

The Anthropocene Cosmic Sublime: Viewing the Earth from Space in Samantha Harvey's *Orbital*

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Abstract

This paper examines the representation of the sublime in Samantha Harvey's novel *Orbital* (2023) in the context of the Anthropocene and space exploration, in which humans markedly engage with and transform terrestrial and extraterrestrial environments. It discusses the concept of the Anthropocene cosmic sublime, which represents an evolving aesthetics that differs from more traditional notions of the sublime as explored by Edmund Burke and Immanuel Kant. While these thinkers concentrated on terrestrial phenomena, the article shifts the focus to space travel and the experiences of astronauts in space. The article argues that the Anthropocene cosmic sublime emphasizes the embodied experience of space from the astronauts' perspective, rather than through technological mediation like telescopes. This experience evokes traditional affects of awe and smallness in relation to the vast cosmos, while also highlighting our environmental responsibilities. The article examines how space exploration, although often linked to technological advancement and imperialist rhetoric, can also reflect ecological and ethical considerations through the lens of the Anthropocene cosmic sublime. The article argues that fiction, and particularly works like *Orbital*, can serve as a space for ethical reflection on the Anthropocene. Ultimately, Harvey's novel renegotiates the sublime as a transformative narrative and aesthetic tool inviting readers to reconsider humanity's role in shaping planetary and cosmic environments with a renewed ethical and ecological consciousness.

Keywords: Cosmic sublime, Anthropocene, space exploration, *Orbital*, Samantha Harvey.

Resumen

Este artículo examina la representación de lo sublime en la novela *Orbital* (2023), de Samantha Harvey, en el contexto del Antropoceno y la exploración espacial, en el que los seres humanos se comprometen y transforman notablemente los entornos terrestres y extraterrestres. Se analiza el concepto de lo sublime cósmico del Antropoceno, que representa una estética en evolución que difiere de las nociones más tradicionales de lo sublime exploradas por Edmund Burke e Immanuel Kant. Mientras que estos pensadores se concentraron en los fenómenos terrestres, el artículo desplaza el foco de atención hacia los viajes espaciales y las experiencias de los astronautas en el espacio. El artículo sostiene que el sublime cósmico del Antropoceno hace hincapié en la experiencia encarnada del espacio desde la perspectiva de los astronautas, en lugar de a través de mediaciones tecnológicas como los telescopios. Esta experiencia evoca los afectos tradicionales de asombro y pequeñez en relación con el vasto cosmos, al tiempo que pone de relieve nuestras responsabilidades medioambientales. El artículo explora cómo la exploración espacial, aunque a menudo vinculada al avance tecnológico y a la retórica imperialista, también puede reflejar consideraciones ecológicas y éticas a través de la lente de lo sublime cósmico del Antropoceno. El artículo sostiene que la ficción, y en particular obras como *Orbital*, puede servir de espacio para la reflexión ética sobre el Antropoceno. En última instancia, la novela de Harvey renegocia lo sublime como herramienta narrativa y estética transformadora, invitando a los lectores a reconsiderar el rol de la humanidad en la configuración del entorno planetario y cósmico.

Palabras clave: Sublime cósmico, Antropoceno, exploración espacial, *Orbital*, Samantha Harvey.

The traditional understanding of the natural sublime, as presented by Burke and by Kant, confronts humans with the vastness and power of nature and inspires them with a sense of awe. In their descriptions of sublime experiences, both Burke and Kant primarily focus on terrestrial phenomena, such as volcanic eruptions, earthquakes, and turbulent sea storms. While Kant famously evokes the starry night sky in his conclusion to the *Critique of Practical Reason*, neither of the two philosophers discusses space beyond the Earth's atmosphere. The experience of the sublime of the cosmos, that is, the contemplation of the immensity of the universe and the insignificance of humans in relation to it, became possible with the advent of modern technology. The first images brought by powerful telescopes installed on Earth may have allowed humans to gain insight into the scale of the cosmos. However, it is only thanks to pictures taken from outer space (cameras embarked on rockets, satellites, space missions) that humans have begun to contemplate the infinite grandeur of space and to gain a comprehensive view of Earth in and from outer space, as exemplified by the iconic Blue Marble image captured by the Apollo 17 crew. Additionally, these images offer an unprecedented vantage point from which to observe the Earth, providing a fresh perspective and new horizons for the experience of the sublime.

In *Picturing the Cosmos. Hubble Space Telescope Images and the Astronomical Sublime*, Elizabeth A. Kessler posits that space exploration has yielded a vast array of images captured by telescopes. These images span not only the further reaches of our galaxy and beyond but also phenomena that were previously unseen or inadequately observed. In this book, Kessler focuses on the Hubble Space Telescope and its associated Hubble Heritage Project, which highlights the aesthetic and scientific synthesis that is fundamental to the concept of the astronomical sublime. The Hubble Heritage Project was designed to make celestial images accessible to the public by emphasizing their aesthetic appeal without compromising their scientific integrity. Indeed, the data transmitted by Hubble is modified by astronomers to make it comprehensible. Astronomers and people involved in the Heritage project, Kessler explains, rely on pictorial techniques that are amenable to our senses, particularly vision, while maintaining the accuracy of the data. In the process of image production, astronomers must determine the optimal method for translating invisible attributes into a visible form. Kessler outlines a process of conveying images to the public that emphasizes color schemes and other aspects of celestial phenomena that draw upon the sublime tradition, and particularly upon the landscape paintings of the Hudson River School and Ansel Adams' pictures of the American West (51-55). Additionally, in order to support her definition of the astronomical sublime, she refers to Kant's definition of the mathematical sublime, which shows the pleasure derived from the understanding that human reason can comprehend celestial phenomena (49). The Hubble images invite the viewers to engage with the cosmos in both visual and rational ways, and thus to perceive the universe as both beyond humanity's reach and within the realm of our knowledge. In *Seven Sublimes*, David E. Nye asserts that the astronomical sublime described by Elizabeth A. Kessler partakes of what he calls the

intangible sublime. Nye explains that satellite images are a kind of sublime that shows structures and relations that are invisible from the Earth. The experience of the intangible sublime, he adds, depends on mediating technology on two levels: orbiting telescopes that send data back to Earth and the works of the scientists who process and interpret it (78).

In this article, I focus on the sublime experience of astronauts in space and their embodied encounter with the cosmos that transcends the technological mediation of astronomical observations, and that I propose to call the cosmic sublime. To justify the distinction between the two terms, it is important to consider the specific connotations of the terms “astronomical” and “cosmic” within the broader context of space studies. The term “astronomical” refers directly to astronomy, the science of observing and studying celestial objects such as stars, planets, and galaxies, and phenomena such as black holes and supernovae. It relies on instruments such as telescopes and satellites to make extraterrestrial phenomena visible, which is consistent with Kessler’s definition of the astronomical sublime. In contrast, cosmology goes beyond the observational framework to address existential questions about the origin, structure, and evolution of the universe. While the astronomical sublime is rooted in observational science and invites contemplation of celestial phenomena from afar, the cosmic sublime focuses on humanity’s existential positioning in the universe. The cosmic sublime, as I conceptualize it, provides a more subjective perspective on humanity’s place in the universe and inspires existential wonder, particularly through the firsthand experiences of astronauts. It stirs a profound sense of awe at the immensity of space while also highlighting the ethical dilemmas posed by humanity’s environmental footprint on Earth and beyond. However, the cosmic sublime has inherent limitations that require further conceptual development. First, it remains an exclusive experience that is accessible only to a privileged few, such as astronauts or wealthy space tourists, thus limiting its transformative environmental potential. Second, while it acknowledges the fragility of the Earth and our connection to it, its reflection often lacks concrete solutions for addressing environmental degradation.

To address these limitations, I propose the notion of the Anthropocene cosmic sublime, which builds upon and reconfigures the cosmic sublime to meet the specific challenges of the Anthropocene. This conceptual framework intensifies the ethical and environmental awareness associated with the cosmic sublime while democratizing its impact. I argue that fiction and poetic writing serve as powerful vehicles for the Anthropocene cosmic sublime because they make this experience accessible to broader audiences and thus dissolve the exclusivity tied to firsthand space exploration, which could confine environmental awareness to those with the privilege of experiencing space traveling. Moreover, the space industry, and particularly that of space exploration and tourism, is itself highly polluting, which poses a paradox at the heart of the cosmic sublime: it can inspire environmental awareness while simultaneously contributing to ecological harm. Fiction and poetic writing materialize humanity’s sensorial connection to both Earth and the cosmos

and foster an ethos of inter/codependence and coexistence. The Anthropocene cosmic sublime reimagines the sublime as a collective experience rooted in shared responsibility. It moves beyond the elitist transcendence of the traditional sublime to address the urgent environmental and moral challenges of our time, thereby emphasizing interconnectedness and actionable change.

To illustrate the definition of the Anthropocene cosmic sublime, I will examine Samantha Harvey's *Orbital*, a novel that was awarded the 2024 Booker Prize and that serves as a compelling instance of this reimagined sublime. *Orbital* combines a sense of awe when contemplating the vastness of space with a stark reflection on the pressing environmental crises currently facing our planet. Set on the International Space Station (ISS), the novel offers a valuable interpretation of the concept of the cosmic sublime in the context of space exploration and the Anthropocene. As the six astronaut and cosmonaut characters carry out their assigned scientific missions, they spend considerable time gazing at the Earth through the windows or while spacewalking to conduct repairs or maintenance on the station. The Earth is not viewed as a pristine and distant entity, but as a planet that is increasingly vulnerable to human impact. Observing a space shuttle crossing the dark expanse toward the Moon also makes them reflect on contemporary endeavors to establish permanent colonies on the Moon and then on Mars. These are perceived by some as potential solutions to the imminent uninhabitability of the Earth as a consequence of the environmental crises of the Anthropocene.

Harvey's work is part of a series of cultural productions that explore these themes, including astronaut testimonials, photographs, films, and works of fiction. Authentic first-person accounts by astronauts such as those by Thomas Pesquet and Scott Kelly provide valuable insights into life on the ISS and reflections on humanity's place in the universe. However, I submit that fiction offers a particularly fertile ground for illustrating the Anthropocene cosmic sublime. Indeed, it eliminates the constraints inherent in factual reporting, thereby creating a malleable narrative space in which existential, ethical, and environmental concerns associated with the Anthropocene can be amplified and explored in greater depth. Moreover, it provides an equal or greater degree of integration of themes central to the cosmic sublime (including the fragility of Earth, the insignificant role of humanity in the vastness of the cosmos, and the potential consequences of our planetary impact on Earth and beyond) with speculative themes that delve deeper into questions of human destiny and moral responsibility. In this way, fiction allows for an expansive interpretation of the cosmic sublime that can encapsulate the distinctive combination of awe, fear, and wonder inherent in contemplating the cosmos in the context of current socio-environmental crises. *Orbital* does not focus on the political or military tensions between Earth's nations (as in Gabriela Cowperthwaite's *I.S.S.*), nor does it depict dramatic zero-gravity confrontations or imminent threats from falling debris or mechanical malfunctions (as in Alfonso Cuarón's *Gravity*). Instead, it is a contemplative novel that presents a detailed account of the daily activities of a crew of six astronauts and cosmonauts over the course of a single relatively uneventful day,

which corresponds to sixteen orbits around the Earth. It offers a reflection on how an existential awareness of humanity's place in the vast universe can emerge through the quiet rhythms and seemingly ordinary routines of daily life in space.

I will first define the concept of the cosmic sublime, outlining how it draws on and differs from the traditional sublime. This will lead me to develop the implications of the Anthropocene to imagine a kind of cosmic sublime that is attuned to the challenges of the socio-ecological crises associated with it. In a second section, I will examine how *Orbital* exemplifies this Anthropocene-induced sublime, focusing on its ecological (addressing humanity's environmental impact), existential (exploring our place in the universe), and ethical (confronting the responsibilities and consequences of our planetary and extraplanetary actions) dimensions.

Toward an Anthropocene Cosmic Sublime

In *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*, Burke defines the sublime as “[w]hatever is fitted in any sort to excite the ideas of pain, and danger, that is to say, whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror” (33). Burke adds that the absence of light (“how greatly night adds to our dread” [48]), the vastness (“Greatness of dimension is a powerful cause of the sublime” [59]) and the infinity (“Infinity has a tendency to fill the mind with that sort of delightful horror, which is the most genuine effect, and truest test of the sublime” [60]) of nonhuman nature tend to trigger the experience of the sublime, because these features disclose the magnificent and deadly forces of nature. The cosmos encapsulates the main features of the Burkean sublime and extends them to a larger and more impressive scale. Although Burke did not use the term “cosmic” and was not able to explore space, I argue that the cosmic sublime appears as the epitome of the Burkean sublime. The cosmic sublime is the sublime’s “most pervasive manifestation” (Ambrozy 365) since it surpasses the experience of contemplating a raging storm or an erupting volcano, especially because of its unbounded darkness and its utter inhospitality.

Similarly, Kant does not directly mention the cosmos when he defines the sublime in the *Critique of Judgement*. However, when opposing two types of the sublime, the dynamical and the mathematical, he uses the example of the contemplation of a starry night-sky as a way to illustrate the mathematical sublime. The mathematical sublime refers to the encounter with vast magnitudes—whether in space or time—where we try to estimate the object’s scale. While the object is not perceived as literally infinite, it evokes the concept of infinity and presents a magnitude that surpasses our perceptual and imaginative capacities. Such an experience combines displeasure, due to the recognition of our cognitive limits, with a unique pleasure derived from the effort to grasp immensity. The dynamical sublime, for its part, involves an object capable of inspiring fear. Contemplating such an object is a paradoxically pleasant experience because it allows us to appreciate the represented power of nature from a secure standpoint, yet it remains negative in that

the object we observe holds the potential to cause our demise. A volcano, for instance, embodies this dual aspect of the dynamical sublime. According to Kant, these two categories of sublime experience render us physically insignificant while simultaneously evoking a sense of spiritual and intellectual strength. We are rational beings, capable of conceiving infinity and exercising autonomous self-determination. Thus, Kant argues, the true source of sublimity does not lie in the powerful forces of nature but in the rational mind, which shows itself capable of apprehending the concept of infinity itself. The imposing object of nature, then, serves merely as a vehicle through which we realize our heightened capacity for reason.

Burke and Kant both view the contemplation of the sky—and by extension, the universe—as a means of engaging with the concept of infinity. For Burke, the vastness of the sky invites a humbling confrontation with what is immeasurable while, for Kant, it elevates human reason to a superior faculty capable of comprehending the infinity of the sensible world. However, in the 18th century, both philosophers could only observe the sky from their terrestrial vantage point; thus, their experience of the sublime was inherently grounded in a sense of distance and confinement to the Earth. Since the launch of Sputnik in 1957, the development of space exploration in the context of scientific and military endeavors has radically altered our perception of outer space and has expanded the experience of the natural sublime as initially conceived by Burke and Kant. Remo Bodei, in his book on sublime landscapes, argues that this shift parallels the cycle of exploration during the Age of Discovery in the early modern period, as both involve a dramatic change of scale—the perception of time and space as infinitely expansive—and the realization that humanity occupies only a limited place on Earth and in the universe (8). With the possibility of viewing the cosmos from perspectives beyond Earth, the infinite vastness of the universe no longer seems bound by terrestrial limitations, thereby transforming our aesthetic and philosophical engagement with the sublime.

The relatively recent human ability to view the infinite vastness of space from previously unimagined vantage points or to view Earth from orbital extraterrestrial space marks a significant shift in how we encounter and experience the sublime.¹ For example, the James Webb Space telescope, launched in 2021, aims to explore the universe further than before, searching for the first stars and galaxies created after the Big Bang. It could thus help us better understand how stars, planets and galaxies are born and evolve. With the pictures of galaxy clusters (SMACS 0723), gigantic gas cavities (“Carena Nebula”) or star formation (“The Pillars of Creation”), the James Webb Space Telescope deepens our sense of scale, creating an experience of the sublime that encompasses not only space but time itself. Photographs such as *Earthrise* (taken by astronaut Bill Anders during the Apollo 8 mission in 1968) and *Pale Blue Dot* (taken by the Voyager 1 spacecraft in 1990, but named after Carl Sagan’s expression), which show the Earth as seen from its orbit, have allowed us to see our home planet from a radically new and detached perspective. Robert Poole insists that

¹ Poole, however, recalls that the first pictures of the curves of the Earth were taken in 1935.

Earthrise reshaped humanity's sense of self by providing an unparalleled view of our planet as tiny and fragile, floating in an infinite sea of darkness (195). According to Poole, this view fostered a sense of planetary unity and vulnerability that would then inspire the burgeoning environmental movement of the 1970s. Carl Sagan, for his part, explores the deep existential and philosophical connotations of *Pale Blue Dot*, a photograph taken from a distant edge of the solar system in which the Earth appears as a "lonely speck in the great enveloping cosmic dark" (8). According to Sagan, this image testifies to the insignificance of the Earth in the vast cosmos and is a humbling reminder of our responsibility to care for the planet. In the two photographs, the so-called "overview effect"—an expression first coined by Frank White to describe the cognitive shift experienced when viewing Earth from an extraterrestrial vantage point—reshapes the experience of the sublime, allowing for a reconceptualization of the astronomical sublime to what I am calling the cosmic sublime.

As noted by Robert Poole and Carl Sagan, the overview effect seems to have led to an enhanced understanding of humanity's connection to the Earth and the imperative to protect it from environmental degradation. Nevertheless, this awareness remains predominantly observational. If images showing the Earth's smallness in the cosmos or its environmental degradation may prompt a reflective and emotionally charged response, emphasizing our collective responsibility in causing planetary destruction, these images do not provide concrete and actionable solutions to the environmental challenges we face. While the overview effect may encourage a sense of stewardship for the Earth, its influence is complex and at times contradictory. Jean-Baptiste Fressoz argues that rather than fostering connection, this vantage point can cultivate a sense of detachment:

The Anthropocene is part of a version of the technological sublime reconfigured by the Cold War. It extends the spatial vision of the planet produced by the American military-industrial system, a deterrestrated vision of the Earth captured from space as a system that could be understood in its entirety, a *spaceship earth* whose trajectory could be controlled thanks to new knowledge about the Earth system. (48; my translation)

This perspective, provided by space technology, creates the illusion that the Earth is a manageable and human-controlled system.² The overview effect highlights the paradox of technology's role in shaping our planetary awareness: although the view of Earth from space emphasizes environmental interconnectedness and the need to respect nature, it is only achievable through technologies that exemplify human dominance over nature. As awe-inspiring as this technology is (a phenomenon David E. Nye refers to as the "technological sublime"), it also serves to reinforce the notion that humanity is inherently superior to nature.

² "De manière plus précise, l'Anthropocène s'inscrit dans une version du sublime technologique reconfigurée par la guerre froide. Il prolonge la vision spatiale de la planète produite par le système militaro-industriel américain, une vision déterrestrée de la Terre saisie depuis l'espace comme un système que l'on pourrait comprendre dans son entièreté, un *spaceship earth* dont on pourrait maîtriser la trajectoire grâce aux nouveaux savoirs sur le système Terre" (Fressoz 48). For a more detailed analysis of the concept of "spaceship earth," see Sebastian Vincent Grevsmühl's book, *La Terre vue d'en haut*.

The technological advances enabling this cosmic perspective have also intensified the pervasiveness of anthropogenic pollution. Indeed, data and imagery from orbiting satellites highlight the extent of human impact on Earth, documenting how human activity, and particularly capitalist systems of production, have altered our planet. Ironically enough, they also testify to the role of space exploration itself in extending the Anthropocene to outer space. The accumulation of space debris, a byproduct of decades of rocket launches, exemplifies how human activities have transformed not only the Earth but also its orbital environment. The Anthropocene is not solely a terrestrial phenomenon; as several scholars have shown (among whom Alice Gorman, Lisa Messeri, and Valerie A. Olson), it has also manifested in orbital space. Since 1957, the number of rocket launches has increased substantially, resulting in the generation of a significant amount of debris in Earth's orbit. This phenomenon is attributable, in part, to the failure to recover defunct satellites from orbit and the production of thousands of tons of small particles and debris as rockets break up.

Amid these developments, the environmental crises of the Anthropocene have fueled a rising discourse of escape and relocation. Some view human expansion to other planets as a necessary solution to our environmental challenges. As Alexandra Ganser explains, astrofuturist ideas of exodus to or resettlements on other planets have emerged since the 1960s and the 1970s as a reaction to growing ecological concerns (37). Pro-space lobbyists and entrepreneurs such as Elon Musk, Ganser explains, view planetary migration as inevitable for humanity to survive. In other words, humanity, according to these views, can only continue to exist if it accepts to become a multiplanetary species.

The link between the Anthropocene and space exploration points to a need to reconfigure the aesthetics of the sublime, as they reveal the binary distinction between human and nonhuman nature that traditionally underpins it. Rooted in Romantic aesthetics, the sublime emerged from a sense of awe and wonder at nature's uncharted forces, leading to a separation between humans and the natural world by allowing us to experience its power from a position of safety and reverence before retreating to "civilized" spaces. In the Anthropocene, such a binary perspective between the human and the nonhuman proves increasingly problematic. However, this does not imply that the aesthetics of the sublime should be entirely dismissed. Conversely, Jean-Baptiste Fressoz posits that the sublime can serve as a potent instrument for reframing our encounter with nonhuman nature, particularly in the context of the Anthropocene. For Fressoz, for example, the sublime is the "cardinal aesthetics" of the Anthropocene (47). Along with scholars such as Marco Caracciolo, Lee Rozelle, and Emily Brady, Fressoz argues that, in order to develop a more ecological version of the sublime, some of the fundamental aspects of the sublime require reexamination since a strict adherence to traditional notions of the sublime may perpetuate the human/nature binary. In other words, to consider how to exit the Anthropocene or at least mitigate its ongoing impact, it is imperative to put an end to this dualistic opposition that the aesthetics of the sublime has contributed to

developing in Western cultures. Furthermore, it is essential to challenge the centering of humanity's perspective and interests and to acknowledge the interconnectedness of all life forms within a larger web of life. In order for the sublime to reflect our vital and profound entanglement with the Earth and to encourage the development of ecologically viable approaches to and relations with the nonhuman world, it would gain in undergoing a modification of some of its characteristics. For example, Marco Caracciolo's notion of the environmental sublime includes grief, guilt, and horror over humanity's impact on systems that were previously considered separate or "natural." Caracciolo insists that this sublime is grounded in a moral awareness of human responsibility and an embodied and sensual engagement with the natural environment (299). Unlike the Romantic sublime, which often encourages awe from a distance, the ecological sublime places us within the precarious systems we affect, urging a closer and more responsible interaction.

Building on these approaches to the ecological sublime, I will now consider how a reconfigured and more ecologically productive version of the cosmic sublime might respond to the challenges of the Anthropocene. How can the cosmic sublime, especially as an aesthetic experience informed by the overview effect, inspire an ethos of interconnectedness and responsibility? Rather than celebrating discourses of technological mastery, a more ecologically attuned cosmic sublime would reinforce human vulnerability and accountability in degrading nonhuman environments. Rather than promoting escapist narratives, it would reflect the interdependence of humans with terrestrial spaces and species. In this way, the Anthropocene cosmic sublime democratizes the impact of the cosmic sublime by making its ecological consciousness and ethical imperatives accessible and relevant to a vast majority of individuals. It transforms the exclusive experience of space exploration into a collective call for respectful coexistence with both terrestrial and extraterrestrial environments, emphasizing shared responsibility and humility over individual transcendence.

The distinction between the cosmic sublime and the Anthropocene cosmic sublime thus extends beyond their ecological and ethical dimensions to include considerations of access and inclusivity. The cosmic sublime is inherently limited to an elite group—astronauts, and more recently, wealthy individuals who can afford private space travel. This exclusivity restricts the transformative potential of the cosmic sublime to a small fraction of humanity, often leaving the broader implications of these experiences underutilized in promoting collective ecological awareness. The Anthropocene cosmic sublime addresses this issue by recentering the sublime experience around ethical and environmental concerns that resonate universally, even with those who will never leave the Earth's surface. It takes the unique vantage point of space—a perspective enabled by advanced technology—and uses it to evoke humility, vulnerability, and interdependence with the nonhuman world. Rather than serving as a status symbol or a demonstration of human mastery, technology becomes an instrument for fostering a deeper connection to the planet and a reminder of humanity's ethical responsibilities.

The Anthropocene Cosmic Sublime in *Orbital*

In *Orbital*, Samantha Harvey puts forward what I define as an Anthropocene cosmic sublime. This type of sublime privileges humility, vulnerability, and interdependence with the nonhuman world over human mastery. It embodies a sensorial connection to our planet, placing technology as an instrument for achieving a deeper connection to the Earth and a reminder of our ethical consideration of it, rather than as a sign of dominance over nature. It is through this type of cosmic sublime that ecological consciousness instills a refocusing of space exploration as a call for respectful coexistence with both the terrestrial and extraterrestrial worlds.

In Samantha Harvey's novel, the description of outer space first seems to follow the Burkean conventions of the sublime. From the ISS, the six astronauts witness "the vacuum depths" (20) and the "staggering blackness" (54) of the universe, "where the darkness is endless and ferocious" (45). In this fundamentally hostile place, the ISS is like a shield protecting the astronauts: "four inches of titanium away from death. Not just death, obliterated non-existence" (49). Being stranded in space, especially without a spacesuit, would mean a quick and painful death unlike anything ever experienced on earth. Indeed, the lack of gravity and pressure and the low temperatures would prevent the oxygen from reaching the brain and the lungs would rupture within a few seconds. In *Orbital*, the safe space from which the powerful and hostile forces of nature can be observed is rather precarious, and further emphasizes the vulnerability of humans.

The sublime description of the sun evokes the spectacular forces of nature. Seen from space, the sun can be seen in better details and its raw energy is magnified:

Some eighty million miles distant the sun is roaring. It edges now toward its eleven-or-so-year maximum, erupting and flashing, when you look you can see its edges are flayed with violent light and its surface sun-spot-bruised. Immense solar flares send proton storms earthwards and in their wake are geomagnetic storms triggering light displays three hundred miles high. [...] The sun's particle clouds billow, flares explode and whip earthward in eight minutes flat, energy pulses, explodes, a great ball of fusion and fury. (90)

By virtue of an accumulation of verbs in the indicative and gerunds ("roaring," "erupting and flashing") as well as of the repetitions of words ("storms," "explode," "earthward") and sounds ("million miles," "miles high," "pulses, explodes," "fusion and fury"), the narrator discloses the unlimited and fierce energy of the Sun that may exceed, in its size and force, terrestrial expressions of the sublime. From outer space, the astronauts see the Sun without its light scattered by our atmosphere, making it appear brighter than from the Earth. The description's effect is further heightened by several independent clauses strung together without conjunctions, creating run-on sentences that intensify the sense of uncontained power. This lack of coordination mirrors the boundless unrestrained nature of the Sun's energy as observed from the void of space. The narrator of *Orbital* employs the metaphor of wild animals to depict the Sun and outer space ("Raw space is a panther, feral and primal" [1]), but also

evokes the Earth with images that highlight its relatively small size and its humble place in the Solar system. Indeed, if outer space is presented as infinitely vast and with no center, the Earth is likened to “a piddling speck,” (28) a “cool marble,” (114) or a “small blue dot,” (52) which evokes Carl Sagan’s “pale blue dot.”

In *Orbital*, then, the cosmic sublime is first a negative sublime, a conflation of fear and overwhelming experiences in the midst of space’s silent darkness:

[Anton is] stopped by a staggering blackness. Not the theatrical splendour of a hanging, spinning planet, but the booming silence of everything else, the God knows what. That’s what Michael Collins called it as he orbited the dark side of the moon alone—Aldrin, Armstrong, earth and mankind all over there, and over here himself, and God knows what. (54)

This passage plays on the paradox of “booming silence,” an oxymoronic expression that stresses the unsayable dimension of the cosmos. The contrast between the imagined “booming” and the actual silence of space creates a semantic tension that highlights the character’s struggle to articulate this sublime experience. Additionally, the juxtaposition of “blackness” and the indeterminate “God knows what” reinforces the character’s inability to capture the vast and almost inconceivable nature of outer space. In *Orbital*, the characters seem incapable of transcending the forces of nature through reason and language. As Christopher Hitt explains, the Romantic experience of the sublime often culminates in the observer’s ability to transcend the forces of nature by naming and framing them through poetic expression, thus reinforcing the separation between humanity and nature. Hitt then proposes a reconfigured version of the sublime in which humans do not rely on language to transcend this sublime experience. One strategy used by writers who seek to avoid concluding the sublime experience with a poetic “self-apotheosis,” Hitt explains (609), is to emphasize their inability to fully translate this experience into words. In *Orbital*, the character demonstrates this form of ecological humility by confessing his inability to name the experience of the sublime.

In this novel, the cosmic sublime becomes inseparable from the traces of human influence, extending beyond the Earth’s surface into its orbital space, where the Anthropocene’s influence reshapes not only the planet but its immediate celestial environment. Two hundred and fifty miles away from the Earth, the characters can measure the decrease in its brightness and radiance with a spectrometer and witness the consequences of climate change on different parts of the globe. This distance produces a mix of fear and pleasure in them. The most striking phenomenon is a Category Five typhoon which hits southern Asia. With its “building magnificence,” (24) the “super-typhoon” (77) threatens to kill hundreds of people and to destroy their homes. The narrator presents two different perspectives on the typhoon: that of the astronauts, and that of the Filipinos directly afflicted by it. The astronauts have a global view and are able to see the formation of the typhoon and predict its trajectory. They can share their findings and photographs, but they cannot stop it. From their safe, distanced, and scientific perspective, the typhoon gives rise to a sublime experience. For them, this massive storm is a spectacle to observe and study, even as

they recognize the consequences of human-driven climate shifts (“these days the typhoons are so frequent and huge” [38]). Although the astronauts find it sublime due to its size and power, their privileged vantage point removes some of its terror, casting it as an object of scientific contemplation. For the Filipinos, on the other hand, the typhoon is no sublime experience. It is a horrifying phenomenon and they logically focus on the destruction it causes, as expressed in the text by a list of tragic events (116). The juxtaposition of these two perspectives underlines the typhoon’s dual reality: it is sublime in scale yet horrific in impact, especially for vulnerable populations. Indeed, the Filipinos have little responsibility for climate change, but their rapidly growing population and the lack of solid buildings make the Philippines, among other countries, more vulnerable to these intense meteorological events (Holden and Marshall). The narrator, drawing on Pietro’s empathy for a Filipino fisherman friend, gestures toward the issue of climate injustice, reminding readers that while the astronauts experience awe, the typhoon is a life-threatening disaster for those on Earth. In this way, the storm exemplifies a conflict between the sublime and the horrifying, suggesting that the experience of the sublime depends on one’s vantage point and level of detachment.

If the typhoon represents climate change’s vast and terrifying impact on Earth, the astronauts also witness other subtle alterations in nonhuman spaces. In the description of neon algal blooms, color-shifting salt flats, retreating glaciers, and geometrically expanding evaporation ponds (74-75), the narrator relies on repetitive structures—anaphora (“every”), polysyndeton (“or”) and repetitions of clauses (“metre by metre,” “more and more people”)—to mirror the pervasive and irreversible impact of these anthropogenic changes within the structure of the text, highlights how human actions have left an indelible and toxic mark on natural landscapes. Seen from space, these landscapes paradoxically evoke aesthetic pleasure. The vividness of these altered landscapes, from pink salt flats in Tunisia to the reflective greenhouses covering southern Spain, invites the astronauts to appreciate the Earth’s surfaces almost like artworks. The picturesque quality of these scenes is characterized by a vibrant palette of colors with “swirling neon,” “red algal bloom,” “pinking of evaporated lakes,” and “green-blue geometries” (74-75) and by the use evocative images. Indeed, the reference to “cloisonné pink,” (74) which describes a form of enamel artwork, and the mention of the “altered contour of a coastline,” which conveys the impression that the surface of the Earth has been shaped by an artist, transform environmental degradation into striking visual impressions. Such devices draw attention to the astronauts’ distanced perspective, which once again separates them from the direct consequences of these ecological transformations and allows them to see Earth’s damaged beauty as an image, or “spectacle,” rather than as an immediate threat. This tendency to find beauty even in polluted landscapes also reflects the astronauts’ fixation on photographing the Earth, as the extensive and picturesque-like quality of Earth’s landscapes in Samantha Harvey’s novel shows, but that can also be seen in the several books astronauts like Thomas Pesquet have dedicated to documenting the Earth’s fragility with

photographs taken from the ISS. This obsession with capturing Earth's visual appeal testifies to a complex dynamic: from space, environmental degradation becomes aesthetically compelling, leading observers to overlook or even romanticize the destructive forces behind it. Such descriptions evoke Jennifer Peeples' concept of the "toxic sublime," which she defines as "*the tensions that arise from recognizing the toxicity of a place, object or situation, while simultaneously appreciating its mystery, magnificence and ability to inspire awe*" (375, emphasis in original). This paradoxical response—from aesthetic appreciation to a form of environmental critique—highlights how space distances the astronauts from Earth's immediate crises yet magnifies their awareness of humanity's pervasive impact on the planet.

Samantha Harvey's novel also illustrates the fact that the Anthropocene has extended to extraterrestrial spaces by disclosing the extent to which low Earth orbit (LEO) has become a dumping ground for waste material:

From an outside view you'd see them wend a long-untrodden man-made trail between two birling spheres. You'd see that far from venturing out alone, they navigate through a swarm of satellites, a midgey seething of orbiting things, two hundred million flung-out things. Operating satellites, ex-satellites blown into pieces, natural satellites, flecks of paint, frozen engine coolant, the upper stages of rockets, bits of Sputnik 1 and Iridium 33 and Kosmos 2251, solid-rocket exhaust particles, a lost toolbag, a mislaid camera, a dropped pair of pliers and a pair of gloves. Two hundred million things orbiting at twenty-five thousand miles an hour and sandblasting the veneer of space.

From an outside view you'd see the lunar spaceship tiptoe its way through this field of junk. It negotiates through low earth orbit, the busiest and trashiest stretch of the solar system, and with an injection burn it forces itself out on its transit to the moon where the clutter thins and the going's fair. (131)

The initial challenge for the lunar mission as it is evoked in the novel is the necessity to fly through a vast array of space debris. The list of debris, the majority of which is man-made, but also includes naturally occurring objects, exhibits a wide range of sizes and shows how long they stay in orbit. This highlights the detrimental impact humans have had on LEO, which ironically hinders the advancement of space exploration.

In a context where interstellar human expansion and space exodus are moving from the realm of fantasy to projects funded by governments and private corporations as a way to address Anthropocene challenges, the Anthropocene cosmic sublime combines an emphasis on humanity's smallness with a denunciation of its multiplanetary ambitions. In contemplating human survival beyond Earth, the Anthropocene cosmic sublime urges us to rethink our attitudes toward both terrestrial and extraterrestrial environments. It invites us to reflect on the place of our attachment to our planet, and evokes a kind of cosmic awe that challenges rather than supports human extraterrestrial colonization projects.

While the six characters of *Orbital* stay in the ISS, other fellow astronauts have embarked on a lunar mission with the goal of establishing permanent outposts on the Moon before setting foot on Mars. The novel thus illustrates contemporary discourses that posit the urge to leave the Earth by opposing the orbital movements of the International Space Station and the vertical trajectory of the rocket sending other

astronauts on the Moon. While the former symbolizes humanity's attachment to the Earth, the latter exemplifies the human urge to conquer unknown territories and to challenge our planetarity (Spivak). The narrator subtly denounces this worldview and characterizes the Earth as "the scene of a crime" (Harvey 131) that some individuals are attempting to flee from, ironically bringing attention to their role in rendering our planet uninhabitable. In *Orbital*, the narrative taps into the rhetoric of the frontier and the wilderness—a language intertwined with the aesthetics of the sublime and often linked to the ideology of astrocolonialism. As Daniel Sage and other scholars have shown, this rhetoric extends imperialist ambitions beyond Earth, framing outer space as the next "virgin frontier" (32). The astronauts in *Orbital* describe outer space as "the only remaining wilderness that we have" (Harvey 106) and view themselves as "intergalactic travelers chancing upon a virgin frontier" (14). This perspective aligns with the views of astrofuturists like Robert Zubrin, who advocate for human expansion into space as an inevitable and positive continuation of humanity's exploratory history. However, as the novel ominously suggests, this cosmic wilderness may ultimately meet the same fate as the Earth's "discovered and plundered" frontiers (Harvey 106), raising questions about the ecological and ethical implications of such expansive and imperial visions.

Yet, the novel moves beyond ideological critiques, foregrounding the astronauts' very physical disconnection from Earth as a stark reminder of human limitations in space. In the context of spaceflight, astronauts experience significant alterations in their sensory perception: their muscles atrophy, their sinuses are congested, and microgravity alters the functioning of the nervous system. This sensory and physical disorientation gives rise to feelings of Earthsickness and a longing for terrestrial sensations and experiences that are characteristic of their animal nature:

With his eyes closed he can hear that gibbon call, hollow and echoing. Can see the dog in the painting in its private dignity. Imagines placing his hand on the warm neck of a horse and can feel the smooth, oily lie of its coat, though he's barely touched a horse in his life. The dart of a jay between the trees in his backyard. The dash of a spider into cover. The shadow of a pike beneath the water. A shrew carrying her young in her mouth. A hare leaping higher than seems warranted. A scarab beetle navigating by the stars. (107)

In the tin ship that is the ISS, Sean imagines encounters with nonhuman animals that are not overwhelming confrontations with dangerous species, which Burke identifies as a sublime experience. Rather, they consist of mundane scenes of feeling and observing birds, insects and farm animals. The passage includes sentences in which the grammatical subject—Sean—has disappeared ("Can see," "Imagines") and nominal sentences describing movements and gestures of nonhuman animals. Such grammatical structures gradually erase the human point of view to focus on other living species. In this manner, the narrator suggests that we consider the perspectives of other species and recognize our interdependence with the natural world. The materiality of the text pertains to this multispecies sensory experience of the world. If the sublime is a purely human experience and mode of engagement with the world,

these quasi-pastoral vignettes invite us to acknowledge nonhuman agency. The monosyllabic words (“the dart of a jay”), the internal rhyme (“a spider into cover”) and the alliteration in /h/ (“a hare leaping higher”) are complementary poetic strategies that contribute to shaping an experience of the sublime, ultimately showing that the Earth is an interconnected living system with multispecies entanglements that can be seen in all aspects of life on Earth, including poetic writing.

Far from monumentalizing distant vistas, *Orbital* gives shape to an Anthropocene cosmic sublime by capturing the delicate and interconnected web of life on Earth upon which we depend and by imbuing its narrative with elegiac undertones. At an intimate level, Chie mourns her mother and is unable to attend her burial ceremony while the astronauts evoke the Challenger mission which killed seven astronauts. At a more global level, humanity and the Earth are said to be doomed, even if it is on different temporalities. However, the narrative of *Orbital* is not structured around a tragic arc. By insisting on a shared sense of vulnerability for both humans and the Earth, the novel encourages readers to acknowledge their intrinsic connection to the planet and to try to explore new approaches to living differently—not merely on the Earth, but with the Earth.

This re-evaluation of the sublime transcends traditional categorizations that privilege charisma, scale, or power. From their vantage point, the astronauts perceive both grandeur and minutiae, which allows them to grasp the invisible yet essential interconnections between all living forms: “Sometimes they want to see the theatrics, the opera, the earth’s atmosphere, airglow, and sometimes it’s the smallest things, the lights of fishing boats off the coast of Malaysia dotted starlike in the black ocean” (Harvey 40). This perspective aligns with the environmental sublime, as defined by David E. Nye, where awe can be experienced even through smaller-scale phenomena that might otherwise be overlooked:

[T]he environmental sublime requires an understanding of the multiple temporal rhythms of plants, insects, birds, animals, and the weather as they interact. Seeing landscapes in terms of the environmental sublime demands attention to both the microscopic and the panoramic view. It is not about the conquest of nature, nor is it about ruined landscapes of the disastrous sublime. Rather, it concerns complex relationships slowly unfolding. (132)

While auroras and typhoons inspire awe, more mundane scenes, such as fishing boats casting starlike lights across the ocean, also evoke a sublime experience. Here, the astronauts marvel at the human presence as an integrated part of the natural landscape, showing the entanglement of human and non-human realms. This view is simultaneously sublime and unsettling, as it reveals humanity’s telluric impact on a planetary scale: the boats’ lights, seen from space, highlight the pervasiveness of human activity, even in seemingly remote waters. Additionally, the metaphor of boats as stars recalls the cosmic origins of human beings, who share elemental commonalities (calcium, iron, nitrogen) with the universe itself. By reminding readers that all terrestrial beings are composed of stardust, the text highlights the organic connection between living and non-living entities, suggesting that the

sublime arises not only from vast natural forces but from the intricate and interconnected nature of life on Earth and beyond.

The novel's portrayal of human and other-than-human sensory experiences reveals the complex interconnections between all living beings on Earth. This reimagined sublime arises not only from grand natural spectacles but also from everyday and multisensory interactions that connect human and nonhuman entities. In the novel's conclusion, for example, a "choir" of sounds is generated by Earth's electromagnetic vibrations:

a complex orchestra of sounds, an out-of-tune band practice of saws and woodwind, a spacey-full throttle distortion of engines, a speed-of-light battle between galactic tribes, a ricochet of trills from a damp rainforest in the morning, the opening bars of electronic trance. (136)

This melding of sounds—from human industry to natural calls—embodies a dynamic and creative interweaving of terrestrial elements, hinting at the entangled coexistence of all beings. While the metaphor of an orchestra suggests that humanity plays a central role in shaping the Earth's soundscape, it does not reinforce human superiority. Rather, it reframes humanity as a planetary force within a broader ecological system. Harvey's use of disorienting metaphors and her emphasis on the mundane sources of the sublime underline a planetary perspective that disrupts the notion of humanity's boundless capabilities and questions the viability of human expansion into other planetary realms. In this sense, the novel not only illustrates an Anthropocene cosmic sublime but also suggests an urgent need to recalibrate our view of human agency within the cosmos.

Orbital offers a nuanced reimagining of both the sublime and space exploration, along with a reconsideration of the complex dynamics between humans and nonhumans. In contrast to the modern view of the universe as an uncharted territory to be conquered, the novel presents an aesthetics of the Anthropocene cosmic sublime that emphasizes human vulnerability and ethical responsibility. By situating this version of the sublime within an environmental ethos, Harvey offers a critique of the imperialist rhetoric that supports both terrestrial and extraterrestrial human expansion. It presents a genuinely humble and relational version of the sublime that takes into account the complex and interdependent world humans inhabit.

By proposing a reconfigured version of the sublime which is more inclusive and that promotes a shared experience of interconnectedness and vulnerability, *Orbital* does not only illustrate how space traveling has an impact on our understanding of our place on Earth and in the universe; the novel also actively shapes our relationship with the world and urges us to reconsider our perception of and attitudes toward the Earth and its orbital environment. As Erin James suggests, fictional narratives have the potential to drive meaningful real-world change. By immersing readers in specific narrative environments, they invite to reflect on and simulate the damaging values, attitudes, and behaviors that underpin the Anthropocene, showing that fiction is endowed with "worldbuilding power" (20).

Orbital can be seen as one example of these “storyworld models” (20) James presents as it enables readers to adopt perspectives otherwise inaccessible in real life, broadening empathy and deepening environmental consciousness. In Harvey’s novel, this perspective is not that of a nonhuman agent, such as an animal, a river, or a plant, as James proposes, but that of astronauts. While the astronauts’ view is inherently elitist, the narrative renders it accessible by offering an embodied and affective experience that highlights the profound connections between humanity and the Earth. Unlike iconic visual representations of our planet, such as *Earthrise* or *Pale Blue Dot*, which often remain at the level of passive observation, or mainstream sci-fi productions which tend to insist on catastrophic scenarios, *Orbital* illustrates how fiction serves as a powerful medium for proposing new ways of relating to both the Earth and the cosmos, particularly when it engages with the qualities that the Anthropocene cosmic sublime entails.

Conclusion

Far from being a mere aesthetic experience, the Anthropocene cosmic sublime leads to an ethical reflection on humanity’s relationship with both Earth and the cosmos. In the context of space exploration, which paradoxically both amplifies our awareness of the Anthropocene and exacerbates its exploitative and destructive patterns, fiction offers a critical space for questioning our actions on Earth and our ties to the universe. Through fiction, one can engage with these profound questions without the need to physically venture into space. Fiction, as a medium, conveys these concerns, making the complex intersection of space exploration and ecological crisis accessible—and thus not limited to astronauts and rich space tourists—and relatable. In other words, fiction enables a democratic and sustainable experience of the cosmic sublime. As Matt Harvey notes in his examination of the cosmic sublime, expanding access to scientific tools like telescopes and incorporating non-Western cosmologies into our understanding of the cosmos may help bridge the gap of disconnection many feel toward the universe. A more inclusive and ethical experience of the sublime, he argues, can enhance our ecological imagination and strengthen our attachment to Earth (185). In *Orbital*, Harvey employs a similar rationale, yet her distinctive narrative techniques serve to critique the expansionist ideologies driving contemporary space exploration. The novel’s portrayal of the cosmic sublime emphasizes humanity’s limited and insignificant position in the vast universe, and thus arguably tempers the urge to colonize other planets. Harvey’s depiction of space exploration invites readers to consider the ethical ramifications of human actions, not only on Earth but in the universe at large, and encourages us to rethink our attitude toward the natural world.

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