

SILENT MACHINES AND LOUD WARS: THE QUIET REVOLUTION OF BIOTECHNOLOGIES IN CONFLICT LITERATURE

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INTRODUCTION:

Biotechnology as a branch of knowledge that combines aspects of both biology and technical sciences, has developed rapidly over the past few decades and continues to promise revolutionary changes in medicine, agriculture, ecology, and manufacturing. At its core, biotechnology harnesses biological processes, organisms, or systems to develop new products and solutions that can significantly improve human life and address critical global challenges. From genetic engineering to gene therapy, biotechnology holds the potential to revolutionize healthcare by curing genetic disorders, increasing food security through genetically modified crops, and creating sustainable solutions for environmental degradation. Biotechnology, despite its promising potential, carries significant risks that may outweigh its positive attributes, particularly when ethical concerns are considered. The unregulated development of biotechnology raises grave issues, such as the creation of dangerous viruses, environmental degradation, and the potential for bio weaponry. Rather than enhancing life, unchecked biotechnological advancements can erode human and ecological identities, violating fundamental freedoms, privacy, and security. As we enter the 21st century, the nature of warfare has shifted dramatically, moving from traditional methods to hybrid approaches fueled by emerging disruptive technologies, including advancements in genetic engineering and biomimetic materials. These innovations have redefined the capabilities of military forces worldwide (Langer & Sharma, 2020). Historically, technology has always been driven by humanity's desire to solve problems and improve life, but as technology advances, its interaction with culture, politics, and economics increasingly shapes societal structures. In the posthuman era, the boundaries between self and technology, human and machine, and even artificial intelligence, begin to dissolve, creating a world where technological integration challenges traditional concepts of identity and autonomy. This transformation underscores the critical need to address the ethical, environmental, and social risks posed by biotechnology.

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It is crucial to emphasize that the posthuman has gradually become an inseparable part of the lived experience of the past half-century as well as that the critical discourses pertaining to it have grown more pluralistic. The posthuman encounters have thus assumed a common tableau of existence by an enormity of populations today in different aspects of life. The use of artificial intelligence—certainly some of which is approaching, or even possibly attained, human-like characteristics, or is able to create them—has arisen at an exponential rate. The human body, too, has become the focal point for enhancements that challenge previously unquestioned assumptions about its inherent "humanness." This is in a view of new technologies in healthcare; prosthetics, medical procedures, genetic engineering, neuro technology among others. Both in augmented and virtual environments, the human brain never stops having to make dissections and differentiations between that which is real and bio-organic, and that which is technodigital. The question arises: is it possible to get a clearer idea of what drives people and how they act by deciding who or what is 'human'-or isn't? The subject of the conflict between the human and its posthuman antagonists is bridged by the possibility of imagined events. In this "contact zone" new entities may emerge, destabilizing rigid binaries. Thus, actual cultural work has been going on to construct such possibilities and imagine potential opportunities and risks of such entities.

Humanists have historically viewed themselves as distinct individuals in conflict with their environment, whereas posthumans see their existence as intricately linked to an expanded technological realm. This shift, however, remains ambiguous, as the concepts and boundaries of posthumanism are still debated, with discussions often focusing on terms like artificial intelligence. In this context, the posthuman nature of the human body is revealed as something inherent, challenging the traditional focus on technology within posthuman discourse. As Raffaeta notes, the human body is primarily composed of non-human entities, with only a small fraction of cells containing human DNA; the rest belong to a diverse community of bacteria and viruses. This realization prompts critical questions: Has humanity always been mediated by non-human or posthuman entities? Is posthumanism an intrinsic aspect of being human? And ultimately, are posthuman encounters reflections of humans grappling with their own identity in an ongoing search for self-understanding?

Ihab Hassan's essay, "Prometheus as Performer: Toward a Posthumanist Culture?", is recognized as one of the earliest works to introduce the concepts of "posthumanist" and "posthumanism." In this foundational piece, Hassan explores key questions about the future of artificial intelligence, particularly whether AI will replace, augment, or simply enhance the human brain. While the answer remains uncertain, he emphasizes that technologies—from simple calculators to advanced artificial intelligences—are not only reshaping human

identity but also challenging traditional notions of what it means to be human, acting as agents of a new posthumanism. Hassan's essay is notably self-aware, with its ironic subtitle, "A University Masque in Five Scenes," reflecting his critique of the fragmentation prevalent in the 1970s. He engages with figures like Marshall McLuhan, Buckminster Fuller, Norman O. Brown, and Jacques Derrida, who each offer visions of a rapidly changing world, marked by ideological, cultural, and social polarization. Through this, Hassan critiques the era's fragmentation, highlighting how the global and cultural divisions of the time are central to the emerging posthuman discourse.

The term "posthuman" has evolved into an umbrella concept, encompassing a wide range of intellectual movements and traditions, such as philosophical, cultural, and critical posthumanism; various forms of transhumanism (including extropianism, liberal and democratic transhumanism); feminist perspectives like new materialisms; and the fragmented landscape of antihumanism, metahumanism, metahumanities, and posthumanities. This broad usage has created significant methodological and theoretical ambiguity, making the term difficult to define and understand for both scholars and the general public (Ferrando, 2013, p. 26).

"Transhumanism" a term introduced by Julian Huxley in the late 1950s, promotes the idea that humans should use technology to enhance their cognitive and physical abilities, surpassing the limitations of current biology. At its core, transhumanism emphasizes the pursuit of positive experiences, asserting that human mental and physical processes alone are insufficient for achieving these higher states. It also aligns with secondary values such as individualism, libertarianism, pragmatism, and physicalism, although not all transhumanists share these views. Rooted in Enlightenment ideals, transhumanism has garnered criticism from various religious, conservative, and liberal factions. Amid this ideological landscape, AI is drawing humanity into an unmanageable clash of mentalities. Jean-Marie Le Méné critiques the inevitability of these technological developments, dismissing them as "paper tigers" and arguing that the alliance between scientism and the market against nature is bound to fail. He contends that while humanity has transitioned from theocentrism to anthropocentrism, biocentrism, and now technocentrism, the rise of transhumanism in this ideological void reflects a dangerous misconception. Le Méné challenges the belief that humans need technological "repair" to be "saved," viewing it as a false notion that technology can solve the deeper folly of mankind. In this context, human nature itself is transformed into an object of technological manipulation, reshaping not only the rules of the game but also the very players involved.

If human beings are infinitely malleable, if culture [and most determinatively, biotechnology] can overwhelm nature in shaping basic human drives and preferences ...

then clearly no particular set of political and economic institutions, and certainly no liberal democratic ones, can ever be said to be, in Kojeve's phrase 'completely satisfying'. ... The ultimate implication of this is that biotechnology will be able to accomplish what the radical ideologies of the past, with their unbelievably crude techniques, were unable to accomplish: to bring about a new type of human being. (Fukuyama, 1999, 14-15)

Tochi Onyebuchi, a Nigerian-American author, explores these themes in his speculative fiction, such as *War Girls*, *Riot Baby*, and *Beasts of No Nation*, which delve into the intersection of technology, race, and identity. His works, set in dystopian and post-apocalyptic worlds, offer critical insights into the impact of biotechnology and transhumanism, using vivid world-building and complex characters to examine the consequences of technological advancements on humanity.

METHODOLOGY

This paper employs a posthumanist critical framework to analyze the ethical, social, and existential implications of biotechnology in Tochi Onyebuchi's *War Girls*. The process involves bibliographic research of materials on biotechnology and posthumanism, reading of *War Girls* followed by identification of themes of identity, autonomy, and technology and finally, interpreting the narrative using analysis from Ihab Hassan and Donna Haraway. Still, it is compared with fiction inspiration to set the stage for further analysis while actual progression is also provided. Such an approach enhances the cultural and ethical importance of the novel as relating to biotechnology.

LIMITATION

In this research, a single text is taken for analysis, which prevents drawing many conclusions and adopting only posthumanist approaches to understanding the phenomena described, while excluding others, such as bioethical. It contains no quantitative evidence and also it has poor interactions with recent biotechnological developments. Also, it fails adequately to analyze the deficits related to cultural backgrounds of the portrayal of biotechnology, suggesting further research directions.

RESULT

War Girls critiques the dual nature of biotechnology, highlighting its potential for both empowerment and dehumanization. Characters like Ify show how biotechnological enhancements foster strength and survival, while Onyii's augmentations expose the physical and emotional toll of war. The integration of human and machine in characters like Chinelo challenges notions of identity and autonomy. The narrative raises ethical concerns about the coercive use of biotechnology in warfare, emphasizing the need for careful consideration of agency and consent in such advancements.

DISCUSSION

"War is a defeat for humanity", these lines of Pope John Paul II, reflects the moral failure behind conflict, where even silent advancements like biotechnology quietly fuel louder, more destructive wars. The intersection of technological advancements and warfare has long intrigued, and always worried. From the atomic age to digital revolution, authors relentlessly explored all the varied ways in which technological advancement would reshape conflict landscape. But there is a more recent trend unfolding-it is the more subtle, often overlooked, yet perhaps even more terrible impact of biotechnological changes on warfare. This paper will look at the surging biotechnological warfare being represented in literature, particularly in the context of Tochi Onyebuchi's *War Girls*.

The novel *War Girls* has explored the ethical and social repercussions of biotechnological warfare in a world where war girls, "human weapons of mass destruction," are produced, bred, and used for war (Onyebuchi, 2020, p. 10). In addition to their superhuman abilities, these young women serve as pawns for geopolitics, leaving their lives merely to be used to promote state control. There have been many war girls altered by biotechnology advances, such as Onyii. Her morning routine highlights how this technology does not only permeate her body but also assimilates her identity as well: "the first thing Onyii does every morning is take off her arm" (Onyebuchi, 2020, p. 12). Other War Girls have gotten used to sleeping without their arms or their legs. But Onyii's phantom limb haunts her in her sleep" (Onyebuchi, 2020, p. 12). Donna Haraway states, we have become 'frighteningly inert' in our living (Haraway, 1991, P. 52). This highlights how the very augmentation that gives her strength also strips away her humanity, a constant reminder of what war has cost her. It reflects Walter Cronkite's observation: "War itself is, of course, a form of madness... It's amazing how we spend so much time inventing devices to kill each other and so little time working on how to achieve peace" (Socolow, 2010). The technology that empowers Onyii is born of this madness, showing the tragic irony of investing so much in warfare while neglecting peace.

Onyii's connection to the larger war effort is exemplified not only through her augmentation but also through the routines of survival and violence that govern the camp. As she reflects on the scarcity of resources, she muses on the fact that "it never seems like enough, the smuggled arms. But orphans never steal enough bread for a feast, only enough to last the day" (Onyebuchi, 2020). This metaphor encapsulates the grim reality of life for the War Girls, where struggle of survival and the line between being human and machine blurs. In *War Girls*, the fusion of transhuman and warfare creates a world where humans and machines coexist in an uneasy balance, with the quiet hum of circuits and the

violence of war merging into a powerful critique of technological advancement at the cost of humanity.

Biotechnologies-artificial limbs, neural implants, and mechanized suits-quietly altering human bodies without fanfare. Unlike the explosive violence of war, these modifications work within and upon the bodies, quietly combining the organic with the synthetic. Though less boisterous and certainly less visible than the battles themselves, these changes compose a quieter revolution that questions the very nature of what it is to be human. Ify, another central character and a technological prodigy, embodies the novel's exploration of biotechnology as empowerment. Her ability to interface with machines, control drones, and manipulate networks makes her more than a victim of war-she is an architect of the future, a quiet revolutionary using technology to fight for her people. Unlike the raw physicality of war, her skills represent a more intellectual and silent form of power, underscoring how biotechnologies offer new ways to shape the battlefield and the future. Ify's technological prowess elevates her from a mere casualty of conflict to a pivotal architect of her community's future, illustrating the empowering potential of biotechnology. However, this narrative also invites a critical examination of transhumanism-the integration of technology with the human body and mind. Transhumanism is a form of modern slavery that sells humans no longer as a unit but bit by bit. (...) This form of commercialisation produces victims. Unable to create augmented humans, we are already suppressing reduced humans". Indeed transhumanism will be eugenic through the selection and modification of embryos. (Transhumanism: the real danger of maninkind is the commercialization of life, 2017).

Biotechnology quietly reshapes the human into transhuman in *War Girls*, seamlessly integrating technological enhancements into everyday life. The camp's auto-body shelter allows girls to become "Augments, given limbs or organs more powerful than what they were born with" (Onyebuchi, 2020, p. 14), subtly transforming them in response to the demands of war. Onyii observes the camp's infrastructure, where "fiber-optic cables run throughout the camp and beyond, buzzing the earth constantly with charges, zapping the soil over and over to release the water soaked into it" (Onyebuchi, 2020, p. 16), illustrating how biotechnology sustains both people and land. This quiet power is also seen in Chinelo, who uses her robotic "bees" to gather environmental data like "temperature and the water density in the air" (Onyebuchi, 2020, p. 17), showing how biotech enhances human perception and survival without drawing attention. These quiet transformations reflect the subtle yet profound impact of biotechnology on the human experience. The quiet power of biotechnology also manifests in the seamless fusion of human and machine, especially through characters like Chinelo, who wears her "bees" as an extension of herself. These tiny robotic insects quietly "tell Chinelo the temperature and the water density in the air

and the amount of radiation in each drop of rain that lands on them"(Onyebuchi, 2020, p. 17). These bees, though small and silent, symbolize the vast potential of biotechnology in this world. Through them, Chinelo gains access to knowledge once beyond human reach, demonstrating how biotech subtly enhances human perception and capabilities without making itself the center of attention. Similarly, these bees illustrate how biotechnology can quietly revolutionize the way humans interact with the world.

Another moment of subtle power comes when Chinelo, despite her seemingly organic appearance, reveals her internal augmentations: "her Augments are more internal. A braincase for her brain, ways of having data transmitted directly to her, even some metal where bones should be"(Onyebuchi, 2020, p. 18). While Chinelo appears more human on the outside, her internal augmentations symbolize how biotech quietly transforms individuals into transhuman, granting them abilities far beyond their natural human limits. This quiet revolution in Chinelo's body shows that the true power of biotechnology lies not in its overt presence, but in the way it silently integrates and enhances, transforming the human form from the inside out.

BIOTECHNOLOGY'S MORAL AND ETHICAL DILEMMAS:

One of the central ethical dilemmas surrounding biotechnology lies in its use to augment human bodies, particularly through prosthetics and enhancements. In Onyebuchi's narrative, the girls in the camp, many of whom have lost limbs due to war, receive "limbs or organs more powerful than what they were born with" (Onyebuchi, 2020, p. 14). These enhancements raise profound questions about identity and humanity, as they simultaneously provide power and symbolize loss and dehumanization. For instance, Onyii reflects on her mechanical arm, describing it as "a sign of her survival, yet this was what she'd lost... Now there is only mesh wiring over the opening, so that her socket is more like a power outlet than anything else" (Onyebuchi, 2020, p. 14). This interplay between human and machine complicates whether such transformations represent liberation or deeper imprisonment. As these technologies evolve, societies must grapple with their ethical implications, including the potential dehumanization of enhanced soldiers, the reversibility of enhancements, and whether norms of ethical medical conduct will adequately address these advancements. Questions arise about how far "military necessity" can justify such enhancements and whether soldiers risk becoming mere tools of war (Nayef Al-Rodhan, 2015).

In *War Girls*, Onyebuchi contrasts the subtle progression of biotechnology with the violent chaos of war, drawing inspiration from the Nigerian Civil War to examine the brutality of the Biafran separatists' fratricidal conflict with Nigeria, where survival becomes intertwined with the manipulation of the human body. The novel presents a sensory overload of destruction,

as advanced technology intensifies violence, transforming war into a deafening and all-consuming force. This clash underscores the dehumanizing impact of both technological advancement and warfare. The ethical concerns extend beyond physical augmentation to encompass broader political and societal implications, as the war is fought with advanced technology that blurs the line between human and machine. For instance, aerial mechs, described as "massive humanoid robots," dominate the skies with their "state-of-the-art nav systems" delivering precise, deadly strikes (Onyebuchi, 2020, p. 13). These machines highlight the ethical dilemmas posed by biotechnology's role in enhancing warfare's destructive capacity. The quiet revolution of biotechnology thus shapes not only individual survival but also the societal consequences of waging war with advanced technology.

To address the challenge of aligning substitution and transformative technologies, the solution lies not in simplifying technologies but in making them more complex. Complex technologies, unlike those that merely perform functions like control, prioritize humanity as their central focus and adapt to environments where humans remain the ultimate goal. Simplistic systems, such as the "digital concentration camp," fail in this regard, being overly reductive (Merzlyakov, 2021). This tension is mirrored in *War Girls*, where the ethical dilemma of consent and agency emerges starkly in the lives of the young girls in the camp. Many, including Onyii—just fifteen and already a seasoned fighter—have been augmented without fully understanding the irreversible consequences of these changes. Younger girls, described as "just learning how to be people again after having grown feral in the jungles" (Onyebuchi, 2020, p. 16), undergo augmentations that transform their bodies in ways that may feel less like empowerment and more like coercion dictated by the brutal demands of war. In this context, biotechnology becomes a tool of control rather than a means of liberation.

Posthumanism views humanity as a terminal point, suggesting that the only path forward leads back to objects, but this perspective overlooks humanity's potential as the beginning of a new stage of development. However, this potential risks remaining unrealized if humanity loses its value status. To counter the current trend of people lagging behind technological advancements, efforts must focus on granting individuals the freedom to change—a principle at the core of "technological humanism" (Merzlyakov, 2021). In *War Girls*, this ethical tension is vividly illustrated through Onyii's reliance on nanotechnology. Her prosthetic arm, enhanced by nanobots, provides functionality but fosters dependence, exemplified when she spits nanobots to reactivate a droid (Onyebuchi, 2020, p. 20). This act highlights the complex interplay between autonomy and technological control. Onyii's observation that "minerals are just dust... powerful, important dust" (Onyebuchi, 2020, p. 16) critiques the exploitation of natural resources, exposing how war-driven progress intertwines survival with environmental degradation. Biotechnology, while offering

empowerment, raises profound ethical concerns about dependence and its broader costs. In *War Girls*, Onyebuchi plays off the quiet pace of advancing biotechnology against the loud, discordant mayhem of war. Unlike the real Nigerian Civil War, of which he vivaciously poses the brutality of the fratricide by Biafran separatists on the government of Nigeria, a war that, in its depth, profoundly eats away their emotions and psychology beneath the sweat for survival through biotechnology. It is indeed true that violence is explicit, but the bottom-line fight is over the issue of control and improvement of the body itself as it becomes a weapon in this vicious war. *War Girls* presents a deafening spectacle of destruction through combined technology and violence, which brings along an overwhelming sensory experience. War is no background; it's a cacophonous, visceral reality that governs the characters' lives and underlines the chaotic nature of war. The loudness of war runs starkly against the quieter reverberations of biotechnology in the novel, showing how machinery amplifies the articulation of violence and destruction.

CONCLUSION:

In *War Girls*, Tochi Onyebuchi masterfully examines the entanglement of biotechnology and warfare, envisioning a dystopian future where technological advancements blur the boundaries between humanity and machinery. The novel critiques the perversion of innovations meant for healing—such as prosthetics and nanotechnology—into instruments of war, highlighting the dehumanizing toll exacted by the quest for survival. Through vivid depictions of mechanized combat juxtaposed with the intimate, quiet transformations within the human body, Onyebuchi underscores the precarious duality of technological progress: the same tools that promise empowerment also strip away individuality, autonomy, and the essence of humanness.

This harrowing portrayal raises urgent ethical questions about the role of biotechnology in warfare. Onyebuchi compels readers to confront the moral ambiguity of innovation, challenging them to consider whether the relentless pursuit of power and survival ultimately destroys what it means to be human. By intertwining themes of identity, autonomy, and the cost of progress, *War Girls* serves as a poignant critique of humanity's unbridled technological ambition. As Klaus Schwab aptly warns, "We must address, individually and collectively, moral and ethical issues raised by cutting-edge research in artificial intelligence and biotechnology, which will enable significant life extension, designer babies, and memory extraction." Onyebuchi's narrative resonates deeply with this imperative, urging reflection on the far-reaching consequences of innovation.

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