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TRANSHUMANISM AND THE ANTHROPOCENE IN BECKY CHAMBERS' *A CLOSED AND COMMON ORBIT*[1]

VANESA ROLDÁN ROMERO
Universidad de Santiago de Compostela
vanesa.roldan@usc.es

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ABSTRACT. Transhumanism has been rising in both popularity and influence on western societies and philosophical thought. Dreams of mind transfer, immortality, or cloning as well as the fear of sentient and intelligent artificial intelligence (AI) can be traced in some of Netflix's most popular series such as *Altered Carbon* (2018), from the novel by Richard K. Morgan, or *Orphan Black* (2013), to mention just a few. Similarly, transhumanism may be spotted in Becky Chambers' fiction. The novel analysed in this paper, *A Closed and Common Orbit* (2016), a sequel in the author's Wayfarers series, explores the possibility of cloning human bodies, the production of sentient AI, and the subsequent ethical implications of both science fiction tropes. Far from showing transhumanism as a miracle solution to limitations in human bodies and capacity to avoid climate change, the text presents the suspicions and fears transhumanism may raise in the USA. This article provides evidence of how the Anthropocene and transhumanism operate in Becky Chambers' novel, the ethical effects concerning intrinsic and extrinsic values and their possible subversion through a posthumanist alliance under the Anthropocene.
RESUMEN. El transhumanismo ha ganado popularidad e influencia en las sociedades occidentales, así como en su pensamiento filosófico. Ciertas fantasías transhumanistas como la transmisión de

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la consciencia, la inmortalidad o la clonación, así como IAs conscientes pueden rastrearse en algunas series de Netflix, como *Altered Carbon* (2018) u *Orphan Black* (2013). Igualmente, el transhumanismo ha impregnado la ficción estadounidense, como puede verse en la novela de Becky Chamber, *A Closed and Common Orbit* (2016). En ella se explora la clonación de cuerpos humanos, la existencia de una IA consciente y sus consecuencias éticas. Lejos de mostrar el transhumanismo como una solución milagrosa a las limitaciones del cuerpo humano y la capacidad de evitar el cambio climático, el texto explora ansiedades que el transhumanismo despierta en Estados Unidos. El artículo muestra evidencia de cómo la Antropoceno y el transhumanismo operan en la novela de Becky Chambers, sus efectos éticos en relación a los valores extrínsecos e intrínsecos, así como su posible subversión a través de una alianza posthumanista bajo el Antropoceno.

1. INTRODUCTION

> "Right now, the earth is full of refugees, human and not, without refuge." (Haraway, "Anthropocene" 160)

Dreams of immortality or, in more general terms, unlimited "improvement" of human bodies have permeated western societies at least since the eighteenth century, when the Enlightenment and its humanist ideology became hegemonic. Given the many technoscientific advances achieved during the twentieth and twenty-first centuries, such "dreams" are becoming increasingly realistic. After the cloning of Dolly the sheep in 1996, the fantasy of cloning not only other-than-human but also human bodies began to grow in western societies. The "birth" of Dolly raised questions and fears about the control of humans over their evolution, as well as the consequences, and the responsibility of scientists. After the creation of Dolly, cloning technology distanced itself from the purely fictional dimension, gaining importance at the legal level. For instance, the European Parliament banned the cloning of human beings, as it could jeopardise human rights or instrumentalise cloned human subjects (Harris 353–54). In the case of the United States of America, legislation concerning cloning has been similarly restrictive. For instance, in 2002, George W. Bush's administration introduced a policy in the Senate to restrict any kind of funding for genetic experiments (Bush). Nonetheless, such restrictions have not been enforced worldwide. The DNA modification of two babies in China in

recent years, for example, created great controversy not only in China, but worldwide, including the United States (Our Foreign Staff). Hence, cloning seems to raise tensions between technoscientific advances, the legal system, and ethics, even for events taking place beyond American frontiers.

The twenty-first century has witnessed how cloning and artificial intelligence (AI) became part of the popular imagination. The latter plays an increasingly large role in the United States, having become one of the most economically profitable fields in the country. Wall Street, for instance, currently operates on AI-controlled algorithms that continuously learn to predict changes in the stock market (Magnuson). In this regard, Francesca Ferrando states that there exists an ongoing heated debate around the deeply controversial hypothesis often referred to as "AI takeover." It would posit that AI's "may soon steal the ontological crown from the human" (Ferrando, "Posthuman Feminist Ethics" 144). Both worldwide and in the USA, some citizens regard AI with great optimism, whereas many others fear negative consequences for humans (MIIT technology Review Insights). For this last group of people, AI might diminish the economic benefits it provides in the US, as exemplified by Amazon's AI-driven recruitment tool. The multinational giant had to abandon this AI project after discovering that it was biased against women (Ganesh). Therefore, AI remains a controversial issue in the States, perhaps because of its increasing presence in American daily life, not exclusively in fiction.

Such rapid technoscientific changes that have taken place in recent decades have shaped contemporary western societies and philosophical worldviews. Strongly related to technoscientific advances—including those in cloning and AI—transhumanism[2] has become an increasingly popular paradigm, especially albeit not uniquely in the United States. The popularity of transhumanism might stem from its promises to "evolve" human beings into what could be labelled as "ultrahuman."[3] Max More provided the first proper definition of transhumanism in the following terms:

[2] The term "transhumanism" was first used by Julian Huxley (1889-1975), a biologist and brother to the author Aldous Huxley (Bostrom 6).

[3] Nick Bostrom retrieves one of the first definitions of the "transhuman" from FM-2030's seminal work *Are you a transhuman?* (1989). Here, technological devices such as prostheses, plastic surgery, mediated reproduction, and a rejection of traditional family values are mere instruments to transform the human body into the idealised "transhuman" (Bostrom 11).

> It includes a broad metaphysical perspective on the development, direction, goal and value of life and consciousness. It goes beyond humanism by peering into the future in order to better understand our possibilities. As we move forward through time our understanding of our immense potentials will evolve; there can be no final, ultimate, correct philosophy of life. Dogma has no place within transhumanism– transhumanism must be flexible and ready to move on, reconfiguring into higher forms, new versions of transhumanism and, one day, posthumanism. (More 10)

The evolution promoted by transhumanism may be accomplished through prostheses, genetic modification, and AI. Supporters of transhumanism often argue that genetic manipulation and the use of prostheses will turn humans into God-like figures able to control their evolution, gaining "freedom" from nature (Ferrando, "Posthumanism, Transhumanism" 27). Despite the promise of evolution and prosperity presented by transhumanism as an ideology (Diéguez 367) and its apparent trespassing of biological/synthetic boundaries, its humanist core has been largely criticised. For instance, Christopher Coenen argues that transhumanism is deeply humanist because of its hierarchical binary thought (45). This might be the result of the traditional science/nature division and the anthropocentric human/nonhuman difference. In line with this, transhumanist thinkers often focus on the enhancement of *human* subjects and bodies. Hence, transhumanism commonly disregards the relation between humans and nonhumans and their co-dependence as well as their inter-relation (Haraway, "Anthropocene" 161). In this sense, Ferrando explains that the focus of transhumanism is "human enhancement in all of its plural possibilities; and still, this 'human' is not fully plural" (Ferrando, "Posthuman Feminist Ethics" 155). This way, the humanist heritage of the human subject as an individual subject is hardly challenged. Likewise, transhumanism frequently disregards its ethical effects on human and more-than-human subjects. In this regard, Ferrando criticises that within transhumanist ideology, technologically mediated subjects would be turned into "artificial slaves," thus perpetuating the longstanding master/slave dichotomy ("Posthumanism, Transhumanism" 145). Moreover, Ferrando states that most voices defending transhumanism have been "Western male philosophers locating themselves in the hegemonic legacy of Western

ethics" ("Posthuman Feminist Ethics" 154). Hence, transhumanism has been denounced to be heavily anthropocentric and androcentric, lacking a satisfactory ethical proposal for subjects otherised by humanism.

Among the paradigms that have emerged parallel to transhumanism, one can find critical posthumanism. Although posthumanism can be used as an umbrella term that may include transhumanism among other systems of thought, it has nevertheless developed to the point that it is easier to differentiate both frameworks. Unlike transhumanism, often regarded as a legacy of humanism (Coenen 45), posthumanism is a post-anthropocentric non-hierarchical framework that defends relational subjects (Calarco 30–31). Ferrando states that posthumanism:

> invokes the posthuman as a social, individual, and more extensively, existential paradigm shift which is already happening. In this sense, we can be posthuman now, in the ways we exist, by enacting post-humanist, post-anthropocentric and post-dualist ethics. (Ferrando, "Posthuman Feminist Ethics" 156)

In other words, transhumanism maintains a hierarchical dualism that could ethically justify the exploitation of otherised subjects, including nonhumans—biological or synthetic. In contrast, critical posthumanism (Ferrando, "Posthumanism, Transhumanism;" Braidotti, *The Posthuman*; Haraway, *When Species Meet*) seeks a destabilisation of dichotomic constructs that transhumanism hardly challenges. The non-anthropocentric relationality proposed by posthumanism could therefore hold the potential to resist and even dismantle the negative ethical effects of transhumanism.

Probably because of the technoscientific advances of recent decades, transhumanism and its instruments have largely been explored in science fiction. One key voice in transhumanist studies, Nick Bostrom,[4] briefly mentions twentieth-century authors such as H.G. Wells (1866-1946), Olaf Stapledon (1886-1950), or Aldous Huxley (1894-1963) as sources of inspiration for his work on transhumanism. The common ground of all these authors was their exploration of some themes often discussed in transhumanism, including genetic engineering (4–5). AI would comprise another key

[4] In 1998, philosophers Nick Bostrom and David Pearce founded the World Transhumanist Association (WTA) ("About").

element in fiction that explores transhumanist themes. For instance, Philip K. Dick (1928-1982) examined AIs in his widely acclaimed short story "Second Variety" (1953). Similarly, Alan Turing's leading test[5] is explored in Philip K. Dick's famous *Do Androids Dream of Electric Sheep* (1968). That is not to say that science fiction speculating about transhumanist-related themes in the twentieth century has been produced exclusively by men. There are splendid works by women reflecting on genetic modification and other typically transhumanist themes. For instance, the extensively analysed *The Ship Who Sang* (1969) or Dragonriders of Pern series (1967-) by Anne McCaffrey (1926-2011), as well as the Hainish Cycle series (1966-1974) by Ursula Le Guin (1929-2018). Both continued to write on similar themes until their deaths in the twenty-first century, when new women's voices seem to have carried on the legacy regarding the most recent technoscientific advances. In this regard, one might ask why it is important to analyse how new voices scrutinise transhumanist issues. Perhaps, as Katherine Hayles explains, because it is through stories that we can understand how a given culture conceives of new modes of subjectivity such as the ones proposed by transhumanist and posthumanist discourses (Hayles 153). The great influence of transhumanism in twenty-first-century United States politics was crystallised with the founding of the Transhumanist Party in 2014. Hence, I contend that the analysis of twenty-first science fiction exploring themes often associated with transhumanism is of special interest. In this regard, I argue that the analysis of literature created by women's voices and how they interpret the increasing presence of transhumanist issues—AI, cloning, genetic modification—can enlighten us in relation to how transhumanism is currently perceived.

Some of the anxieties raised by transhumanism relate to the alienation of human and nonhumans alike. Transhumanism may raise fears regarding how the otherisation and exploitation of gendered bodies are reinforced in contemporary science fiction (Roldán-Romero; Ng; Collado-Rodríguez). The American writer Becky Chambers (1985-) explores some issues presented by transhumanism in current America. Her first novel, *The Long Way to a Small and Angry Planet* (2014) inaugurates the Wayfarers series (2014-), currently comprising five novels. Here, the plot follows a young adult human woman who joins an interspecies crew. The

[5] Turing's test aimed to differentiate humans from highly evolved AIs (Bostrom 7).

typically space opera crew travels the universe until they are ordered to go to the "angry planet." Chambers' first novel and the Wayfarers series have been widely reviewed and the quality of the series was confirmed in 2019, when it was awarded the Hugo Award for Best Series (Cox). The second novel, *A Closed and Common Orbit,* is shaped around two parallel narratives told by two first-person narrators. On the one hand, Chambers presents a story about an AI, Sidra, who must learn to live in a limited female body for the first time. The second story, on which this paper focuses, follows how a genetically modified female human, Jane 23/Pepper,[6] seeks shelter in an abandoned spaceship after escaping from the Factory where she was enslaved. Here, she will meet an active AI named Owl. The planet where the second story takes place is controlled by the Enhanced Humanity, a human society that, after fleeing a dying Earth, colonised this new planet. The colonisation results in the exhaustion of the natural resources of the planet, which the Enhanced solve by creating girls like the protagonist. All the girls are forced to recycle the scrap and polluted elements in the interest of the Enhanced society. The human and AI characters unite forces throughout the novel until they manage to escape the world of the Enhanced and, simultaneously, meet a mis-fit Enhanced who will help them as well. The aim of this essay is to find evidence of how the Enhanced may embody a transhumanist society that otherises and exploits certain subjects through traditional anthropocentric dualisms—science/nature, human/non-human, male/female under the Anthropocene. Finally, this paper seeks to discern whether and to what extent a posthumanist alliance could subvert or at least resist such exploitation.

2. ANTHROPOCENE AND MASS PRODUCTION

The marked diversity of plots and tropes in science fiction is arguably the ideal vehicle for the exploration of the actualisation and consequences of transhumanism. R.B. Gill argues that the creation of alternative worlds in science fiction is made legible by the readers' world and its rules. Hence, such worlds may be employed either to support or subvert certain values or ideas that are hegemonic (Gill 73). The strength of the genre may reside in its openness to all forms

[6] The modification of the girls can be spotted in their baldness and an extremely boosted immune system (Chambers 194).

of alterity that cannot be otherwise exploited without facing vehement opposition (Menger 3). Science fiction would consequently be a genre in which transhumanism-infused concepts of genetic modification or AI's reaching singularity can be explored. The critique to transhumanism conducted in this article is framed by Rosi Braidotti's understanding of posthumanism. Braidotti defines posthumanism as a post-anthropocentric and zoe-centred[7] philosophy in which the human(ist) subject ceases to be the focus of study and anthropocentric hierarchies are rejected (*The Posthuman* 194). In other words, the Self/Other hierarchical difference is blurred; hence, the human subject can no longer embody a hyper-separated Self and so all forms of *zoe* are studied without a hierarchical anthropocentrism. However, that does not mean that the critical framework of this paper will fall into the pit of essentialism and technophobia as proposed by the Gaia hypothesis (Lovelock). In Braidotti's seminal work *The Posthuman,* although she proposes a geo-centred perspective, she criticises that the Gaia hypothesis:

> has two drawbacks. Firstly, its technophobic aspect is not particularly helpful in itself, considering the world we are living in. Secondly, it paradoxically reinstates the very categorical divide between the natural and the manufactured which it is attempting to overcome. (*The Posthuman* 85–86)

Hence, the critical posthumanism applied to Chambers' text is informed by a non-dualist and non-technophobic understanding of the relationship between the species, biological or not. Braidotti's posthumanism criticises not only anthropocentrism, arguably core in transhumanism but also the role of late capitalism. According to Braidotti, late capitalism, especially if allied with transhumanism, perpetuates a humanist binary system that enables this economic scheme to use more-than-human entities—animals or AI—as disposable bodies. Here, nonhumans are "traded in a global market of posthuman [not posthumanist] exploitation" ("Animals" 529). One of the latest forms of transhumanist utilisation of nonhuman subjects is their cloning, "an established scientific practice" ("Animals" 539). Cloning is found in science fiction often enough to constitute a trope.

[7] Rosi Braidotti states the *zoe* is the "dynamic, self-organizing structure of life itself" that includes human and more-than human life (*The Posthuman* 60).

In general terms, science fiction operates through the *novum*, which typically comprises a scientifically probable technological advance or device (Suvin 64). In recent years, AI and its algorithms are everywhere (Magnuson) and genetic engineering has left the purely speculative realm (Our Foreign Staff). And yet, AI and genetic engineering may operate as the *novum* in contemporary science fiction, not because they are total novelties, but because they are being reconfigured under their actualisation in contemporary society and so new forms of these technoscientific advances can be spotted in literature. Moreover, the *novum* might be the vehicle to discuss the consequences of scientific changes, to raise new questions, and, occasionally, provide answers. Considering that Chambers' writing focuses on the consequences of contaminating the Earth to the pointing of making it uninhabitable, as well as how technology (re)configures human ontology, the analysis of Chambers' *A Closed and Common Orbit* (2016) could benefit most from the scrutiny of genetic engineering as the *novum* in her novel.

The genetic modification readers find in the novel is framed by the Anthropocene. Chambers' Wayfarers series is set in an unspecified future after humans left the Earth after the high technology used in wars among humans turned it uninhabitable (Chambers 151). The uninhabitability of the Earth might echo the Anthropocene, a geological epoch in which there has been a significant shift in the relationship between humans and the global environment. Here, the human species has become a decisive and direct actor in the ongoing climate crisis (Steffen et al. 843). This term, originally proposed as a geological era, has deeply affected current studies related to the environment and nonhuman lives or *zoe*. For instance, Donna Haraway takes Steffen et al.'s rather general definition of the Anthropocene further. Haraway elaborates the Anthropocene as a pivotal moment defined by "the destruction of places and times of refuge for people and other critters" (Haraway, "Anthropocene" 160).

The Anthropocene seems to have reached such a point in Chambers' fictional Earth that organic life—human and other-than-human—has become impossible. The text emphasises how the rich fled to expensively constructed colonies on Mars. On Earth, the poor and the more-than-human were left to die. Unlike the rich, the poor fled after years of barely surviving on a dying Earth and constructing a fleet able to house as many humans as possible. Moreover, the poor took as many other-than-human species as possible into the

Fleet (48). Capitalism and its subsequent economic hierarchies are thus explicitly criticised in the text. Among the rich, some were not satisfied with their colony in Mars and decided to colonise other planets. One instance is the so-called Enhanced, who colonised an unnamed planet. Such a process was completed through AI and robots (152), perhaps already suggesting a potential transhumanist ideology. Moreover, in discussing the Enhanced society, the unfit Enhanced that helps the modified girl and the AI escape, Laurian, provides readers with the only direct description of what the Enhanced society does:

> "The b-bastards that made us, they're not as good at, uh, good at genetweaking as they think. They think they've got it down. They make dancers, they make math-mathematicians, they make athletes. They m-make factories full of slave kids with no hair. But evolution isn't a-a thing you can wrangle like that. It doesn't always go in predictable ways. Genes and chromosomes, they, um, they do their own thing sometimes. (131)

That is, the Enhanced are a very technoscience-centric society, where everything revolves around crafting "perfect" humans, associating genetics and roles in their society. In this sense, it is not difficult to see the parallelism between the dangers of transhumanism and the actual doings of the Enhanced in the novel. Although the planet of the Enhanced is unnamed and unlocalised, it is described by the main character, Jane 23/Pepper. The protagonist describes the planet as full of dirt, poisoned water, and mountains of scrap. The extent of the contamination in this planet can be exemplified with the water, as science fiction often does when discussing pollution. Jane 23/Pepper explains that untreated water is "dirt" and must always be decontaminated before being drunk; otherwise, she could be poisoned and die. In one instance, she describes a source of water like: "A chemical slick lay on top of the water, making oily lines where it touched the ground [...]. The water smelled bad, too, which was a wrong thing even if the smell had been good. Water wasn't supposed to smell at all" (119). The planet of the Enhanced is presented as deeply harmed by human action despite their newness in it. The planet seems doomed to replicate the Earth's Anthropocene in Chambers and the readers' twenty-first-century societies. Just like pollution is a key aspect in the Anthropocene, so is *who* is exploited. At one point, the protagonist is surprised when

she learns that the Enhanced are not forced to work at factories like the girls. When the human protagonist asks the AI character of Owl about how the Enhanced spend their time, readers find the following dialogue:

> "The same things people do everywhere, I suppose," Owl said. "They learn things, make families, ask questions, see places."
> "Do they know about us on this side? Do they know we're here?"
> "Yes. Not you and I specifically, but yes."
> "Do they know about the Mothers?"
> "Yes. They made them. They made the factories, too. And the girls."
> "Why?"
> "Because they don't want to clean up their own messes." (152)

Here, the text explains that the Enhanced create the girls and the Mothers to "clean up their own messes." In other words, in a traditionally capitalist vein, otherised subjects, in this case, the girls and the Mothers, are exploited to solve the issues provoked by the Self as embodied by the Enhanced in this novel, unwilling to accept any kind of ethical accountability for their actions. Such lack of accountability results in the pollution of the planet and the ethical consequences of creating girls to work for the Enhanced Humanity society. Furthermore, Owl explains that the Enhanced are aware of the exploitation of the biological and synthetic female workers in the Factory. In this sense, the hyperseparation between the Enhanced and the exploited girls and Mothers and the subsequent lack of ethical accountability might be further emphasised by their spatial distance. No Enhanced character comes from the huge city where they live, isolated from pollution and factories. The reason might be that the Enhanced either feel ethically justified to exploit them or they simply ignore the ethical issue here so that their lifestyle is not disturbed. In both cases, the Enhanced lack ethical accountability. Hence, although the text might engage with a distrust of technology, the critique seems to focus on the Enhanced. The issue would not be technology itself, but how humans can use it to benefit themselves and, at the same time, to physically distance themselves from the consequences of their own actions.

Closely related to the pollution of planets by human action might be mass production, a method employed by human beings to enrich themselves since the Industrial Revolution. Consequently, mass production entails a human activity that exploits natural sources to

create consumable objects. Such activity has greatly accelerated the destruction of the environment during the Anthropocene. The issue at work is precisely the rhythm of exploitation. In this regard, Haraway explains that "cheapening nature cannot work much longer to sustain extraction and production in and of the contemporary world because most of the reserves of the earth have been drained, burned, depleted, poisoned, exterminated, and otherwise exhausted" (Haraway, "Anthropocene" 160). In Chambers' novel, humans flee the Earth after contaminating and turning it into an uninhabitable space for humans and other organic beings with no natural resources left (128).

Far from learning from their past, the transhumanist society of the Enhanced seems to have paved the way for a newly polluted planet. When the protagonist sees the planet for the first time, she states that "The scrap went on as far as the non-ceiling did, piles and piles and piles of it. No wonder there was always scrap to sort. You could have girls sorting this stuff for years and they'd never be done" (61). Similarly, water, as explained above, is so contaminated that, when Jane 23/Pepper tries to gather water from a lake, it is poisoned to the extent that she hardly identifies it as "water." Only because she is asked to do so, she carries some of this liquid to the spaceship for its confirmation and subsequent decontamination (199). Owl, the AI embodied in the spaceship where she seeks shelter, scans it in search of any kind of contaminated element. After analysing the water, the AI states that "there are eight different types of fuel residue [in the water], more industrial by-products than you have time to listen to, bacteria, microbes, fungal spores, decaying organic matter, a heaping helping of dirt, and, weirdly, an awful lot of salt" (134). The Enhanced planet is deeply contaminated by human action and its ongoing exhaustion of natural resources, reaching a point in which making new "stuff" and consuming new products is impossible. In the protagonist's words, "If they wanted new stuff, they had to make it out of old stuff" (151). Consequently, the text might denounce how labour exploitation is justified by the entitlement of the Enhanced to have "new stuff" to consume. This prerogative is actually the only justification the text provides not only for the cloning of the girls, but for their continued abuse too.

Interestingly, gender seems to be a key factor in the novel. All slaves working for the Enhanced are codified as female. The "girls" that are cloned and forced to work according to their batch are always female: no trace of cloned "boy" can be found in the text. This

might be in accordance with Karen J. Warren and Jim Cheney's denunciation of how the logic of domination has informed western societies. The domination would operate through an oppressive conceptual framework that justifies the ongoing domination of women and nonhuman nature under patriarchal discourse (Warren and Cheney 180). In Chambers' text, the colonising agent, the Enhanced, exploits the deeply polluted planet only to continue the exploitation in gender terms through the biological female bodies of the "girls." Furthermore, the other group of exploited labour might be the "Mothers," the robots produced and controlled by the Enhanced to manage the work of the girls. Just like no cloned boy is mentioned, neither is a male robot or a "Father" mentioned in the text. This might signify that not only biologically female bodies are exploited under the transhumanist society of the Enhanced, but also the discursively female synthetic Mothers. Nothing seems to escape the exploitation of the anthropocentric and androcentric Enhanced. Finally, as if the feminisation, that is, the codification in traditionally female terms, of the biological and synthetic women in the text were not clear enough, the only Enhanced character readers find in the text is a man. Albeit faulty and rejected by the Enhanced, as his enhancement has failed the ableist standards of the Enhanced society in that he has a speech issue (19), he is nonetheless male. The only male character in the Factory, he is to oversee not only the girls as the Mothers do but the Mothers as well (253). Conversely, although the text might deconstruct the essentialist identification of the female with nature (Ortner) in the sense that the two kinds of "females" in the text are technologically mediated, the exploitation of the gendered Other is not over. Hence, androcentrism and anthropocentrism seem to cooperate in the text, constructing a patriarchy-informed transhumanist society that Rosi Braidotti denounces would foster "posthuman [not posthumanist] exploitation" ("Animals" 529).

Whilst the Enhanced had the opportunity to act differently from the humans who once inhabited the Earth and avoid entering in the Anthropocene, the Enhanced contaminate the newly colonised planet. Moreover, the Enhanced, as transhumanist thinkers often do (Bostrom 18), seem to base the solution to contamination and the lack of resources on technoscience; specifically, the cloning of disposable girls, who sort the resulting scrap to create new consumables. In a typical transhumanist fashion, the Enhanced trust technoscience to "solve" the problem (Ferrando, "Posthuman

Feminist Ethics" 147). Haraway briefly mentions how the ongoing destruction of ecosystems under the age of the Anthropocene stems from exploited and alienated labour (Haraway, "Anthropocene" 162). Something similar can be observed in Chambers' universe, where batches and batches of girls are crafted to work for the Enhanced. The objectification of the girls is firstly observed in how they are named and identified. Their names are ascribed to them in bulk, functioning as serial numbers. Depending on the "batch" of girls created, they are assigned a name and, depending on the order, a number. For instance, there are Janes and Daisies, who were created on different batches and years. To further differentiate them, they are categorised as Jane 1, Jane 2, or, in the case of the protagonist, Jane 23 (9). Considering that each "batch" has specific tasks and aims, the intention behind such naming is hardly to provide them with an identity or sense of self. Instead, the aim may rather be to facilitate their differentiation by the Mothers to increase their production (19).

The name of the protagonist undergoes certain changes throughout the novel. When the main character escapes from the Factory and meets Owl, the first change occurs. The AI character asks her name, to what she answers, "Jane 23," the identity she has been ascribed during her short life. Owl decides that she will be "just Jane," dropping the number. The immediate reaction of the human protagonist is of relief and happiness (87). Such reaction might suggest that a serialised number could not provide her with an identity she is comfortable with. The second and final name change takes place after she flees the planet. Being saved by a nonhuman sentient species, the Aandrisk, she is at first too weak and malnourished to eat solid. When she is mostly recovered, she tastes pepper. After tasting it for the first time she cannot even find the words to explain the happiness she was feeling. Here, she immediately decides that Pepper will be her name (321). Perhaps to enhance the importance of the change, the character explains that "names are important, and if you pick your own name, it should be something with meaning to you" (9). Only once she flees the planet and its transhumanist colonisation can she change her name to something that means happiness to her. Therefore, the text seems to explore the ongoing fears of identity loss under a transhumanist paradigm. Instead of eliminating the commonly criticised alienating effects of capitalism in workers, transhumanist ideology literally reconfigures the protagonist's biological body, reinforcing alienation

and suggesting that no matter what she does, she cannot fully escape transhumanism.

3. ENHANCED HUMAN SUBJECTS

Maxwell J. Mehlman argues that one of the most commonly explored elements in transhumanism is the use of genetic engineering to "enhance" and "empower" human bodies. The modification of certain genes before birth has fostered the discussion of its effects on human beings to fortify their intelligence or any other desired trait (Mehlman 59). Nonetheless, even if scientists can modify human DNA as the Chinese scientist He Jiankui in 2018 proved (Normile) or enhance human bodies to provide new functionalities as in the case of Neil Harbisson (Jeffries), the modified subject is often harmed in the process (Mehlman 61). According to Mehlman, the enhancements related to genetic modifications could affect the value ascribed to the modified subjects (85). In this regard, Michael J. Zimmermann explains that all living beings benefit from two kinds of value. On the one hand, extrinsic value, which is the highly instrumental and strategic assessment of subjects, often related to a specific aim (Zimermann 252). The issue is that as soon as the task or aim is completed, the extrinsic value of the subject disappears. In contrast, intrinsic value is not related to subjects' instrumentality in relation to an aim or others, but to themselves (Zimermann 75). Provided that the modification of DNA should provide a function, no genetic modification would automatically reinforce intrinsic value. Instead, extrinsic, exploitative values might be boosted.

In the case of Chambers' text, there is an exploration and discussion of the effects of such "enhancements" via genetic engineering. The modification of human DNA, albeit not a novelty in science fiction, is presented as the *novum* of Chambers' novel. Unlike most science fiction exploring cloning and genetic engineering,[8] Chambers' text focuses on the gender and age of the clones. Moreover, the text might highlight the strong connection between Anthropocene—and the anthropocentrism leading to it—and the motivation to modify the girls (122). To begin with, the text points out that girls, and not women, are created to work at the Factory

[8] Aldous Huxley's *Brave New World* (1932), Ursula K. Le Guin's *Nine Lives* (1969), Arthur C. Clarke's *Imperial Earth* (1975), Anne McCaffrey's Pern series (1967-present), or the TV series *The Clone Wars* (2008-2020), just to mention a few.

because of their size. Their small hands[9] make them perfect to fix the small technological devices until the age of twelve: "Twelve-year-old girls' fingers are deemed as too big, and they are subsequently disposed of" (12). Ironically, the fate of the girls clashes with the common transhumanist argument for human immortality (More 2), perhaps pointing to the fact that they are modified but never turned into the transhumanist Self. Instead of transforming the girls into transhumanist subjects, the transhumanist Enhanced turn them into otherised and so disposable bodies with a life expectancy of twelve, when the Mothers kill them. The disposability of the girls and the influence of capitalism in the Enhanced's decisions is further emphasised when the protagonist reveals that "making girls is cheaper;" that is, cheaper than forcing members of the Enhanced society to work or, alternatively, to slow the productive rhythm (151). In this sense, any change in the transhumanist paradigm to seek a more sustainable relationship with the planet they inhabit is not even considered.

The extreme objectification of the girls as a result of their alteration is further elaborated through their immune system. Although one outcome of the genetic engineering of these girls is a boosted immune system (194), that is not to improve their life quality. Instead, they are modified and cloned in order to be efficient workers at the Enhanced Factory. Their immunity to disease protects them from illnesses caused by the broken and contaminated technology they handle with no protection whatsoever. Any disease or injury would slow or stop the profitable system of the Factory, which must be avoided at any cost (194). In other words, the modifications aim to make them more productive for the sake of the Enhanced. Conversely, the intelligence of the girls is not enhanced, even though it is a common goal of transhumanism (Bostrom 34). The modification is then directly determined by their tasks, which are always physical and supervised by the Mothers (318). This way, the capitalism-informed manipulation observed in the girls aims at turning them into productive and efficient workers in the service of the transhumanist society of the Enhanced.

Furthermore, modified girls do not operate autonomously in the Factory, but are commanded by the Mothers. Named with quite ironic undertones—they do not perform any maternal or nurturing

[9] Hands have often been used to refer to workers at factories ("hands"), perhaps reinforcing the alienating effect of transhumanism in the novel.

role—their aim is rather to ensure that the girls do not stop working at any time. Similarly, if any accident occurs in which the girls are harmed, the Mothers must "fix" the girl as soon as possible, however painful that procedure is (21). Moreover, if any girl sees or does something forbidden by the Enhanced, she will be immediately murdered (194). Conversely, at some point, an accidental explosion blows away half the Factory and part of the girls. Here, the Mothers are not concerned with the welfare of the modified characters, but with the welfare of the factory walls. If they are breached, the girls may go outside and discover that there is more world beyond the Factory and potentially rebel and stop working for the Enhanced (57-58). Thus, the modified girls are reduced to workers, and so to their extrinsic value, far from the likewise enhanced "ultrahumans," as understood by transhumanist thinkers. The intrinsic value of the girls is systematically ignored, perhaps denouncing that transhumanism can turn the girls into disposable hands. Consequently, the universe created by Chambers seems to convey the deepest fears towards transhumanist societies based on the modification of human subjects as alienated workers, providing the traditional capitalist objectification with a continuation through technoscience. Likewise, given that one cannot separate the cloning of the girls and the deep pollution of the planet, the novel may reflect a version of the Anthropocene, a period in which all refuge but one damaged spaceship is destroyed. The spaceship will precisely operate as the last refuge for the modified human character, Jane 23/Pepper, and the AI character, Owl. This would lead to the last question of this paper: can these two characters face the Anthropocene by joining forces to "reconstitute refuges" (Haraway, "Anthropocene" 160)?

4. TRANSHUMANIST SOCIETY AND POSTHUMANIST ALLIANCES

Transhumanism largely stems from the profound changes brought forward by technological development and humanism. Francesca Ferrando contends that humanism and transhumanism interpret technological practices such as DNA modification differently. Whereas humanism regards the modification as external to human essence, a humanist concept in itself, transhumanism includes it as part of the human ontology. And yet, both paradigms are hierarchical, anthropocentric, and androcentric (Ferrando, "Posthumanism, Transhumanism" 27). In other words,

transhumanism remains a dualist system of thought whereby otherised subjects in gender or species terms are not interpreted as subjects worthy of ethical consideration. Similarly, the Self is not held accountable for the exploitation of the Other. The binary system seems to be explored in Chambers' text through the construction of the protagonist. One of the first dilemmas—or rather lack of—observed in the novel is that there is never any confusion about whether a character is one of the girls or one of the Mothers. The protagonist is never confused as to who is a "girl" and who is a "Mother" (12), the only two ontological categories she knows so far. Even though she has not learnt what "species meant," she is confident in the difference between the girls and the Mothers, set in an organic/synthetic difference. This way, the protagonist, who is otherised as an exploitable clone, sets boundaries between the two species, otherising the Mothers. Moreover, if the girls dared to enter the space reserved for the robots, they would be punished (41). Hence, although both species reside within the Factory, the spaces are always clear cut, reinforcing their hyperseparation. This way, ironically enough, the protagonist is, if not constructing, embracing the dichotomic thought of transhumanism.

Francesca Ferrando likewise denounces that transhumanism often relegates robots, with or without AI, to the status of "artificial slaves." In other words, transhumanism may reinforce the long ethical tradition—sexist, racist, and anthropocentric—constructed around the master/slave dichotomy ("Posthuman Feminist Ethics" 145). In this sense, Mothers and girls have clearly differentiated tasks and roles, operating as master and slave. The Mothers must supervise the good running of the Factories and discipline those girls who disobey. For instance, the protagonist explains that "last time Jane 23 had gone faster than the other girls, she'd been punished" (26). Likewise, when the girls are underproductive or rebellious, the Mothers punish them, sometimes with death (85). The major transgression committed by Jane 23/Pepper, both against the Mothers and the physical boundaries, is her escape from the Factory. When the protagonist tries to escape, she is with another Jane. The protagonist's friend is captured and killed by one of the Mothers in the heart of the breakout. The main character decides against trying to rescue her, for she "would be punished in the way that girls never come back from" (61). Consequently, Chambers' text might criticise the potential of transhumanism to become a framework that reinforces clear-cut boundaries if those involved in the process, the

girls and Mothers, are not regarded ethically, as capitalism often does and is commonly observed under the Anthropocene.

The girls, already modified female human subjects, are not only differentiated from synthetic subjects such as the Mothers but also from other human subjects. The girls' physical qualities differ from what readers would expect for a human of their age, ranging from six to twelve. The first time the protagonist sees an unenhanced human, she is shocked and explains that "the Human was [...] alien" (298). One reason is hair, as the modified girls are all made bald by the Enhanced, who decided it as a pragmatic solution to avoid having to groom the girls (231). Similarly, all the girls are extremely pale. The most immediate effect when the protagonist is seen is that she is regarded as "alien" (278). The differences spotted between the modified and non-modified humans are not solely on aesthetic terms. When Jane 23/Pepper turns fourteen, the consequences of the genetic modification in relation to her sexuality and reproductive capacity are presented. Despite her age and the hormonal changes biologically female humans often undergo, her body barely registers any change. Not only does her figure appear rather androgynous or, in the protagonist's words, "like a man" due to the lack of marked hips or large breasts, but also her reproductive apparatus. The female character is infertile because of the Enhanced's design (193). Therefore, the text presents the alliance of transhumanism and patriarchy which, far from moving beyond the Anthropocene, stay here and continue to otherise and exploit the modified girls.

And yet, although the lack of sexual organs in the girls may otherise them, it also offers the opportunity to embody Donna Haraway's widely known cyborg. Stemming from science fiction, she defined the cyborg as "a cybernetic organism, a hybrid of machine and organism" (*Manifestly Haraway* 5). Haraway's cyborg would reproduce through "replication [...] uncoupled from organic reproduction" (Haraway, *Manifestly Haraway* 6), which might be echoed by the girls' lack of reproductive apparatus. If the girls, including the protagonist, were able to reject the transhumanist discourse and open up to otherised subjects, they might embrace the blurring of boundaries of the cyborg and the subsequent relational subjectivity. Early in the novel, the protagonist can only relate to other girls within the Factory, limiting her encounters with Others. All the same, the girls try to help each other, not to escape, but to survive as long as possible under the Mothers' commands. Hence, there might be some cracks in the all-controlling grip of the

Enhanced over their modified slaves from the very beginning. This might point to the potential of the protagonist to embody the cyborg metaphor and form posthumanist alliances that include all kinds of subjectivities, including failed Enhanced subjects.

The Enhanced society not only discriminates the modified girls, but also "failed" enhanced subjects. Such is the case of the only Enhanced character presented in the narrative, Laurian. A failure, he has been outcasted by the Enhanced society and forced to work at the Factory. Here, he surveys both girls and Mothers, always physically separated from them. The enhanced male character is immediately identified by the protagonist as an Enhanced. She explains that he is an Enhanced because of his height, healthy aspect, and abundance of hair (252), the only characteristics the text provides as to the Enhanced. In this sense, he may not be a disempowered subject, but part of the Enhanced, ensuring that smooth running of the factory and so supporting the transhumanist system. Nonetheless, Laurian is isolated and separated from the girls and Mothers, as well as from the rest of the Enhanced. According to the text, his isolation is a type of punishment for his lack of perfection in transhumanist terms (253). The Enhanced, like the girls, are genetically modified before their birth; however, what their enhancement entails is never fully described to readers. All readers are told is they are made tall, healthy and haired (276) and that, according to another character, the Enhanced's "face was arranged in a way that genes simply could not achieve when left untampered with, and his body suggested bones and muscles structured with equal attention to design" (25). Despite being born an Enhanced, Laurian paradoxically displays speaking difficulties. In other words, the character is "flawed" and not fitting into the normative model proposed by the transhumanist Enhanced society. This normativity is acknowledged by Laurian himself when he discusses his genetic modification and role as a failure in the Enhanced Humanity society:

> "evolution isn't a – a thing you can wrangle like that. It doesn't always go in predictable ways. Genes and chromosomes, they, um, they do their own thing sometimes. You think you're mixing together a politician, and instead, you get me." He shrugged. "The Enhanced call us m-misfits. People who don't suit their intended purpose." (131)

This unsuitability is what motivates his family to reject and send him to that isolated room as a boy to hide their shame (275).

Emphasising his situation while acknowledging their shared oppression, Jane 23/Pepper's affirms that "his life is a shit […]. It's as shit as mine" (255). Transhumanist society as textualized in Chambers' novel rejects not only non-enhanced or more-than-human subjects but also failed Enhanced bodies such as Laurian's. Hence, transhumanism seems to result in clear-cut boundaries that seek to establish a hierarchy where the successfully enhanced human subject is always in a position of power to control any other subject under the challenges of the climatic crisis of the Anthropocene.

Due to the destruction within the Anthropocene, Donna Haraway argues that the Anthropocene should be made as short as possible. Haraway proposes instead to pave the way for the Chthulucene, "to make partial and robust biological-cultural-political-technological recuperation and recomposition" ("Anthropocene" 160). An epoch that aims to blur boundaries, the Chthulucene includes "the more-than-human, other-than-human, inhuman, and human-as-humus" ("Anthropocene" 160). The Chthulucene is therefore the epoch resulting from the rejection of anthropocentric attitudes, dominant in contemporary America. Given that under the Anthropocene all living beings are refugees, the Chthulucene aims to move forward to another period where the destruction has been stopped (161). Hence, the Chthulucene is arguably the best context to contest the binary constructions often found in transhumanist thought and open the door to interspecies alliances able to contest the Anthropocene. In this regard, Haraway proposes a slogan for the Chthulucene: "Make Kin Not Babies!" ("Anthropocene" 161). In line with Haraway's insistence on making kin, Rosi Braidotti proposes to "cultivate one's empowerment and to affirm one's interconnections to others in their complexity" and form posthumanist alliances ("Animals" 530–31). One instance of such kinship or posthumanist alliance may be found in the relationship between Jane 23/Pepper and Owl.

As soon as Jane 23/Pepper escapes from the Factory, she meets Owl, an AI attached to a non-functioning spaceship. Being chased not by Mothers anymore but by hungry dogs, Owl calls her to seek shelter in the spaceship. Here, although unable to fly, the spaceship can still work as a temporary haven for both characters (60). Unlike the Mothers, who were about to kill her for trespassing the Factory's boundaries, Owl is a synthetic character willing to help her. The text seems to work around the idea of maximising the differences between Owl and the Mothers. For instance, when the protagonist

first realises that Owl can control the spaceship, Owl tells the protagonist that "I can't hurt you." Likewise, the Mothers are faceless robots. Perhaps for that reason, Owl shows a picture of her imagined human face on a screen in the spaceship, which makes her more approachable. The picture is similar to a traditional biological adult female human face, not bald like the protagonist, but with hair falling over her pixelated face (69). The character of Owl herself insists on the differentiation by stating that, unlike the Mothers, she is software, a disembodied AI. After Jane 23/Pepper explains what a Mother is, Owl explicitly says that "I'm not a Mother. I'm not like that. But I'm a similar sort of software. I think. I just... I don't punish people" (85). Hence, there seems to be a clear insistence on differentiating between the two types of AI characters, one in the form of a robot and the other disembodied. In other words, despite the potential to form transspecies alliance between the modified protagonist and the Mothers, the lack of resistance of the Mothers against their masters, the Enhanced, makes it impossible for the protagonist to turn to them.

Throughout the novel, Owl teaches Jane 23/Pepper survival skills to ensure her as well as the AI's safety and subsequent escape from the planet. For instance, Owl explains to her how to hunt and gather plants. The aim is that the modified girl survives while on the planet (98) and that she stores enough food for their trip. In line with this, Owl teaches her how to fix all the broken devices of the spaceship so that it becomes functional enough to navigate outside the planet (147). The fact that Owl teaches Jane23/Pepper abilities that improve the AI's abilities and capacities to control the spaceship could signify that Owl instrumentalises the human character. In this sense, Owl might reduce her to her extrinsic value as a human body able to fix the spaceship, something the AI cannot do. Nonetheless, the same could be argued about Owl, as she is the software required to run the spaceship; without Owl, Jane 23/Pepper would never be able to flee the planet and escape the transhumanist Enhanced society inhabiting it (157). Consequently, one might suggest that the potential trans-species alliance between Jane 23/Pepper and Owl is merely a highly instrumental albeit co-dependent relationship. If this were the case, they would part ways as soon as they escape the planet and the Enhanced and the otherisation of both characters would remain intact.

And yet, the presentation of Owl as a character who is unwilling to hurt the protagonist from the outset opens the door to

a posthumanist alliance. Such non-instrumental alliance would require the modified girl to learn to acknowledge the intrinsic value of all living beings. I argue the first time she acknowledges it is while she is still on the planet. On one of her expeditions outside the spaceship, the protagonist finds the rotten corpse of one of the modified girls. She does not know the girl personally, nor can she say which "batch" of girls she belongs to; and yet, she is deeply affected and cries. Here, the protagonist states that "I don't care about your task. That's not what is important" (241). Instead of focusing on the dead girls' task in the factory and her extrinsic value, the protagonist acknowledges her intrinsic value and rejects the alienation of transhumanism. She rejects the simplification to which she and all the other girls still in the factory have been subjected to as a consequence of the application of the transhumanist paradigm. Immediately after finding the corpse, the protagonist holds an impromptu funeral for the deceased girl (239). This way, the funeral for this girl may operate as a symbolic funeral for the rest of girls that remain in the Factory. In other words, the character learns to appreciate the intrinsic value of human subjects like herself, rejecting the transhumanist discourse that posted them as otherized subjects reduced to their extrinsic value, and so she might be able to create alliances to resist anthropocentrism and move beyond the Anthropocene, perhaps embodying Haraway's discursive cyborg.

In one of the many conversations between the protagonist and the AI, Owl recounts her arrival on the planet. The AI explains that she arrived with several humans, who went there to end the tyranny of the Enhanced, five years before. The humans never returned, presumably killed by the Enhanced, and she was left alone since then, too damaged to fly on her own. When asked about whether the loneliness saddened her, Owl answers, "Yes. Yes, I was very sad" with apparent honesty (153). The other-than-human character Owl seems then to display and acknowledge her feelings. This is not surprising if one considers that Owl was designed as a "*sentient* AI" (166) (emphasis added), programmed to have feelings and learn based on such experiences. In line with this, Katherine Hayles explains that within relational connections, "sometimes the interpenetration is presented as the invasion of a deadly alien into the self, sometimes as a symbiotic union that results in a new subjectivity" (Hayles 154). In this regard, Jane 23/Pepper does not regard Owl and her sentiency as a threat to her already fairly

destabilised ontology, but as an alien that expands her likewise alien identity.

The somewhat strategic alliance between the human and AI characters leads to the achievement of their main aim. When they manage to escape the planet, a long period passes until they are found by another nonhuman biological sentient species, the Aandrisk. Here, the modified girl faces the anthropocentrism permeating not only the planet but the whole universe. The legal status of Owl as a sentient AI does not result in her reaching any kind of legal status or personhood. Owl explains how she was once owned by a couple who, once she was not useful anymore, sold her without considering Owl's preference. In the AI character's words, the reason she was simply sold is "because AIs aren't people, Jane. You can't forget that about me. I'm not like you" (155). This is precisely what happens as soon as the protagonist and the AI escape the planet. When Jane 23/Pepper wakes up, weak and malnourished, she asks where Owl is several times (296). The only answer is that the spaceship where she was found was very old and dangerous and so it was confiscated. The Aandrisk character tries to comfort the protagonist by explaining to her that she will be "compensated" (299). That is, Owl is treated as an object with no legal personhood or moral regard. This way, the text confirms the AI's words on how she and all synthetic subjects are treated in Chambers' universe. Despite having escaped the planet of the Enhanced and transhumanism, they have not escaped anthropocentrism. The protagonist's response is a fit of abrupt anger and repeated and unsuccessful attempts to rescue Owl and the spaceship (299). Such emotional reactions might point that, far from creating a merely instrumental relationship, the human and AI characters have developed an interspecies posthumanist alliance; alliance that is shattered all the same by the same discourse the protagonist expected to escape from once outside the unnamed planet.

One of the major changes for the protagonist after fleeing the planet is that, here, she has the opportunity to discover what activities she enjoys. For instance, the protagonist tells another character that, although she does not mind cooking, she prefers fixing technology and scrap (151). Likewise, once she is free to choose what she will do with her life, she uses the scrapping abilities to support herself. She emphasises that she will not use her abilities for anyone. Here, she establishes ethical standards as to who can

benefit from her skill, never working for bribers, for instance (47). Only once she escapes the Enhanced planet is she able to subvert the simplification of her value into an extrinsic value through her instrumental ability to fix technology. The protagonist manages to appropriate the modifications that were once forced upon her. Now, she decides whom she will work for and even how much she will charge, depending on the economic situation of the client (48). In this sense, what once objectified her may have been subverted as the consequence of the posthumanist alliance the protagonist and Owl embodied while trapped in the planet.

Although one might argue that the protagonist totally forgot and abandoned Owl after she was taken, at the end of the novel the protagonist is given an opportunity to be reunited with Owl. Here, the plot moves forward more than ten years after the protagonist escapes the planet. Jane 23/Pepper hears rumours that Owl is dormant and on display in a museum. The human character cannot help but try a new rescue mission to free Owl (322). If the alliance established between the characters were merely an instrumental one crafted around their extrinsic value, disregarding their sentiency and *zoe*, such efforts would not be pursued. However, Jane 23/Pepper breaks into the museum and does not stop until she awakens and liberates Owl. Thus, at the end of the novel, the text seems to suggest that organic/synthetic alliances can indeed happen. In this sense, despite the apparent technophobia permeating the novel, the human protagonist creates a kinship with a synthetic subject. It is then that the narrative shows both characters finally reaching a new refuge together. Both were refugees on the Enhanced planet and now they are refugees in a different space. Together, they create a posthumanist alliance based on trans-species solidarity that allows them to resist the ongoing anthropocentrism that permeates Chambers' universe, potentially working towards a Chthulucene.

5. CONCLUSIONS

As I hope this article has proved, Chambers' *A Closed and Common Orbit* features some concerns raised by transhumanism and high technology increasingly present in American culture. Moreover, the text proposes a posthumanist alliance as a strategy, if not to subvert, at least to resist the anthropocentrism that results in the Anthropocene. Both Jane 23/Pepper and Owl are deeply complicated characters whose bodies or lack of them are inseparable from the

events that they experience and the alliance they form. Chambers' text seems to be crafted around the idea of the Anthropocene and the effects of the ongoing contamination and global emergency. Mass production and the alienation of human and robot workers in current economic systems is one issue Chambers' text raises, as well as how it supports anthropocentric transhumanism, deepening the Anthropocene. The reconfiguration of human subjectivities because of the modification of their DNA likewise awakens fears that can be spotted in *A Closed and Common Orbit*. Despite the promise of transhumanism and high technology for immortality and the enhancement of human bodies, the text explores how transhumanism can objectify human subjects, as exemplified by the girls of the Factory as well as non-humans like the AI Owl. The transhumanist society observed in the novel, created by the so-called Enhanced, reinforces binary systems of thought by positing clear-cut boundaries between the Mothers and modified girls, between unmodified humans and the girls, and between successfully and failed enhanced humans. This way, the binaries in the text facilitate the oppression of any otherized subject that does not fit into the normative model of the Enhanced human subject.

To conclude, *A Closed and Common Orbit* arguably evokes the current anxieties raised by transhumanism and high technology, whereby sentient subjects, as exemplified by Jane 23/Pepper or Owl, are valuable to the system only insofar as they produce or serve those in position of power like the Enhanced. This reading might confirm the power of science fiction to speculate about possible futures. Not the future readers may embrace or seek, Chambers' future seems to explore one of the many potential outcomes the binary transhumanist paradigm might be taking us. Nonetheless, that is not say that the text is deeply pessimistic about the future or that it provides readers with a doomed sense as many dystopian texts do. In Chambers' text, hope is crucial, and it seems to stem from a posthumanist alliance, which blurs binary boundaries and resists anthropocentric transhumanism. Ferrando defends that "Living an ethical life while being part of a society that [...] is still enchanted with the philosophical promises of the European enlightenment, is very challenging" ("Posthuman Feminist Ethics" 141). However, the protagonist does not avoid such a challenge, and neither does she posit all her faith in technoscience as the solution to everything as transhumanism often does ("Posthuman Feminist Ethics" 147). Instead, she faces the challenge with a posthumanist

alliance with Owl, perhaps asking readers to mirror her and to form posthumanist interspecies alliances to resist the ongoing exploitation of otherised subjects during the Anthropocene we are immersed in.

WORKS CITED

'ABOUT'. *Humanity+*, https://humanityplus.org/about/. Accessed 26 July 2021.

BOSTROM, Nick. "A History of Transhumanist Thought." *Journal of Evolution & Technology*, vol. 14, 2005, pp. 1–25.

BRAIDOTTI, Rosi. "Animals, Anomalies, and Inorganic Others." *PMLA*, vol. 124, no. 2, 2009, pp. 526–32.

---. *The Posthuman*. Polity Press, 2013.

BUSH. "President Bush Calls on Senate to Back Human Cloning Ban." *The White House*, https://georgewbush-whitehouse.archives.gov/news/releases/2002/04/20020410-4.html. Accessed 28 January 2022
.

CALARCO, Matthew. *Thinking Through Animals*. Stanford University Press, 2015.

CHAMBERS, Becky. *A Closed and Common Orbit*. Hodder & Stoughton, 2016.

COENEN, Christopher. "Transhumanism and Its Genesis: The Shaping of Human Enhancement Discourse by Visions of the Future." *Humana. Mente Journal of Philosophical Studies*, vol. 26, no. 1, 2014, pp. 35–58.

COLLADO-RODRÍGUEZ, Francisco. "The Female, the Intertextual, and the Transhuman in William Gibson's Molly Millions." *Hélice*, vol. 7, no. 1, 2021, pp. 23–36.

COX, Carolyn. "Congratulations to the 2019 Hugo Award Winners!" *The Portalist*, 18 Aug. 2019, https://theportalist.com/2019-hugo-award-winners. Accessed 4 January 2022.

DIÉGUEZ, Antonio. "La Función Ideológica Del Transhumanismo y Algunos de Sus Presupuestos." *ISEGORÍA*, no. 63, 2020, pp. 367–86.

FERRANDO, Francesca. "Posthuman Feminist Ethics: Unveiling Ontological Radical Healing." *Bloomsbury Handbook of Posthumanism*, Thomsen, M. R., Wamberg, J., Bloomsbury, 2020, pp. 141–60.

---. "Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms. Differences and Relations." *Existenz*, vol. 8, no. 2, 2013, pp. 24–33.

GANESH, Uma. "Artificial Intelligence Ethics: Designing Systems That Are Fair for All." *Financial Express*, 22 July 2021, https://www.financialexpress.com/industry/technology/artificial-intelligence-ethics-designing-systems-that-are-fair-for-all/2295044/. Accessed 6 January 2022.

GILL, R. B. "The Uses of Genre and the Classification of Speculative Fiction." *Mosaic*, vol. 46, no. 2, 2013, pp. 71–85.

HARAWAY, Donna. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities*, vol. 6, 2015, pp. 159–65.

---. *Manifestly Haraway*. University of Minnesota Press, 2016.

---. *When Species Meet*. University of Minnesota Press, 2008.

HARRIS, John. *Enhancing Evolution. The Ethical Case for Making Better People*. 2007.

HAYLES, N. Katherine. "The Life Cycle of Cyborgs." *A Question of Identity*, Marina Benjamin, Rutgers University Press, 1993, pp. 152–70.

JEFFRIES, Stuart. "Neil Harbisson: The World's First Cyborg Artist." *The Guardian*, 6 May 2014, https://www.theguardian.com/artanddesign/2014/may/06/neil-harbisson-worlds-first-cyborg-artist. Accessed 28 December 2021.

LOVELOCK, James. *Gaia: A New Look at Life on Earth*. Oxford University Press, 1979.

MAGNUSON, William. "Artificial Intelligence on Wall Street Will Be Great, Until It Isn't." *Governing*, 1 Nov. 2019, https://www.governing.com/news/headlines/artificial-intelligence-on-wall-street-will-be-great-until-it-isnt.html. Accessed 7 January 2022.

MEHLMAN, Maxwell J. *Transhumanist Dreams and Dystopian Nightmares*. The John Hopkins University Press, 2012.

MENGER, Eva. "'What It Feels to Be the Other:' Imaginations of Displacement in Contemporary Speculative Fiction." *Studies in Arts and Humanities*, vol. 4, no. 2, 2018, pp. 1–18.

MIIT technology Review Insights. "Asia's AI Agenda: The Ethics of AI." *MIT Technology Review*, 11 July 2019.

MORE, Max. "Transhumanism: A Futurist P…" *Extropy*, vol. 6, 1990, pp. 4-7.

NG, Lay Sion. "Transhumanism and the Biological Body in Don DeLillo's *Zero K*: A Material Feminist Perspective." *ISLE: Interdisciplinary Studies in Literature and Environment*, vol. 28, no. 2, July 2021, pp. 686–708

.

NORMILE, Dennis. "Chinese Scientist Who Produced Genetically Altered Babies Sentenced to 3 Years in Jail." *Science*, https://www.sciencemag.org/news/2019/12/chinese-scientist-who-produced-genetically-altered-babies-sentenced-3-years-jail. Accessed 12 November 2021.

ORTNER, Sherry B. "Is Female to Male as Nature Is to Culture?" *Woman, Culture, and Society*, Stanford University Press, 1974, pp. 68–87.

OUR Foreign Staff. "Chinese Scientist Claims to Have Created 'World's First Genetically Edited Babies'." *The Telegraph*, 26 Nov. 2018. https://www.telegraph.co.uk/news/2018/11/26/chinese-scientist-creates-worlds-first-genetically-edited-babies/. Accessed 6 April 2022.

ROLDÁN-ROMERO, Vanesa. "Transhumanist Contraceptives in June Caldwell's 'The Implant'." *Journal of Posthuman Studies*, vol. 4, no. 1, 2020, pp. 96–106.

STEFFEN, Will, et al. "The Anthropocene: Conceptual and Historical Perspectives." *Phil. Trans. R. Soc. A*, no. 369, 2011, pp. 842–67.

SUVIN, Darko. *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*. Yale University Press, 1979.

WARREN, Karen J., and Jim Cheney. "Ecological Feminism and Ecosystem Ecology." *Ecological Feminism*, vol. 6, no. 1, 1991, pp. 179–97.

ZIMERMANN, Michael J. *The Nature of Intrinsic Value*. Rowman and Littlefield, 2001.