicals supposed to be sprayed into one of the atmospheric zones. As stated in Andrew Erin’s *Toxic Skies*, it is one of the secrete experiments that includes the visible Contrails jet-airplanes are leaving behind. However, it is scientifically approved that contrail lines are taking place “since the first aircraft engines achieved altitude decades ago” as a result of the condensation of water vapor when the jets pass through wet clouds (David DiSalvo, 2016). But unlike the mentioned two movies, however, the plot in John Roger’s *The Core* does not keep up with any limit of plausibility.

*The Core* is about conducting a trip to the center of the earth for the purpose of speeding up the rotation of the outer core that exists in a molten form; thereby, regulate the magnetic shield that is responsible for deflecting the harmful cosmic rays. It is important to keep in mind that temperature and pressure gradients rise to unbearable levels for any sophisticated vehicle ever made to go deep inside the earth (Elizabeth Howell, 2013). And that, the outer core begins at a depth of 2550 km while a deepest borehole ever dug has reached 12 Km at Kola Superdeep Borehole by Russian scientific project in 1989 (Yevgeny Kozlovsky, 5).

By shedding light on the aforementioned movies, one can come across different shortcomings in presenting Eco-fiction for the aim at confronting the economic modes of practices that may lead to such environmental problems. So far, the gap seems so clear between the stage of knowledge and the stage of taking practical steps and as Chris Palmer who makes clear that after the completion of the film, there is still half of the job not accomplished yet (Palmer, 2002). It can be argued that the duty of Eco-fiction writers is to enlighten people on ways of thinking concerning the nature-culture issues and expose how to comply with this responsibility. In the light of the aforesaid, and the fact that environmental narratives have the ability just as the other genres of literature to influence both their connotations and audience; it is significant to provide some insight into understanding the manner on which the reliance on oil and the pro-carbon attitudes are viewed in literary narratives.

The question that comes to mind is whether the Eco-fiction works are potent to depict the far-reaching consequences of peak oil policies that started to affect both the earth ecosystem and civilization? Significantly, literary works that started to bring to light during the last two decades like Alex Scarrow's *Last Light* (2007) takes this position when it demonstrates the far-reaching consequences of depleting the oil reserves as the initial signs to a post-technological age since the science and reason dogmatize that themes with relevance to the looming peak oil are inevitable within the next decades.

The premise in *Last Light* suggests apocalyptic situation occurs within one week - where the world witnesses a global oil crisis. On the other hand, it would be inattentive to pass over the Geo-engineering solutions when it comes to analyzing literary works like Michael Crichton's *State of Fear* (2004). By far, the two novels are positioned to directly engage controversial viewpoints that have cropped up as a result of the unintentional shift in humans' environment. The approaches in these novels imply kind of contradicted attitudes regarding the iconic peak oil production and how to keep up with the impacts of such a short-lived source of energy.

Thematically, it is comprehended that both of *State of Fear* and *Last Light* have reference to the fall of civilization when they attribute the perils of ending the Holocene era to the environmental challenges and the lack of sustainable energy. In addition, they point out other reasons linked to terrorist attacks that may expose to danger the whole societies. As an example, through *Last Light*, Scarrow is successfully promoting for the diversification of energy choices including the fossils fuel when he depicts the governments as unprepared to take precaution procedures, within them, keeping their essential oil reserves intact for the urgent cases. And despite the fact that *State of Fear* advocates for the expansion of oil industry, the themes and the considerable information it conveys could stir up the senses on many Eco-centric conceptions that are continuously being addressed within the scientific bodies like the importance to scale down the reliance on gases emitter fuel to reasonable levels.

It is clear that the Geological controversy about the serious consequences of the iconic peak oil have provided much inspiration to other fictional works like John Seymour's *Retrieved from the Future* (1996), Andreas Eschbach's *Ausgebrannt* (2007) and James Howard Kunstler's *World Made by Hand* (2008) that can be regarded as kind of "cautionary" as much as "speculative" fiction works (Frank Kaminski, 2008). As a prophetic novel, it can be argued that *Last Light* together with the mentioned fiction works are objectively concerned with a systematic shift from the existing but transient energy of fossils fuel to other sustainable means of power supplies. In a relevant context, Oppermann states, "Fossils that are turned into oil are themselves a result of inconceivable and meaningless natural catastrophe" (Oppermann, 121). For sure, the said Eco-fiction works that came to light during the same period of time expose the extent to which themes with reference to the environmental challenges and sustainability are taking place in the cultural views of the 21<sup>st</sup> century.

In point of fact, *State of Fear* takes its place within the line of opposition to the certain environmental conceptions that started to publicize during the last two decades. The novel has been met, to some extent, with disapproval especially from many environmentalists' viewpoint; however, using geological conceptions with reference to the fossils fuel in this novel shows how profound the impact of scientific themes on contemporary literature. It can be argued that demonstrating the science-literature dichotomy has the potential to present facts with a more sensitive perspective to the humans-nature relationship, in particular, to distance any possible retreat of civilization and human ingenuity in the absence of practicable visions about the sustainability. It becomes clear that through Eco-fiction works like *Last Light* and *State of Fear*, literary discourses could have an active engagement in the public debate on the seriousness of issues like the depletion of oil and climate change. It can be understood that the feebleness to influence the communities environmentally will be reflected passively on the public opinion to pose far-reaching policies or at least, to direct the progress in science and technology to the public interest.

The only way to explain the inattentiveness to ecology is that in the absence of authentic fiction works to serve purposeful and objective attitudes, the extremeness in apocalyptic narratives will originate a state of discontent and boredom among the people. Therefore, the need to maintain a public opinion regarding momentous issues like the climate change or the approaching peak oil levels puts pressure on contemporary writers to give the impression of being realistic. In other words, the fictional and non-fictional writers need to acquaint themselves with the sophistication of Geo-engineering conceptions to appear to be authentic as much as prophetic, by visualizing what the world will be like if the living standards couldn't cope with the upcoming change. The real change on the ground requires the interaction of international platforms, media, press and websites to promote creative Eco-centric narratives and literary texts since the audiovisual technologies are the most significant scale to re-imagine the future.

By analyzing apocalyptic themes with reference to Geo-engineering conceptions in selected Eco-fiction works, it can be concluded that having hard science in literary works would be influential to fictionalize the looming crises with regard to the overuse of fossil fuel. This approach could be of great help, if associated, in addition to the objective narratives, a scenario planning that offers pragmatic endings to raise the environmental awareness and attain the unanimous support. Thereby, undermine the possibility of triggering apocalyptic scenes on a large scale and similar to what *State of Fear* and *Last Light* imply.

In conclusion, this research evinces that different perspectives surrounding works like *State of Fear* in addition to the premise in *Last Light* that dramatizes futuristic threats of depleting the oil reserves on societies may constitute a good paradigm of Eco-centric narratives. After all, the success of any literary work as the means of expressing scientific thoughts and ideas relies on its power to convince. Hence, the goal of this approach is, at heart, to show that literary works like *Last Light* and *State of Fear* can do so, thereby, they provide a clear vision about the necessities of life to encounter any impending scenario.

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