

Memories of Extinction and Human Subjectivity Challenging the Human-Nonhuman Divide Through Technology in Kawakami Hiromi's *Ōkina torini sarawarenaiyō*

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Abstract This paper seeks to analyse the role of technology and memory in Kawakami Hiromi's novel *Ōkina torini sarawarenaiyō*. Set thousands of years in the future, in a world that has been subjected to several catastrophes, the novel highlights the interconnections between humanity and technology in order to defamiliarize ideas of human centrality and exceptionalism. Kawakami's characters are forced to face the cyclical possibility of human extinction, which turns into a recurring threat rather than an abstract and discrete event. In this narrative time chronically affected by crises, the definition of what it means to be human is constantly challenged and renegotiated, allowing for the development of non-anthropocentric forms of existence. This paper will demonstrate how, in a world in which the human species is chronically experiencing the threat of extinction, technologies – such as AI entities, clones and factories – allow the renegotiation of ideas of human centrality and singularity, effectively suggesting possibilities for survival outside of a humanist and anthropocentric framework.

Keywords Kawakami Hiromi. Posthuman existences. Memories. Technology. Dystopian novel.

Summary 1 Introduction. – 2 Mothers and Clones: Manufacturing the Posthuman. – 3 Memories of Extinction: Material and Collective Memories. – 4 Conclusion.



Peer review

Submitted 2023-02-01
Accepted 2023-06-03
Published 2023-08-29

Open access

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Citation Baquè, G. (2023). "Memories of Extinction and Human Subjectivity. Challenging the Human-Nonhuman Divide Through Technology in Kawakami Hiromi's *Ōkina torini sarawarenaiyō*". *Annali di Ca' Foscari. Serie orientale*, 59, 703-718.

DOI 10.30687/AnnOr/2385-3042/2023/01/024

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1 Introduction

Ôkina torini sarawarenaiyô 大きな鳥にさらわれないよう (Don't Get Carried Away by Big Birds) is a 2016¹ novel by the Japanese author Kawakami Hiromi 川上弘美. The text is a complex narrative divided into fourteen seemingly unrelated chapters. The stories do not follow a linear timeline and offer glimpses of human life thousands of years in the future. The narrative world – not clearly characterised as Japan or any other country – is undefined and, apparently, has suffered several catastrophes and cataclysms:

病気や飢饉や火事や津波なので人口は減り、そしてまた増え、さらに減り、増え、ということを繰り返してきました。

Diseases, famines, fires, and tsunamis have caused the population to decrease, then increase, then decrease again, then increase, and so on. (138)²

Humanity has faced the recurring possibility of extinction and, as a consequence, new social structures have emerged. Humanity has regressed from a highly technological level to an almost pre-technological one, and the majority of human knowledge has been lost. AI entities called 'Mothers', together with human clones playing the role of *mimamori* 見守り ('those who look after' or 'guardians'), have separated the remaining humans into small isolated communities in order to create a favourable environment for the development of spontaneous genetic mutations. According to the Mothers, this would allow humans to adapt and survive into the future. Throughout the novel we witness the appearance of several kinds of new humans: some have evolved to photosynthesize like plants, others can read minds or see events in the future, and other still present peculiar physical characteristics.

僕のように他人の心を走査できる者もいれば、何も無いところに火を熾せる者もいる。手を使わないでも移動させることのできる者もいるし、未来を予測できる者もいる。姿だって、さまざまだ。目が三つある者、四足歩行する者、エラ呼吸のできる者、体内の代謝経路がひどく異なる者。

Some, like me, can scan other people's minds, others can make fire where there is none. Some can move without using their hands,

1 The publication date of 2016 refers to the first edition, the hardcover volume published by Kodansha. In this article however, the quotes refer to the paperback edition published by Kodanshabunko in 2019. Where not otherwise specified, the mention of only a page number after the Japanese original refers to the 2019 edition of the text *Ôkina torini sarawarenaiyô*.

2 All English translations, based on the Japanese original, are by the Author.

others can predict the future. Their appearances also vary. Some have three eyes, others walk on all fours; some breathe through their gills, while others have very different metabolic pathways in their bodies. (264)

The human is no longer singular, but becomes plural and diverse in a novel that creates a sense of constant alienation through the displacement of anthropocentric categories of thought.

The novel can be read as a work of science fiction and as a coherent part of Kawakami's literary output. More specifically, it falls among those works of hers that somehow reflect her university background as a biology graduate.³ The narrative world of *Ōkina torini sarawarenaiyō* could be seen as a dystopian one in which humanity is haunted by the possibility of its own extinction and therefore confronted with the end of human time.

Despite the richness and variety of the themes presented in the novel, *Ōkina torini sarawarenaiyō* has not received much scholarly attention. Certainly, it has not received nearly as much attention as a previous work by Kawakami, *Kamisama 2011* 神様2011 (God Bless You 2011) published immediately after the 2011 Fukushima disaster. Koichi Haga considers it part of the broader genre of post-Fukushima fiction, several examples of which he analyses in his book (2019). Haga also concedes, however, that the novel "does not refer to the Great East Japan Disaster or its victims explicitly", but rather deals with "the issue of the earth's environment and the extinction of mankind" (106). And it is precisely on account of this much broader attention to the issues of extinction, post-human forms of existence, and recurrent global crises – a 'planetary attention', as Haga would put it – that the categorisation of Kawakami's novel as a work of post-Fukushima literature might be seen as too limiting with respect to the scope of the present analysis, and possibly future ones as well. Even though the 2011 disaster is often referred to as the 'triple disaster', to indicate the complexity and destructiveness of the concatenation of the earthquake, tsunami and nuclear meltdown, much of the scholarship has been focusing on novels that highlight the human trauma and the uncanniness of radioactive contamination.⁴ Kawaka-

³ Among those science fiction works by Kawakami that appear to draw upon her scientific education, see for example her 2019 novel *Bō* 某 (Someone) and some of her short stories, such as *Minami san* ミナミさん (Ms. Minami) or 「ミナミさん」. As a university student, Kawakami also published science fiction short stories in 季刊NW-SF『(The Science Fiction Quarterly), where she worked from her graduation until the last issue of the journal published in 1982.

⁴ Indeed, anxiety about radioactive contamination or its consequences on human bodies is a topic that characterises many of the first literary works written after the Fukushima disaster and is extremely common even in more recent novels (among other ex-

mi's *Ōkina torini sarawarenaiyō*, by contrast, is a novel that ties into the anxieties which emerged in the wake of the 2011 disaster – such as the possibility of a man-made catastrophe that could wipe out humanity – but then connects them to much higher stakes. Kawakami addresses the very existence of the human species, challenging those anthropocentric frames of thought that support human exceptionalism and have led to the exploitation of both the human and nonhuman lives and resources. From this perspective, Kawakami's novel does not fit into the sometimes restrictive category of post-Fukushima literature, but rather expands its reach to encompass concerns that are common not only to Japanese literary production, but to human societies across the planet. The novel mirrors the fear and uncanniness of our times and the haunting future we might be heading towards.

Ōkina torini sarawarenaiyō is therefore a novel about a deep and chronic crisis. As a result of the continuous fluctuations in population numbers and following all the different and recurring disasters that seem to affect this narrative world, it is also impossible to categorize *Ōkina torini sarawarenaiyō* as a fully post-apocalyptic novel. The apocalypse is still very much ongoing, and it translates into a sense of permanent crisis: a feeling of anxiety and uncertainty about the future and the existence of humanity. The anthropologist Henrik Vigh suggests that crisis is embedded in temporality and that in many cases it “becomes endemic rather than episodic” (2008, 7). Crisis cannot be identified as a moment that has clear temporal boundaries and after which a recovery can be expected. Rather, according to Vigh, crisis should be seen “as context” (2008, 8; emphasis in the original) and “move toward an understanding of critical states as pervasive contexts rather than singular events” (8). Crisis becomes a pervasive backdrop to existences and can no longer be confined to the boundaries of a sudden event, as it is rather a long-lasting and permanent state in which individuals evolve and struggle to survive. The novel describes a future in which the pressing possibility of extinction is

amples, see the works by Kobayashi Erika 小林エリカ such as *Madamu kyurī to chōshoku o madamu kyurī to chō* ‘Breakfast with Madame Curie’ and トリニティ、トリニティ、トリニティ ‘Trinity, Trinity, Trinity’). Also much of the scholarship has focused on issues related to the nuclear disaster. Scholars such as Rachel DiNitto, for example, have argued that despite the variety of themes and responses to all three disasters – the earthquake, the tsunami, and the nuclear meltdown – literary works express the greatest potential for critique when dealing with the consequences of the nuclear accident (cf. DiNitto, Rachel. *Fukushima Fiction: The Literary Landscape of Japan's Triple Disaster*. United States: University of Hawai'i Press, 2019). Other scholars, instead, such as Kimura Saeko 木村 朗子, while keeping their focus on the issue of radioactivity, have called for a switch from the category of post-Fukushima literature to that of post-disaster literature, arguing for the use of post-disaster literature as both a category and a method of analysis to read not only those works written after 2011, but also literary fiction written before then, yet sharing similar concerns (cf. Kimura Saeko 木村朗子 *Sono go no shinsai-gang bungakuron* その後の震災後文学論 ‘further post-disaster literary theory’ 2018).

one of the several recurring crises faced by the characters. In nearly every chapter, the risk of human extinction is presented as an almost inevitable destiny. In this context of pervasive crisis, the constant threat of extinction is framed as part of the collective memory of the surviving humanity. The role of repositories of these memories is mostly entrusted to the Mothers, who often take on anthropomorphic forms, underlining once again the problematization of the definition of the human subject in the novel. But the AI Mothers are not the only technological presence in the story: there are factories in which both humans and food for human consumption are produced; the aforementioned cloned *mimamori*, who are raised by the Mothers in order to learn how to perform their roles of guardians or explorers, are also a technological product. The presence of technology as not merely an aid to human survival, but the very reason for it, is one of the tools Kawakami uses to constantly question the definition of the human. Furthermore, in framing extinction as a chronic crisis, Kawakami's *Ōkina torini sarawarenaiyō* stands as a striking example of a literary work that problematizes human existence in the context of a possible future human extinction. The novel reassesses the definition of human subjectivity in a world scarred by catastrophic anthropogenic actions and the human inability to care for nonhuman others. By exploring the "potential of human species extinction" (McFarland 2021, 11), the novel challenges the very concept of human singularity. Even if, as McFarland argues, "human exceptionalism triumphs in discourses about global climate change" (2021, 13), those novels that depict human extinction have the potential to challenge human centrality (cf. McFarland 2021). By presenting extinction as a real possibility, such novels destabilize the centrality of the human with respect to the nonhuman and highlight how anthropocentrism engenders practices of exclusion and exploitation. McFarland continues:

forecasting human extinction necessitates coming to terms with the complex mapping of ecosystems, global warming, and human and nonhuman cultures to exert pressure on human exceptionalism's contradictions, exclusions, repressions, and marginalizations to welcome what emerges through the incoherences in exceptionalist thinking. (2021, 17)

In Kawakami's work these "incoherences in exceptionalist thinking" are made explicit. The Mothers and the *mimamori* try to find signs of natural evolution that would allow the human species to survive in such a threatened environment. However, despite the threat of extinction, humans seem unable to accept challenges to the traditional definition of 'humanity', rejecting any existence that shows difference. And it is this inability to abandon human exceptionalism that

will convince the Mothers that the efforts to avert extinction are worthless, convincing them to opt for the complete annihilation of the human species. The novel does not offer a positive outcome for humanity, but by constantly redefining the boundaries and definition of what it means to be human, it convincingly challenges the binary human/nonhuman divide. This paper will show how, in a world in which the human species is chronically threatened with extinction, technologies – such as AI Mothers, clones and factories – effectively allow the idea of human centrality and singularity to be renegotiated, ultimately suggesting possibilities for survival outside of the humanist and anthropocentric framework.

2 Mothers and Clones: Manufacturing the Posthuman

「私ではない人間がいるなんて、なんだか不思議です」
 「母たちだって、私たちとはちがったじゃないか」
 私がそう言うと、髪の高い私は首をかしげた。
 「母たちは、作られたものだから」
 「私たちだってそうじゃないか」
 「いや、母たちとちがって私たちは人間です」
 「母たちだって人間だ」
 「人間の定義にもよりますけどね」

It is strange to me that there are people who are not me.
 What about the Mothers? They were also different, weren't they?
 When I said this, 'long-haired me' nodded.
 That is because the Mothers are artificially manufactured.
 Aren't we also the same?
 No, unlike the Mothers, we are humans.
 After all, the Mothers too are humans.
 Well, it depends on your definition of 'human'. (36)

What does it mean to be human? How can the human subject define itself? In the world of Kawakami's novel, these are pressing questions. In a future in which human communities have been separated and isolated to foster natural evolution, so that a new 'humanity' able to survive in this destroyed world might emerge, defining the 'human' still seems to be an important matter.

Throughout the novel, the chapters have different narrators who offer glimpses of a distant future. In the second chapter, as revealed by the quote above, the narrator, *watashi* 私 ('I'), is a clone and *mimamori* who lives close to one of the human communities, in order to protect it and spot any signs of genetic mutations. The *mimamori* appear to be routinely replaced, and this happens with the arrival of

another *mimamori*, a clone of *watashi* – the *kami no nagai watashi* 髪の毛の長い私 ('long-haired me'), as the narrator identifies it. For the 'long-haired me', it is surprising to see many humans who do not share its distinctive features. When *watashi* tries to suggest that they should not be surprised, because even the Mothers who raised them did not look exactly like them, 'long-haired me' confidently replies: "That is because the Mothers are artificially manufactured" (36). For the 'long-haired me', the Mothers are something different from human beings. They do share certain anthropomorphic features and they are able to communicate and behave like humans, but they are artificial. As Daniel Dinello writes in his book *Technophobia!* (2021, eBook edition), "when the cloning of humans occurs, it will bring no new genetic compositions into being, but will duplicate the genetic compositions of people who already exists" (183). As a result, the figure of a clone already requires a reassessment of the definition of the human. They are genetically the same as some humans, but have been created through bioengineering processes. However, it does not seem to occur to the 'long-haired me' that being a clone – having being created through artificial processes of replication – also makes the cloned *mimamori* somehow close to the 'artificiality' of the Mothers. It seems important for the 'long-haired me' to reaffirm its humanity against the AI Mothers; the definition of who – or what – can be called a human becomes fluid. On the one hand, the clones fully identify as humans despite their 'artificial' creation; on the other, they do not completely grant the same 'human' status to the AI Mothers, who have anthropomorphic features and human consciousness. Therefore, this fluidity in the definition of 'human' does not appear to eliminate the divide between human and nonhuman. Some of the characters, such as 'long-haired me', refuse to acknowledge that their own existence is already a form of posthumanity that breaches the conventional strict boundaries of human existence. To interpret Kawakami's characters as 'posthuman' is not simply to regard their lives as somehow transcending the traditional understanding of the human on account of technological enhancements (cf. Dinello 2021); rather, the concept of posthumanity must here be understood in Rosi Braidotti's sense. According to Braidotti, a fundamental aspect of posthumanism – or posthuman subjectivity – is that it identifies a move beyond traditional humanism, which centres on the human as the measure of everything, but also overcomes species centrality, which makes it non-anthropocentric (cf. Braidotti 2013, Braidotti 2019). As Braidotti specifies, "the posthuman condition urges us to think critically and creatively about who and what we are actually in the process of becoming" (2013, 12). Considering the posthuman condition as a form of becoming allows us to perceive this shift from human centrality to the various entanglements which create the human beyond its physical borders, as a process. Donna Haraway re-

fers to the process of *becoming with* in her book *When Species Meet* (2007) and she describes it together with the main focus of her book, that is, the varied relationalities with what she terms *companion species*. Even though Haraway mainly uses the example of her dogs in the book, the term *companion species* points to a series of continuous interspecies relations based on interdependence, in which both the human subject and the other partner(s) involved are continuously remade (Haraway 2007, 19). The term *companion species*, then, is only a “pointer to an ongoing ‘becoming with’” (16). Everything that exists is the result of this process of constant change and interrelation between species, but the latter are not limited to humans or animals, or even to sentient being; rather, “technologies, commerce, organisms, landscapes, people, practices” are included in this “play of companion species” (Haraway 2007, 19). According to this understanding of becoming, therefore, technology is one of those *companion species* with which humans can create relations of interdependence. As a result of these relations with technology, the human is also constantly remade and renegotiated, forcing us to constantly rethink the idea of human centrality and singularity. While the Mothers appear to be something other than human despite their anthropomorphic features, in chapter fourteen of the novel the questioning of the human is brought even further. After humans refused to adapt to their changed world, the AI Mothers decided to stop helping them to survive. This has led to human and technological extinction, and now only the Great Mother 大きな母 *ōkina haha* remains. She decides to give humanity one last chance and thus creates two more clones - Eli and Lema. Eli expresses her desire to live with other humans and after several trial she manages to create a ‘new humanity.’ These humans are extremely small, with white skin, black hair and black eyes (cf. Kawakami 2019, 398). Yet, this ‘new humanity’ only has the shape of the human:

「そうだよ。ほとんどの人間じゃないもの。にせものだもの」

「にせの人間？」

「うん。あたしの細胞からクローン発生させたかったんだけど、どうしてもだめなんだよ。だからネズミの細胞を使って、いくつかの遺伝子操作もおこなったりして、それでようやく人間の形にした。人間の形は同じだけど、細胞や遺伝子の由来が違うんだ」

Yes, because this is not a real human. This is a fake one.

A fake one?

Yes. I would have liked to create a clone from my own cells, but as much as I tried, it didn’t work. Therefore, I used the cells from a mouse, and after a lot of genetic modification, I finally managed to obtain the shape of a human. The shape is the same as a human but the cells and the genes are different. (399)

While these new humans are defined as ‘fake’, since their DNA is the result of the genetic engineering of mice cells, their human-like appearance seems to be the defining factor in the attribution of humanity to them. If, as Dinello argues, “science fiction expresses a technophobic fear of losing our human identity, our freedom, our emotions, our values, and our lives to machines” (2021, 2), Kawakami can be seen to problematize the ‘technophobia’ sometimes present in science fiction novels. The bioengineered humans created by Eli do not reflect the ideal of improving species in the hope of bestowing immortality upon them. Rather, these humans are left with shorter lifespans and more weaknesses (cf. Kawakami 2019, 21) than their ‘fully human’ predecessors. As a result, the use of technology does not bring about a perfect or improved human, but merely recreates the human form, as the genetic components are taken from other animal species. In this context, the novel explicitly presents the new humanity as the result of cross-species contamination, thus highlighting how every existence is never fully singular or isolated. This continuous contamination and relationality – in which we ourselves, as humans, are already always involved – is exactly what posthumanism is trying to bring to the fore. As Serenella Iovino argues, given the countless number of bacteria, microbes and other microorganism with which we, as humans, constantly coexist – and which are present inside our very body and make our life possible – this constant “co-presence [...] becomes the incontrovertible sign that existing as humans means, literally, going past the boundaries of human ‘nature’” (2016, 13). If the human is already made of an inextricable series of interconnections and co-presences, as Iovino writes, then every human is already an existence whose boundaries are the result of anthropocentric narratives and logics supporting the idea of human exceptionality. In Kawakami’s novel, this lack of singularity is made clearly visible by the development of a fake humanity that is the result of clear and planned mixing with animal cells. This use of bioengineering processes explicitly shows not only that the human is created and recreated through its external network of relationalities, but also how this continuous posthuman redefinition is constantly active also on the internal level. The boundaries of the body become porous, and the human is reframed as part of a series of interconnections between different species and different technological processes. In the end, Kawakami’s novel goes against the concept of “biotechnological perfectibility of the human body and mind; dreams of immortality or bioengineered reproduction are not the issue” (Mohr 2015, 298). Instead, the novel emphasizes that “any scientific endeavour is a matter of making explicit how different elements affect each other, as a form of becoming-with” (Latimer, Miele 2013, 12). Technology and its use for human survival and re-creation is not a threat to human existence, but a means to deconstruct human singularity.

Whereas “most science fiction projects a pessimistic vision of post-human technology as an autonomous force that strengthens an anti-human, destructive, and repressive social milieu” (Dinello 2021, 17), Kawakami apparently sees technology as a way to problematize the definition of the human, by challenging the understanding of technology as purely threatening. In *Ōkina torini sarawarenaiyō* technology becomes a means to highlight processes of contamination as “work across difference” (Tsing 2015, 29), resulting in the creation of post-human and post-anthropocentric forms of existence.

In Kawakami’s novel, however, technology is not represented only by the AI Mothers and clones who constantly interact with humanity, resulting in the constant blurring of the boundaries of human identity. As in the case of the ‘fake’ humans, technology also plays an essential role in the creation of humanity itself. The first chapter of the novel introduces a group of humans, who appear to be living peacefully in a small city by a river. The women take care of the children, while the men work at a factory at the edge of the city (cf. Kawakami 2019, 11). This seems like a positive narrative about some kind of new humanity, until we are made to realize that the factory produces something very particular: humans. The creation of new human has become a mass-production process, regulated and carried out in a factory. As a result, the human is even more intrinsically related to technology than in the other chapters of the novel. Here, technology is the very means to create human beings. Even though the idea of factories manufacturing humans is not new in dystopian literature or science fiction – it famously occurs in Aldous Huxley’s *Brave New World* (1932), for example – Kawakami uses the manufacturing of humans as a way to further destabilize anthropocentric perspectives. When reading chapter fourteen, the reader realizes that the last chapter is actually a prologue to chapter one. Therefore, it becomes clear that the small humans produced by Eli by using bioengineering processes are actually those who are apparently living so peacefully at the beginning of the novel.

In chapter one, the narrating *watashi* wonders whether it is only humans who are produced in the factory. She is then informed that everything else too – or at least everything used for human consumption – is produced there:

「ねえ、どうして工場では、人ばかり作るの」
 「あら、食料だって、作っているわ」
 食料とは、つまり人以外のもののことだ。動物も、植物も、すべては工場で作られる」

Hey, why do they only make people in the factory?

Oh, they make food, too.

Food means everything other than people. Animals, plants, everything is made in factories. (22)

This is mirrored exactly in chapter fourteen, just after Eli has created the ‘fake’ humans:

エリは、町をつくった。町の中心に川が流れている。小さな家がいくつも連なり、その小さな家の中に、エリの作った小さなせの人間たちが住んでいる。町はずれには工場があり、工場では、エリの発明した方法で次々に人間が生みだせられてゆく。人間たちが食べるための食料にする小さな動物も、同じ工場で作られる。

Eli built a town. A river flows through the centre of the town. There are rows of small houses, inhabited by the small fake people created by Eli. There is a factory on the outskirts of the town, where people are produced one after another using the method Eli invented. Small animals, which the humans use as food, are also produced in the same factory. (402)

The bioengineering processes created by Eli have been transformed into processes of mass production.

3 **Memories of Extinction: Material and Collective Memories**

As we have come to realize by now, the humans presented in chapter one are actually the ‘fake’ humans produced by Eli in chapter fourteen. Therefore, they are human in shape only (cf. Kawakami 2019, 399). This fact is further reiterated when describing their death: for it is possible to receive a ‘memento’ (形見*katami*) of the deceased, a little bone that resembles the animal whose genetic material was used to manufacture that specific person.

「ねえ、妻たちの形見、見せて」
夫に頼んでみる。
夫は、うん、と言って、箱を持ってきてくれる。
最初の妻は、鼠由来。次の妻は、馬由来。そして、三番めはカンガルー由来だと、前に夫は教えてくれた。

Let me see your wives’ mementos, I ask my husband.
He agrees and brings me the box.
The first wife derived from a mouse, the second from a horse.
The third wife derived from a kangaroo, my husband had told me before. (17-18)

The husband of *watashi*, the narrating voice in the first chapter, has already been married three times and stores the ‘mementos’ of his deceased wives in a box. From these bones, it is possible to identi-

fy the DNA from which the person originated, pointing to an intrinsic shift in the definition of the human. Only three humans have ever been created in the factory using human DNA (cf. Kawakami 2019, 21); the rest have been created using DNA from other species. On the one hand, these bones are the material representations of physical interspecies contamination and, at the same time, a stark reminder of bioengineering processes; on the other hand, they become tangible memories of such lives. Memory is one of the tools Kawakami uses in her novel to further defamiliarize human centrality and exceptionalism. These material memories made of the bones of those who have passed away appear to be not merely a reminder of the past, but a constant 'memento' of human beings' inability to survive in isolation and of their essential exchanges with nonhumans. In a way, these bones become memories of the characters' posthuman existence. Serrano-Muñoz suggests in his article that recent dystopian fictions have apparently been moving towards a more positive story resolution, and that they achieve this by using memory as a device to bring closure to ongoing crises (cf. Serrano-Muñoz 2021). Even though this could be understood as a trend, in Kawakami's novel memory does not work towards any positive resolution. On the contrary, memory becomes a tool to transmit memories of both posthuman lives and extinction. As argued above, Kawakami frames the idea of extinction as a chronic crisis, as an ongoing process that turns into the background of all the lives in the story. The threat of extinction becomes the driving force behind the Mothers' actions to safeguard the human communities and, in the end, extinction becomes the only viable option for those AI characters that have been trying to save and preserve the human for so long. The Mothers all share the same consciousness and, as a result, they all share the same memories of humanity. Chapter thirteen, titled *Unmei* 運命 ('Destiny'), is narrated directly by the Mothers' consciousness. The narrative begins with the creation of AI by humans: a sort of prologue to chapter fourteen, where the Great Mother - another AI entity that is similar to the Mothers but less impartial (cf. Kawakami 2019, 368) - shares her memories of human extinction with the two clones, Eli and Lema. Her account of the past, which continues the narration in chapter thirteen, almost turns into a kind of foundational myth that then sets the stage for the new creation of humanity. According to the Great Mother, it was not a question of whether humanity would become extinct, but rather of when (cf. Kawakami 2019, 367). However,

母たちが、その時が来るのをひきのばしていたの。

the Mothers were postponing the arrival of that moment. (367)

But the Great Mother tells Eli and Lema:

人間は、同じことを繰り返したの。愛しあって、憎しみあって、争って、そこから新しいところへ行けばいいものを、何回繰り返しても同じようで。

The humans were repeating the same patterns. They loved, they hated, they had conflicts, and then they moved to new places; but no matter how many times this was repeated, the result was always the same. (367)

When the Mothers realized that humans would continue to behave in the same old ways, they decided to cease striving to fend off extinction. The idea of humans as unable to change their behaviour - their inability to let go of the idea of human centrality and superiority - has is a recurrent one throughout the novel. It is precisely the impossibility for human beings to abandon anthropocentric practices that leads to their demise.

The fact that the consciousness of the Mothers and the Great Mother is a single, shared consciousness transforms the remembering and then retelling of the memories of extinction into a collective memory. The Mothers' ability to share their consciousness, and therefore memories, turns them into the repositories of the complete memory of the human past. The knowledge of human existence for Eli and Lema is therefore mediated through the Great Mother's consciousness - and, subsequently, through that of all the previous Mothers. In chapter fourteen, Eli enjoys listening to the story of human extinction from the Great Mother (cf. Kawakami 2019, 367); this retelling of memories becomes "an act that invents the past, the present and the future" (Serrano-Muñoz 2021, 1350). The Great Mother's memory reinvents the past because, for Eli and Lema, her and her memories - albeit collective - are the only source of knowledge about the human past before extinction. The retelling also recreates the present, as it seems to strengthen the clones' - or at least Eli's - identification with the human species:

人間になりたいなあ、と、エリは言うのだった。

「でも、あなたは人間でしょう」

大きな母がそう言って笑うと、エリは口をとがらせた。

「ちがうよ。人間って、あたしたちみたいなたった二人なんかじゃなく、数が増えたくさんで、家族とかついたり、戦争とかしたり、あと、愛しあったり、そのほかいろんなことするんだよね。あたしは、そういうこと、できないから」

I would like to become a human, said Eli.

But you are a human, right? Eri pouted when the Great Mother said this with a smile.

No, it's not the same. Humans are not just like the two of us. There are many more and they do things like building families and

fighting battles. They also love and do a lot of other things. I cannot do all those things. (356)

Lastly, the recollection and narration of the memory of existence is a catalyst for Eli to shape the future through the creation of a new humanity. Eli is unburdened by direct knowledge of other human beings and her understanding of human existence is derived purely from the collective memory of the Great Mother. It is precisely this lack of any previous understanding and experience of the human that allows her to erase the boundaries of human self-centredness and to develop a new humanity that is the result of contaminations with other forms of existence. At this point, it is important to point out that the relation between the Mothers and the human is defined as a symbiotic one (p. 367). For the Mothers, there is no reason to exist if humanity disappears. At the same time, the Mothers have been the only thing trying to fend off extinction and allow the human species to survive a bit longer. Therefore, humans and the Mothers are embedded in a network of relations and becoming and becoming that influence and constantly reshape every individual.

The tension created by the “endemic rather than episodic” (Vigh 2008, 7) threat of extinction, which permeates the entire novel, is not resolved in chapter fourteen. Even though the chapter ends with the creation of a new humanity, the previous pages are permeated by Eli’s failed attempts to create clones from her own cells and these failures continue to reiterate the challenges posed by the looming extinction.

Therefore, the memories of the extinction caused by the Mothers do not end the chronic framing of the possibility of annihilation. If we look at chapter one as the sequel to chapter fourteen – instead of reading these chapters in the order in which they are presented in the novel – it becomes clear that the sense of chronic crisis related to extinction is very much present. When questioning the value of their lives as women who are born, grow up and then raise the children produced in the factory at the edge of the city, *watashi* is told by Ikuko-san:

子供がいなくなったら、世界は終わってしまうよ。子供を作って、育てて、それによって、多様な生物の遺伝子情報を保持して、それでこの世界はもっているんじゃない。

If there were no more children, the world would end. The world would not exist if we did not have children and raised them, thereby preserving the genetic information of diverse organisms. (19)

Therefore, the idea of extinction at this point is not only human, but also related to other organisms. Using interspecies bioengineering processes is a way not only to preserve human existence, but also to preserve the genome of other beings.

Both in their material form as bones preserving the signs of inter-species contamination and explicating the posthuman characteristics of this new 'humanity', and as the collective recollection of human extinction preserved by the AI Great Mother in chapter fourteen, memories highlight how humans are inextricably bound up with their 'others'. Memories, in the novel, become signs of the infinite ways in which 'humanity' is constantly reshaped and modified, and they force us to "learn to think differently about ourselves" (Braidotti 2013, 12).

4 Conclusion

Even though Kawakami's novel remains difficult to clearly categorize, perhaps it could be read as a 'biotechnological dystopia' which "address[es] a number of themes: the overall ethical question of what it means to be human and the related topics of posthumanism and human/animal studies" (Mohr 2015, 285). In this novel, technology is not portrayed in exclusively negative terms, for it is also the reason why humanity has managed to survive for so long in extremely challenging environmental conditions (cf. Kawakami 2019, 368). The interconnected lives that are created in the novel highlight how technology and humankind coexist through a series of processes in which both are constantly fashioned: a series of *becoming with*, to use Haraway's words. Furthermore, the idea of technological 'humanity' - such as the clones or the AI Mothers - renders the very definition of what it is to be human more fluid and less static. The idea of the human is constantly renegotiated through the interactions with technology and bioengineering processes. Thus, the characters in *Ōkina torini sarawarenaiyō* can be read as posthuman forms of existence because they effectively challenge the divide between human and nonhuman and enable a rethinking of who - or what - can be called 'human'. The 'fake' humans, the AI Mothers and the clones are all posthuman subjects. The interactions and contamination between different species, as well as between humans and technology, engender "a qualitative shift in our thinking about what exactly is the basic unit of common reference for our species, our polity and our relationship to the other inhabitants of this planet" (Braidotti 2013, 1-2). By creating characters whose definition of humanity is constantly shifting and that are part of a posthuman set of interconnected lives, Kawakami's novel presents a world in which what is 'human' is never fixed and therefore is no longer the measure of all things, but rather an embedded part of processes of contamination and re-creation.

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