



## THE INDIAN REVIEW OF WORLD LITERATURE IN ENGLISH

A Peer-Reviewed And Indexed Bi-Annual Online Literary Journal

<http://worldlitonline.net/>

ISSN: 0974 - 097X Vol 16. No. II July - December 2020



### Climate Fiction - A Genre of Literature for the Earth's Future

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#### Abstract

Science and literature were in two different fields until the early 1990s. However, when science advanced in the eighteenth and nineteenth centuries, literature also responded to it. Stories on scientific information and how science would change life on earth emerged. In the early part of the twentieth century, writers started writing on how anthropogenic activities alter the natural world. This writing evolved into fictional forms. This paper attempts to trace this progress in the literature and elucidates how climate fiction emerged as a new genre of literature. Using a few novels as examples, this paper further explains how climate change issues are represented in these fictions.

Keywords: eco criticism, science fiction, climate fiction, cli-fi, climate novel

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Nature has always been an inspiring source for humans. In the primordial days, humans feared nature. However, as their understanding of nature improvised, humans looked at it as a source of inspiration. Right from Stone Age paintings to modern films, one can see nature's myriad forms being represented in one way or another.

#### Nature and Literature

Nature represented in art and literary forms of ancient civilizations prove that yester year's humans have always had a great understating of nature. The best example could be Tamil's Sangam Literature. Even during this period, the Tamils have divided the landscape into five regions based on the ecosystem of that region and they called it 'thinai'. "The thinais are not inevitably distinct landscapes but they can also be understood as a lively biological environment that has cyclically developed, due tonatural forces or human civilization". (Rajantharan, M.155) These five landscapes are *Kurinji*(hills) ,*Mullai* (forest), *Marutham* (agriculture lands) , *Neithal* (seashore) and *Palai* (arid land).These landscapes were named after the keystone plant species of that landscape.

Nature has always been portrayed in English literature all through the years, for example, "You'll find lions, leopards, and bears (although no tigers), along with nearly 100 other animals, insects, and non-human creatures, mentioned throughout the Old and New Testaments. And while dogs figure prominently in several Biblical passages, interestingly there is not one mention of a domestic cat in the canon of Scripture." (Fairchild, Mary. "The Ultimate List of Animals Mentioned in the Bible"). Nature was dealt with in all its glory during the Romantic Era. During this period, Nature was considered as an immaculate and a sacred source of resilience and regeneration. Writers appreciated the beauty of nature and they stressed the urgent need to reunite with it and be part of its sublimity and grandeur.

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## Writing about the Environment

Even after the romantic period nature has been considered mostly as a thing of beauty. Conversely, it was Rachel Carson's *Silent Spring* (1962) that redefined how writers looked at the natural world. Neither did she romanticize nature nor did she appreciate its aesthetics. But she talked about the kind of negative impact humans had on Nature. Though not a fiction, her book was compared with great novels for the kind of impact it had on its readers. "Her willingness to pose the moral question led "*Silent Spring*" to be compared with Harriet Beecher Stowe's "*Uncle Tom's Cabin*," written nearly a century earlier. Both books reflected the mainstream Protestant thinking of their time, which demanded personal action to right the wrongs of society. Yet Carson, who was baptized in the Presbyterian Church, was not religious. One tenet of Christianity, in particular, struck her as false: the idea that nature existed to serve man." (Griswold, Eliza. "How '*Silent Spring*' Ignited the Environmental Movement").

More than her concern for Nature and the kind of ethical stand she took, the book's success was because of her lucid writing on scientific facts. In simple terms, Carson took science to all. Even the general population was able to understand what she intended to convey to them through her writings. She expected people to realize the brunt of their deeds, and change. "Carson intended to trigger change, but on the face of it, *Silent Spring* seemed unlikely to manage that. It was a beautiful book written by a scientist at a time when scientists were not 'supposed to' write beautiful books. It was about pesticides, chemistry, and society — by a researcher who studied fish." (Dunn, R. "In retrospect: *Silent Spring*". 485, 578–579).

This was also a big factor that differentiated her from the other scientists of her time. Almost all scientists were contented with writing their hypotheses and proofs in peer-reviewed journals. They were not inclined to reach out to the public. But Carson wanted to reach people and disseminate. She wrote about something that was connected to their life "and it concerned the perils of excessive use of pesticides at a time when pesticides were widely believed to be part of the progress of civilization." (485, 578–579).

The book's success resulted in the ban of DDT and the implementation of stringent norms regulating the use of pesticides and more importantly, it ignited the environmental movement globally. It was around this time, writers started writing about the relationship between humans and nature, not aesthetically but critically. Science, till then, was not part of literature. As more and more writings on nature gained attention and prominence, they were grouped as nature writing or green writing. In the United States, the study of green writing was labelled as Eco Criticism and Cheryll Glotfelty of Cornell University was responsible for this. "On the British side of things, Eco-criticism emerged through critic Jonathan Bate's *Romantic Ecology: Wordsworth and the Environmental Tradition*; and similar to *Silent Springs*, many British critics have drawn inspiration from Raymond Williams' book *The Country and the City*. Another pioneer of Ecocriticism," (DeMott, Nick. "A Brief History of Ecocriticism: Where Literature and the Environment Cross Paths").

Eco-criticism has thus got established itself and grew as a variety of literature. However, it was too broad and not precisely defined. But one salient feature that connected all the works that were grouped under this field has been the physical environment and literature. The physical environment was inclusive of human and non-human components. This has been a major shift from the earlier forms of literary expressions which always had humans as the centre or at the top. The inclusion of non-human beings in the space which was considered as a human-centered resulted in viewing the world in a new discernment. Consequently, a new point of discussion was on how humans' influence and impact the other counterparts that share the natural world. When writers let their imagination go beyond their usual spheres of operation they created fresh thoughts, which had science as their base. Extinction of species, global warming, greenhouse effects, became topics of discussion and as a result, stories based on these themes emerged.

## **Sci-Fi's and Cli-Fi's**

Like the science fiction of the 18th century, these novels talked about how anthropogenic activities will influence the ecosystem in the future but they were not futuristic fantasies. When Issac Asimov wrote about the humanoid robot, robots were a fantasy for people. Similarly, “In 1945, long before the first satellite orbited Earth, Arthur C. Clarke famously described how radio signals could bounce off satellites for long-distance communication. Today, communications satellites are common.” (Emerging Technology. “When science fiction inspires real technology”). What were elaborately described in science fiction, in scientific terms about advancements in science, are experienced by humans today. Long-distance videoconferencing or robots performing chores of humans are now a reality. However, when these were discussed in the science fiction of yesteryears, not many believed that it would be a possibility.

If the same logic is applied to present-day climate fictions then it would be easy for anyone to understand that things that are said in these stories might be today's fantasies but, in the future, they might turn out to be realities.

This kind of futuristic theme combined with science made it difficult to classify these novels under a genre. Science fiction also faced similar issues. Many did not consider these writings as literature for quite some, as they were published in pulp magazines. But this increased the readership of these stories and they became popular. (James & Mendlesohn, xvi).

For some, science fiction is a story that is “compatible with current scientific knowledge and it communicates this knowledge to its readers” (McLeod, 171). In a similar way, when eco-criticism developed into a subject and when writers started writing stories that talked about dystopian societies as a result of the human abuse of nature, it was difficult to group these stories under an umbrella. “Yet to describe these as climate-change novels is also problematic, in the sense that climate change as we now know it didn't exist in the 1960s - or rather, it existed as scientific fact but not as the social phenomenon that is now so pervasive and familiar.” (Dobson Andrew. “The fiction of climate change”). In a way, it is a fact because; global warming is a recent phenomenon. Though there were so many other environmental issues like poaching, deforestation, and fossil fuel depletion even before the 1960s, there was not much awareness on these issues among the people. Even if any of them knew they did not care much. It was under these circumstances, climate fictions emerged. “Many climate change dystopias offer object lessons in environmentalist empathy, suggesting that—quite simply—love will let us save, survive, or escape an ecologically degraded planet. Where SF has conventionally revelled in technological world-building, these novels push the dark, dystopian side of science to the extreme, and insist on care and love as its only viable alternative”. (Johns-Putra, Adeline. 128).

It cannot be denied that both science fictions and climate fictions have more than one thing in common. Both are futuristic, they talk about science and cover a variety of themes. Therefore, it is convenient to even consider climate fiction as a subsidiary of science fiction.

## **Climate fiction – a few foretastes**

Writers from almost all major nations have made their contribution to this field of literature. At the same time, some do not believe in global warming, even among writers. One of the prominent campaigners, in this attempt, is Michael Crichton. He, being a nonbeliever in the concepts like global warming and climate change, has never been shy of voicing it in international forums and all possible opportunities. His book *State of Fear* (2004) is more like a scientific treatise. He starts his book with a disclaimer that it is an imaginary tale, but the scientific data, used in the book by the characters are real.

Interestingly, these are also the data that were used by scientists to prove that global warming is a myth. He talks about eco-terrorists who scheme genocide to make global warming a reality. Nevertheless, the story received a mixed response. Especially, the scientists who specialise in climate change research said that the author has used the scientific data partially and to his benefit. They wrote articles to explain how Crichton's novel is misleading and designed to spread misconceptions about climate change. "In the course of telling the story, Crichton paints a picture of climate science that is one-sided, error-ridden, and undeserving of notice from experts in the field. But Crichton sees his commentary on climate science as much more than a backdrop to an adventure story." (Miller, Alan. "Bad Fiction, Worse Science").

On the whole Crichton's novel, despite qualifying as climate fiction, advocates against global warming. At the same time, there are also other writers, who believe in global warming and talk about its impact on the globe. The finest example is Barbara Kingsolver's *Flight Behaviour* (2012). She, in her novel, talk in detail about how Monarch butterflies (*Danaus plexippus*) unexpectedly change their migratory path and shift their location to Southern Appalachia. The story talks about how this incident of these displaced butterflies helps an archetypal frustrated housewife, Dellarobia Turnbow, metamorphosis into an environmentally conscious individual. Through the conversations of the characters, the author takes science to her readers in a very simple but effective language. Along with the protagonist, the readers also learn, how Monarchs travel hundreds of kilometres to their wintering locations and how the anthropogenic activities like deforestation, changing agriculture practices like the use of pesticides, resulting in habitat fragmentation and loss, destruction of their host plants (milkweeds), and fluctuating weather conditions, floods and droughts, affect them. Because of these reasons they change their migratory pattern and path, only to end up in the wrong places. Monarch's population is declining at a very alarming rate. "Their numbers have been declining progressively. The Eastern North American migratory Monarch (*Danaus plexippus*) abundance in Ohio is declining by 7% per year." (Wepprich T, Adrion JR, et al. "Butterfly abundance declines over 20 years of systematic monitoring in Ohio, USA."). Barbara Kingsolver talks about these factors in her novel. She brings in natural events like torrential rains, sudden floods, and migrating butterflies and combines them with her imagination to present a fascinating climate novel. The author has declared these at the end of the novel. More importantly, the misguided migration of the monarchs is a certainty. She says "...the biotic consequences of climate change tax the descriptive powers... (594)."

McEwan's *Solar* (2010) is yet another Climate fiction that details the life of a Nobel Prize-winning Physicist Michael Beard, who is a self-centered, adulterous, and self-indulgent person. Though a physicist, he is commissioned to head the government's new renewable energy research centre. The story goes on to explain how he complicates his life by claiming his research assistant's research idea as his own. Throughout the story the author has given his readers scientific information on climate change, melting of icebergs, and running out of fossil fuels.

Several other novels deal global warming and climate change like Amitav Ghosh's *The Hungry Tide*, Lauren Groff's short story collection *Florida* (2018), Rita Indiana's *Tentacle* (2015), Nathaniel Rich's *Odds Against Tomorrow* (2013), Kim Stanley Robinson's *New York 2140*. Apart from these, there are *Barkskins* (2016) by Annie Proulx, *Aurora* (2015) by Kim Stanley Robinson, *The Swan Book* (1997) by Alexis Wright have made their presence felt. Authors like, Margaret Atwood, Kurt Vonnegut Jr, Barbara Kingsolver, Doris Lessing, Cormac McCarthy, Ian McEwan, and T Coraghessan Boyle have made credible contributions.

As there are a lot of themes that the climate fictions offer the readers need to have at least some knowledge of the topic of discussion. This aspect of climate fiction makes the authors of these stories more responsible. They need to be committed to making their writings intelligible. However, for any reader who is sensitive to the changes that happen in the world and if the individual can relate to the changes to the themes it would not be difficult for anyone to appreciate the narratives.

One of the latest developments in climate novels is the emergence of novels that aim at the younger generation. The *Carbon Diaries 2015* by Saci Lloyd is an eco-thriller for teenagers. Another interesting feature of this novel is that it discusses a policy for climate change and how it influences the system. “Britain is the first country in the world to introduce carbon-rationing, and every citizen has been issued with a carbon-card. How do young people live, love and make their way in a carbon-constrained world? But the climate-change backdrop often disappears from sight as the story turns into a ... novel for teenagers.” (Dobson, Andrew. “The fiction of climate change”).

It is of literary interest to note that climate fiction is slowly but steadily getting established itself as a new kind of literary form. It is a known fact that global weather patterns are changing and that results in unpredictable flood and drought. Extinction of species is hastened. Under these circumstances, the novels that discuss these themes play a major role in educating the general public on issues related to climate change. “One US University is now offering a literature course on cli-fi novels and movies for graduate students working on degrees in environmental studies and literature. For Stephanie Le Menager, who is leading the class at the University of Oregon this year, the course gives her and her students a chance to explore the power of literature and film as writers and directors’ grapple with some of the difficult issues facing humankind as the 21st century unfolds” (Bloom Dan. “Cli-Fi” May Be No Stranger than Reality”). In the words of Margaret Atwood “A word after a word after a word is power.”... For concerned citizens the Mother Earth is facing and making all possible changes in their lifestyles to reduce their carbon footprint and gives themselves and the world a new lease of life.

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