

**A Study of Amitav Ghosh's The Calcutta
Chromosome in the Scope of
Eco- Postcolonilaism**

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Abstract

Climate change is a global phenomenon that threatens our planet and destroys the balance of species in the world. It threatens to deport or kill millions or billions of individuals and permanently alters the life of nearly every person on the earth. Due to its high importance, this subject has been studied extensively in different disciplines including literature, particularly climate change fiction and eco-criticism theory, which examines the environment in literary works and establishes a connection between literature and the environment. The current paper endeavours to investigate the impact of the colonizers on the environment of India and reflecting the negative effects of capitalism on indigenous people and their land throughout studying *Calcutta Chromosome* by Amitav Ghosh. It is going to adapt eco-postcolonialism in *Calcutta Chromosome* as an approach analyse how the colonial authority re-shapes the Indian environment, and how their activities change the indigenous nature causing a global climate change in the entire world.

Key words: eco-postcolonialism, *Calcutta chromosome*, climate change, and Anthropocene

الخلاصة:

تغير المناخ هو ظاهرة عالمية تهدد كوكبنا وتدمر التوازن الطبيعي للأنواع في العالم. وإنه يهدد بترحيل أو قتل الملايين أو المليارات من الأفراد ويغير حياة كل شخص تقريباً على وجه الأرض بشكل دائم. ونظراً لأهميته العالية، فقد تمت دراسة هذا الموضوع على نطاق واسع في التخصصات المختلفة بما في ذلك الأدب، ولا سيما، خيال تغير المناخ، ونظرية النقد البيئي، التي تبحث في البيئة من خلال الأعمال الأدبية وتؤسس صلة بين الأدب والبيئة.

تسعى الورقة الحالية إلى التحقيق في تأثير المستعمرين على بيئة الهند وتعكس الآثار السلبية للرأسمالية على السكان الأصليين وأرضهم من خلال دراسة كروموسوم كلكتا، بواسطة أميتاف غوش. ستقوم هذه الورقة بتكييف الاستعمار البيئي في كروموسوم كلكتا كنهج لتحليل كيفية قيام السلطة الاستعمارية بإعادة تشكيل البيئة الهندية، وكيف قامت بتغيير أنشطتها الطبيعية الأصلية مسببة تغيراً مناخياً عالمياً في العالم بأسره

Introduction

The Anthropocene era confronts deep-rooted environmental disruption, the widespread and uneven expansion of the climatic period's inequities and violence, and changing realities that have new, worrying repercussions. As nature and people are changing, normalcy cannot return. Human societies have become passive objects, while

nature has unexpectedly become active subjects, the global warming is terrifying, and a beautiful inversion of backdrop and foreground has frozen civilization while natural history is accelerating (Latour, 2014).

Scientists are still studying how diversity affects ecosystem resilience, the ability of an ecosystem to withstand stressors like pollution or a hurricane without changing its kind or services. Thus, while considering climate change's effects on ecosystems, it's important to note that some effects, like biological diversity loss, are irreversible (National Research Council et al., 2008). Rising atmospheric and ocean temperatures, altered precipitation patterns, rising sea levels, and falling sea ice are clear. Average temperatures will rise. Humans determine climate change. Many climate model studies demonstrate that if the world continues to emphasize rapid economic expansion fuelled by fossil fuels, it may face significant warming in the 21st century. (Trexler, 2015)

Gold and other precious stones, together with massive quantities of rice and cotton, jute and indigo, tea and teak, left India. These items were mass-produced at low cost by means that resembled slavery, such as the establishment of tea plantations in northeastern India at the expense of the indigenous people who had lived there for centuries. These biological and mineral exports had minimal value-adding processing before being shipped abroad. Less value-added British products made up the return flows (Gadgil & Guha, 1995). These data suggest that the British conquerors turned India's formerly stable and healthy environment into one that is more unstable.

The capitalist system is soulless and devoid of humanity. It attempts to reduce all human activities to their profitability on the market. It does not commit to democracy, family values, culture, Judeo-Christian principles, common people, or any of the other shibboleths spouted on special occasions by its public relations representatives (Cole, 2017). State involvement through infrastructural projects seemed to have implications and was, in turn, influenced by the environmental circumstances in India. This is notably so in the example of railway construction in mid-nineteenth-century India.

The construction of railways and other forms of state run infrastructure was seen as an attempt at modernization and a legacy of the colonial state that would last long after British rule ended. The construction of railways would make it easier for

people to move into uninhabited areas, thereby increasing the human population's potential territory of settlement. By eliminating barriers to commerce, modernizing and expanding Britain's railways would provide the country's businesses access to hitherto inaccessible raw resources and markets. Thus, the colonial state's economic and political authority over the colony would be strengthened by railroad technology, and the colony's resources would be put to better use (Das, 2015).

. Postcolonial eco-criticism combines post-critique of colonialism's colonial regimes and transnational capitalism with eco-awareness of the earth, which has been the source of such exploitation (Banerjee, 2016). Postcolonial studies and eco-criticism have had a rocky relationship. Postcolonial studies' historical critique of neo-/colonial nation states and environmentalism's continued involvement with green imperialism and ecological exploitation remain contentious topics for the two critical groups to find common ground on. The term "postcolonial" is originated in political and economic discussions about decolonization in the 1970s and has since come to mean a variety of things relating to the struggle against and comprehension of colonialism and globalization. It is widely accepted that the ecosystem suffered greatly as a result of colonialism. In the year following Cesaire, revolutionary Guinea-Bissauan Amilcar Cabral wrote about nature and nationalist culture (Mukherjee, 2010).

Environmental and eco-theorist Pablo Mukherjee makes a compelling case for merging the two fields when he argues that any field claiming to theorize the global conditions of colonialism and imperialism (let's call it postcolonial studies) must consider how environmental components like water, land, energy, habitat, and migration interact with political or cultural elements like state, society, conflict, etc.

Post-colonialism has sometimes been criticized for focusing on systems of economic and cultural dominance without considering the anthropocentrism of such concerns. In contrast, eco-criticism as a field has frequently neglected non-Western concerns. In attempt to face and remedy the wrongs of the colonial past, the colonial subject must bear witness to the cultural, economic, and environmental devastation; but, yet to the degree that colonialism "killed off" the witnesses to its aggression, the land is the sole witness to the past.

In the light of the human-centered perspective of postcolonial studies the earth remained inherently silent inside the human-centered paradigm of postcolonial studies, eco-criticism aims to restore the land's agency and voice. In this framework, the objective of eco-criticism would be to shift from the metaphorical to the material as well as from anthropocentrism as "human-centeredness" to a balanced assessment of human and non-human ecosystems (Banerjee, 2016, pp. 195–196).

European empire also influenced worldwide environmental change. From lumber and furs to rubber and oil, metropolitan nation seeks raw supplies. Plantations changed island ecologies. Settlers presented new procedures of farming; some refuges native peoples and their procedures of running the land. Colonial cities, many of which have become vast conurbations, drastically transformed human relationships with nature. Consumer cultures, the center combustion engine, and greenhouse gasses are now everywhere. In contrary, while natural resources have been intensively exploited, a related process the growth of environmentalist practices and concepts has strong roots in imperial history (Beinart & Hughes, 2007).

Eco-criticism and post-colonialism examine the complex interaction between the social and political center and its fringes. Dominic Head states that eco-criticism de-privileges the human theme, while postcolonial theory de-centers the colonizers and their rhetoric. De-centring always involves re-centering the quiet other to hear them. Patrick D. Murphy's eco-critical views assert that non-human others can be formed as speaking subjects, as contrasting to merely speaking objects, although the latter is preferable to silence. (Gerhardt, 2002)

Postcolonial eco-criticism's role has been to challenge and offer alternatives to western development notions. These contestations have generally aligned with radical Third-Worldist criticisms that regard development as neo-colonialism veiled as vast technocratic machinery serving western economic and political interests. Development is sometimes used with self-congratulation and scorn because it is based on western cultural assumptions and presumptions (Huggan & Tiffin, 2015)

When applied by people and governments whose only interest is in exploiting others in the guise of a noble cause, development is a textbook example of the self-privileging ideology of neo-colonialism. This shows that there are two sides to

development: a “false” side in which development is used as an excuse to protect political and economic interests, and a “true” side in which it is used to promote civil society and human rights (ibid). Alfred W. Crosby (historian and according to NY times he was considered the father of environmental history) tends to highlight European male agency above other historical topics and nearly reiterates the biological determinism of the colonial history; still, his study serves as a good reminder of the importance of other the methods in which biotic agents contributed to human history and the profound ecological changes brought about by the imperialism (Motyka, 2018). His work and those of many other environmental historians have contributed to highlighting the biological aspects of human history that both shape and are shaped by the environment. Thus, human agency helps us to comprehend human choices in the surroundings that are broader and more ecological (DeLoughrey & Handley, 2011).

Contemporary postcolonial eco-criticism has to address postcolonial issues of environmental expropriation by delving deeply into specific locations. There are a lot of postcolonial countries in the global South that are staunch supporters of developmentalism. It broadens the area by making it hard to deny the importance of economic and developmental mentalist issues inside environmental crises. Multiple sociological and historical studies have underlined the significance of developmentalism to postcolonial environmentalism. However, postcolonial ecocriticism has been reticent to engage with development ideologies because it is so deeply influenced by first-wave ecocritical concerns from the 1960s and 1970s. (Sen, 2009)

Politically motivated measures to combat global warming are examined in postcolonial literature with an emphasis on the apparent socioeconomic inequities at their core. Climate change evidence is sometimes relied on by initiatives to construct technocratic forms of "planetary management," which serve to create barriers between the rich and poor, the "developed" global North and the "developing" global South (Huggan & Tiffin, 2015, p. 81).

It is of high significance to realize that the postcolonial theorists 'questioning of some Western humanism premises has led to the construction and emergence of post-humanism movement. In postcolonial studies, denial of 'humanity' to the wretched of the planet is a central subject. Scholars with a postcolonial perspective have tried to

dismantle humanism from within. So, they tell us to look back to Europe's Enlightenment, when the formal process of humanizing and "dehumanizing," or "beast-i-ficating," man began as part of European humanism. Some people take issue with trans-humanism because it seeks to further the same goal as Renaissance and Enlightenment humanism—namely, the enhancement of human capability to control evolutionary processes. Multiple categories of the 'human' have emerged since the emergence of anthropological discourses and conceptions of species as well as race. Postcolonial theorists and post-humanists are both concerned in the process of "othering." According to Thomas Pepperrell, "man-centered" or "human-centered" cosmology collapses with the advent of post-humanism, but not the end of man (Islam, 2016).

Critical post-humanism attempts to reject the rational/liberal humanism and makes room for non-human creatures, the irrational, and the extraterrestrial; it gives unreason an equal footing with reason. Trans-humanism, on the other hand, has its roots in rational humanism. As a result of the post-humanist criticism of liberal humanism, a critical space has opened up within which post-humanism functions as a counter-postcolonial strategy in opposition to the hegemonic constructs of rational humanism (Islam, 2016). Because of this, post-colonialism is a response to racism, post-humanism is a response to speciesism, and speciesism is equated with sexism and racism by post-humanists.

Consequently, while the agencies discussed in post-colonialism and post-humanism are different, they share same goal, they both want to critically analyse the hierarchical structures (either race or species) as well as deconstruct the great narratives that perpetuated the hierarchies. Post-colonialism is an attempt to deconstruct colonial discourses or the colonial way of thought that maintains the colonies and it offers a critique of white Western control over the colonial "other." The goal of this work was to undermine the Eurocentric discourses and the Eurocentric humanism paradigm from inside. By rejecting the anthropocentric way of thinking, proponents of critical post-humanism aim for a more radical form of decentring. It challenges anthropocentrism, the view that humanity is special, and colonialism, which is not shaped by the rule of a particular group of people but by the Earth itself (Islam, 2016). To achieve this goal, the current study is going to adapt eco-postcolonialism theory to explore the colonial impact on nature and environment of

India. Further, it will examine the effect of the colonial authorities on the climate change in Amitav Gosh's *Calcutta Chromosome*.

LITERATURE REVIEW

There are many studies that tackled *Calcutta Chromosome* with different theories, themes, and styles. The present study investigates this novel in the scope of postcolonial ecocriticism through studying the water crisis and the effect of railways on India. In addition, it shows the effect of climate change as a response to the development projects of the colonizers. It also explores the cyborgs as a response to imperialist control of India.

A wide variety of approaches have been used to analyse this novel by well-known authors, critics, and scholars. In "Transforming the Colonial City: Science and the Practice of Dwelling in *The Calcutta Chromosome*," Romanik (2005) demonstrated the interplay between researchers, designers, and locals. Barbara Romanik's (2005) "Transforming the Colonial City: Science and the Practice of Dwelling in *The Calcutta Chromosome*" study showed that the interaction between science, architect, and technology as well as native people. Jorge Luis Andrade Fernande's (2008) book chapter, entitled "Of Multicolored Ghosts and Polyglot Avatars the Restructuring of the Postcolonial Discursive Space in Amitav Ghosh's *The Calcutta Chromosome*", contended that writers from the developing world constantly sought out to clarify creative buildings that attempt to create areas for notions of becoming that are not centred on a nation's space or temporality. Fernandes explained how Ghosh presents his character, rejecting geopolitically and culturally steady positions. Ghosh wants to say that the identity building is based on mislead premised that the person always presents during speech. In other words, he denies the possibilities of language by itself. It is enough to the task of identity building.

Suparno Banerjee's (2010) book, "The *Calcutta Chromosome*: A Novel of Silence, Slippage and Subversion" in *Ericka Hoagland and Reema Sarwal's Science Fiction, Imperialism and the Third World: Essays on Postcolonial*, represented how Ghosh concentrates on the use of subaltern silence to defy the colonial system to destroy the colonial binary of western system. She stated how hybridizing unites with postcolonial style of resistance. In her study, she presents how the science, supernatural,

irrationality logic to make this mysterious novel as well as to defeat the Eurocentric views.

O'Connell's (2012) article "Mutating toward the Future: The Convergence of Utopianism, Postcolonial SF, and the Postcontemporary Longing for Form in Amitav Ghosh's *The Calcutta Chromosome*" analysed the novel's subtle transition from colonial burden to postcolonial methodology. According to him, the novel envisions a different destiny for the third world countries of the late capitalist empire. Shayani Bhattacharya's (2014) work, titled "The Silence of the Subaltern: The Rejection of History and Language in Amitav Ghosh's *The Calcutta Chromosome*," explored the role of silence in the past, in literature, and in storytelling. She says the novel's last pages immortalize the voices of the voiceless and show how much they are admired. Julia Fendt's (2015) "The Chromosome as Concept and Metaphor in Amitav Ghosh's *The Calcutta Chromosome*" tackled the novel as a literary text and scientifically. She analyses the systemic ecological opinions of planet. She represents the connection between science and literature, and she asserted that there is a way for realizing the world and acquiring knowledge.

Soumava Maiti's (2016) "'Borne again in repetition': Reincarnation, Afterlives, and Cultural Memory in Amitav Ghosh's *The Calcutta Chromosome*" focused on representing how the novel is connected with antique philosophy of rebirth and reincarnation. In addition to that, it highlighted the role of cultural memory through representing the aftermath lives. Mati concludes that cultural memory and numerous after lives play an ethical function.

Sukanya Mondal and Rashmi Gaur's (2018) "Western Medicine in India as a Colonial Case in Amitav Ghosh's *The Calcutta Chromosome*" emphasized the western science in India. It also represents the relation with native people's medical practice reverse to the background of Calcutta Chromosome. The scholars wanted to prove how Ghosh presents multiple and loose opposing system of knowledge. The Western system of medicine (also called as allopathy) is no longer considered invasive or strange by either the general public or the government. However, the government is proactively preventing the destruction of indigenous medicinal traditions that began during the colonial era with the introduction of Western medicine.

Abu Shahid Abdullah's (2020) "Deconstructing Western Hegemony and Voicing Silenced Histories in Amitav Ghosh's *The Calcutta Chromosome*" shed light on the subtitling silenced of the main characters and their ancient cultural practices by offering agency to subaltern through blending component of myth, mysticism and supernatural. In this article, the scholar wants to stress how Ghosh tries to investigate the buried stories about Indian medical investigation of western science. He gave them the power and put them in higher average inside hierarchy of knowledge.

Ajiet Ravikant Jachak's (2021) study, "Use of Narrative in Amitav The Ghosh *Calcutta Chromosome*", aimed to investigate the utilization of narrative in *The Calcutta Chromosome*. The narrative shifts from logic and supernatural interpreted for bizarre actions. Ravinder Kumar's (2021) "Disease as a Site of Counter-Science" asserted that the way in which Ghosh tries to find the indigenous occult chromosome of Malaria, emphasizing particular methodological differences (silence and reincarnation), is opposed to western science. Kumar attempted to demonstrate how Ghosh's postmodern speculative fiction contributes to a considerable investigation in order to produce a story anchored in silence, myth, and reincarnation that suggests counter-science and an alternative form of malaria.

Discussion

Amitav Ghosh was born in 1956 in Calcutta, upbringing in Bangladesh, and then East Pakistan, Iran, Sri Lanka, and India. He emerged as an Indian literary voice in postcolonial issues of the day. The stories about war and the Indian soldiers of the British Army, who fought against the Germans and the Japanese in 1945, had greatly influenced his mind and formed the landscape of his narratives which reveal his perception about the socio-political situations in India. Gosh believes that it is indisputably true that the capital and imperial imperatives have frequently pushed in opposite directions generating sometimes counterintuitive effects.

The story starts with Antar, an Egyptian programmer, who works for Transnational Water Council that wants to control the water around the world. Antar finds out that the ID belongs to his colleague Murgan. He is obsessed with Ronald Ross and his discovery for malaria remedy. Murgan assumes that the discovery of malaria is directed in a certain way by other mind (Mangala and her team). He tells Antar that Ronald Ross's discovery was manipulated in the hands of native people. After

Murgan's departure to India, he disappears for many years. The marginalized people (Mangala and her team) are the reason behind inventing a medicine that causes immortality. Mangala and her group transform their souls from one body to another. The time shifts from present, past, and future. The past deals with Mangala, Ross, Lutchman and the discovery of malaria while the present tackles Sonali, Urmila, and Murgan as well as their investigation of truth of malaria discovery but in future they are dealing with Antar and Tara. At the end, Mangala controls the cyber and Muragan appears as visual image on a computer screen. Then, Mangla and her group invite Antar to be with them.

Gosh wrote *The Calcutta Chromosome* (1996) as far from being a diaspora author whose global interests represent social and ideological specifics, he is concerned with digging a labyrinthine network of traces that foreground such specifics, while demonstrating that essentialist forms of national and regional cultures, like those ingrained in Orientalist discourses, are unsustainable (Khair, 2005). *The Calcutta Chromosome* skilfully illustrates the impact of the British invasion of India on the Indian subcontinent and its people. When told from a narrative perspective, events and made-up details are woven together seamlessly to form the story's overall structure. The novel's fictitious history is an analogy for a rewritten past in which blanks are filled in. The work takes a firm position for the rights of the poor and gives subaltern characters the treatment they deserve. It opens up their lives and stories to the public. You can find these traits in other works by Amitav Ghosh as well. His fictional characters have rich and complex lives, and they all crave immortality in his works (Das, 2020)

The setting of *The Calcutta Chromosome* is variable and changing. The action moves from colonial India to New York and Calcutta in 1995, and then to a close New York City. This future New York symbolizes postcolonial Diasporas and transnational consolidations. All of the protagonists are from former colonies and occupied areas, lured to "New York by the promise of good jobs and American visas, and conserving pockets of their old traditions within the high-tech, international community in which they work". The political and economic framework of this future society remains sketchy, but the International Water Council, and global organization (Lauder, 2016, p. 49). The function of the city as a place of difference

in colonial discourse goes beyond the metaphorical; Ghosh adopts this quality to undermine the modernist disciplinary mechanism. Calcutta, Phulboni avers:

Every city has its secrets,' the voice began, tut Calcutta, whose vocation is excess, has so many that it is more secret than any other. Elsewhere, by the workings of, secrets live in the telling: they whisper life into humdrum street corners and dreary alleyways; into the rubbish-strewn rears of windowless tenements and the blackened floors of oil-bathed workshops. But here in our city where all law, natural and human, is held in capricious suspension, that which is hidden does not need words to give it life; like any creature that lives in a perverse element, it mutates to discover sustenance precisely where it appears to be most starkly withheld in this case, in silence. (Ghosh, 2008, p. 22)

Phulboni's speech reveals that Calcutta is not a passive space to be analysed and given meaning. It is the place that you find Indians, British ,and mosquitoes. The colonizer exploits people and their resources. What you know doesn't mean the whole truth, but a part of it. Calcutta is hiding deep secrets that weren't expected. It embraces the secrets of religion and language that is reshaped and it would be seized by the colonials. Silence could be a power that can turn the tables upon colonials.

Focusing on the near-future scenario of the novel, it reflects the trappings of a globally networked, transnational future, stressing both the fluidity and persistence of national borders and markers. The novel opens with one of the main characters, Antar, an Egyptian national living in New York City, who resides as a data analyst for an international NGO known as the International Water Council, which replaced his old employer 'Lifewatch'. The reader gets the impression that the International Water Council is active in governing the world's access to clean water supplies, although this is never made apparent.

Ghosh's portrayal of the Transnational Water Council implies a global political framework that allocates a global resource, and the international nature of the Water Council. The International Water Council is related to concerns of colonization and large business because it was created in response to these issues:

LifeWatch had long since been absorbed, along with many other such independent agencies, into the mammoth public health wing of the newly formed International Water Council.....Lhasa was the International Water Council's continental command centre for Asia. (Ghosh, 2008, p. 9,11)

Lhasa was known as the defector capital of Asia. It was the only controlling center in the world responsible for many important hydraulic regions, including Hwang-Ho Mekong, trans-Yangtze, Yangtze, as well as Ganges-Brahmaputra (Ghosh, 2008).

The story claims that development initiatives affect the availability of water in these lands and, by extension, people's daily lives. This causes them to uproot and find a new place to live. Construction of these projects is driven less by a desire to improve these areas and more by a desire to maximize the material benefits they provide. Success in India's high-tech and service industries, both of which have relied heavily on the outsourcing of labor by Western-based corporations, has been crucial to the country's recent economic development. Recent studies have begun to investigate the potential social and cultural effects of these innovations. Furthermore, India's societal structure would be impacted by the unequal distribution of technological resources, as well as by unofficial measures to address this problem (Guttman, 2007).

The main purpose of transnational corporations is not developing or flourishing India they just want to achieve profit without accounting for what will happen to nature and how it would impact the native people. The richer, more powerful nations desire access to the poorer nations primarily for the purpose of exploitation. This exploitation occurs in the title of a noble cause. This would be true even if people of selfless good intent abandoned the enterprise. The development game will continue so long as the power elite seeks its benefits (Black, 1999). The IWMA does o't care about whether the Indians have a water crisis the only purpose is who to get benefit from India. Before colonial project it seems India does not suffer from any water crisis but after them, India suffered from water dilemma (Ghosh, 2008).

Specifically, in the context of malaria, disease control is also directly tied to water difficulties. One of the IWMA's primary goals is to prevent the spread of

malaria by regulating water delivery. In the colonies, the discovery of a cure for malaria was of utmost importance due to the number of deaths caused by the disease among English colonists living in unfamiliar, marshy settings. Both dam construction and malaria control in British India were strongly related to concepts of imperial authority. Meanwhile, The *Calcutta Chromosome* employs the illusion of control as a form of misdirection to enable the colonized to make their own discoveries; geographical information.

The International Water Council wants to change history. Structural hegemonies subjugate locals to multinational firms' neo-imperialism. The International Water Council intends to use water for political control (Piper, 2002). In the nearly sixty years since independence, India has built over three thousand important dams. The state-administered Narmada Valley Development Project in three central Indian states has several of the largest and best dams. This incredibly ambitious proposal, designed fifty years ago and still considered viable despite considerable resistance, entails building 3,200 dams to turn the Narmada and its forty-one tributaries into step reservoirs—a vast staircase of usable water.

Huge dams depict humanity's journey from a life ruled by nature and belief to one ruled by science and superstition. Nation-builders and autocrats like them because they symbolize the nation might. When a dam has such a strong symbolic purpose, its economic and technical reasons and prospective drawbacks are irrelevant in the decision-making process (Huggan & Tiffin, 2015). Perhaps the most visible ecological effect of the dam is the constant inundation of woods, wetlands, and wildlife. Deeply adapted plants and animals to valley bottom ecosystems cannot typically thrive along the edge of a reservoir. In addition, dams are frequently constructed in distant places which represent the last refuge for species displaced by development in other regions. No one has any clue how many life forms have become extinct due to the flooding of their last home by a dam. In addition to harming habitat, reservoirs can prevent migratory pathways across the valley and along the river. This environmental fragmentation increases the danger of inbreeding from a smaller genetic pool since it isolates communities (McCully, 2001).

Ghosh describes Calcutta as a place where rotten fish found (Ghosh, 2008); rotten fish represents the dam effect. The water challenges in India are multifaceted, and their

ecological, socioeconomic, and political repercussions are widespread and intertwined. While there are significant variances between regions of India in terms of the dynamics of water control, distributional difficulties regarding the class, caste, and gendered components of water control and usage are the most prominent commonality (Hill, 2013).

In *Calcutta Chromosome*, the railways symbolize the British powers upon the Indians. Every city and village had railways even Renupur which is a very small village. Bilmer was a British company that make new worker like Phulboni. The firm was renowned for its enormous distribution network, which extended to even the smallest towns and villages, which represent development plans to conquer the markets by British products. The railways also have negative impact upon nature. First of all, the railways' steam engines require fuel to work, usually coal. However, until the late 1870s, coal of sufficient quality and quantity was unavailable. The railroads were required to import English coal. From England, massive quantities of imported coal were required to be transported, resulting in enormous expenses for the railway companies. So they instead use wood as it is the cheapest fuel available in India. However, wood should be employed as much as possible while it is still available, and that every effort should be made to assure not only the largest possible supply but also a sustainable one, in addition to being at the lowest possible cost. Renupur was very appropriate for cash crop production, export, and the establishment of new markets –the new railroads played a significant role in connecting these regions to the global market. (Ghosh, 2008)

Living in the Anthropocene assumes that it creates a strange world for the house that we are used to. As if the world we lived in before did not exist. It is a world full of horror or a nightmare that comes true (Tabas, 2015)

As observed in Renupur station, Renupur village is influenced by climate change as a result of buildings dams. Monsoons flooded eastern India. The region's restless rivers had overflowed and rushed across the flat plains. The author writes, "Phulboni was astounded to look out the window and see nothing but flooded fields, the still waters broken only by the geometry of the bunds and embankments" (Ghosh, 2008, p. 219). Floods have effects on the life of humans and non-humans. No one can adapt to climate change that can threaten the lives of humans and non-humans.

The Calcutta Chromosome has been called a cyberpunk novel due to its focus on technology, human body, Gothic themes, data transport, and mythology. The cyborg body is a central theme in cyberpunk. Several hallmarks of cyborg bodies are seen in the novel. Donna Haraway describes the cyborg as "a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (Seidman, 1994, p.83). Distinctions between animals and humans blur in this tale. A miscegenated body in which DNA is passed from pigeons to humans, then from humans to humans, and finally from humans to mosquitoes is depicted in *The Calcutta Chromosome*, breaking down the wall between animal and human. Many different races' DNA and other somatic traits can be found in the gene pool (Nayar, 2009). The cyborg, if we choose to use that term to describe the likely new person alluded to in the story, is significant in that it grants freedom to all people regardless of their socioeconomic status, religious beliefs, or any other common denominator. It becomes clear that Mangala's crew comes from a wide range of geographical locations and socioeconomic backgrounds (Huttunen ,2008)

The new human in *Calcutta Chromosome* is mixture between machine, animal, and human. As far as Amitav is concerned, there should be no barriers between humans and other species. A voice for the human subaltern in the post-human sphere will be a far cry if they are unable to be heard in the postcolonial globe. The very possibility of discussing the human subaltern is closed off when the very human sort of person is erased from the discursive arena (Islam, 2016). The transformation of new man in Calcutta is the best way to deconstruct the Eurocentric power and give the power to marginalize people like Mangala and her group.

The development projects have played important role to reproduction in nature. In *The Calcutta Chromosome*, Amitav draws the attention to effects of the development projects that the aim of which is only to serve the colonizers without paying attention to the ecological impact that follows. Colonizers used these projects to achieve their benefits without consideration to the ecological changes that may turn the environment into a hell. Finally, Murugan's pursuit of the truth regarding Ross's finding of malaria is questioning the written language. He doubts if Ross really discovers the malaria disease and the ideology of enlightenment does not solve all things by rational and logic. The perception of nature and relationship with it is not intellectual but spiritual. The relationship

of the indigenous people with nature is spiritual, and the solution to the malaria enigma is spiritual as well

Conclusion

Ghosh's novel depicts the impacts of development projects upon the whole species, believing that these projects do not serve the third world; they are just exploiting their resources and put the foundation stone to the devastation of this reign. The study presents how the railways and dams exhaust the environment and lead to a serious problem that India cannot recover from. The novel sheds a light on how the notion of development affects both human and nonhuman and disturbs the ecosystem balance. Ghosh reflects how the past of colonials' practices have caused devastating problems. In addition to that, the novel reveals how the colonizers use native people and their resources to maximize their benefits.

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