



ARTEMIS

A CRITICAL STUDY ON THE RELATIONS
BETWEEN THE FEMININE AND THE MOON
THROUGH LORE, CRAFTS AND OUTER SPACE

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2021

**ARTEMIS: A critical study on the relations between the Feminine
and the Moon (through lore, crafts, and outer space)**

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Master's Thesis

Visual Cultures, Curating and Contemporary Art

Department of Art

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2021

Table of Contents

Abstract	5
Acknowledgements	6
1. PRELUDE	8
1.1. The Moon as mother/deity.....	8
1.2. The Moon as mirror.....	10
1.3. The Moon as companion.....	12
1.4. The Moon as luminary.....	14
1.5. The Moon as methodology.....	16
2. MYTHOLOGIES	18
2.1. Lunar ontology.....	18
2.2. Feminist mysticism.....	21
2.3. Love.....	23
2.4. Time.....	25
2.5. The Feminine principle.....	28
2.6. The Artemis archetype.....	30
2.7. Dianic witchcraft.....	31
2.8. Z Budapest.....	34
2.9. Holda.....	40
2.10. Hold/Moon.....	43
3. LUNAR FICTION	45
3.1. Dreaming poetry.....	45
3.2. The language of magic.....	47
3.3. Lunacy.....	48
3.4. Moon Mother.....	50
3.5. <i>The Moonlanders</i>	52
3.6. <i>The Dream</i>	54
3.7. Wise women.....	56

4. WOMEN ON THE MOON	62
4.1. NASA's Artemis.....	62
4.2. Interplanetary colonies.....	66
4.3. Women at NASA.....	71
4.4. Xenoentities.....	76
4.5. Moon Treating.....	78
4.6. Space Advocacy.....	81
5. LUNAR CRAFTS	87
5.1. Cyanotype: from footprints to blueprints.....	87
5.2. More than blue.....	92
5.3. Curious nature.....	95
5.4. <i>Having the Moon for Company</i>	98
6. EPILOGUE	102
Bibliography	106
List of Figures	115

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Title of thesis ARTEMIS: A critical study on the relations between the Feminine and the Moon (through lore, crafts, and outer space)

Department Department of Art

Degree programme Visual Cultures, Curating and Contemporary Art

Year 2021

Number of pages 116

Language English

Abstract

ARTEMIS: A critical study on the relations between the Feminine and the Moon (through lore, crafts, and outer space) is a feminist lunar study investigating the mystical, ecological and scientifically intersectional influence that our planet's Moon has on earthly beings, especially ones with predominantly feminine attributes.

The leading figure of the research is Artemis, a Greek Moon goddess, who is revealed to be a transmutation of other heathen deities still worshipped in some contemporary Wiccan movements (looking at the Dianic Wicca tradition in the USA founded in the 1970s by the spiritualist and feminist activist, Zsuzsanna Budapest), while also being the eponym of the next lunar landing mission of the National Aeronautics and Space Administration (NASA), planned to launch in 2024 with the promise to take the first women astronauts to the Moon.

I commence the thesis with the ambition to untangle the archetypes of three pre-Christian lunar deities (the Greek Artemis, the Roman Diana, and the German Holda) by looking at their magical virtues and their influence on empowering feminist crafts.

Then, I venture into the realm of the arts, analysing two literary works of early science-fiction (*Laura's Dream; or The Moonlanders* by Melesina Chenevix Trench—which was the first work of the lunar voyage genre published by a woman author; and Johannes Kepler's *Somnium*—which also influenced Trench's writing) focusing on their depiction of occult powers ascribed to the Moon and certain feminine characters (specifically the Mother figure, which in both pieces play a significant role with peculiar resemblances).

Following that, I wish to examine the Artemis lunar program, together with relevant international outer space policies (principally the 1979 *Moon Agreement* and the legacy of Eilene Gallo-way in establishing peaceful space advocacy). I conclude this chapter with a manifold inquiry on the ethics of space exploration that in the light of the current governmental and corporate agency objectives seems to require serious eco-political and philosophical reconsiderations.

Lastly, with respect to my background in photography, I also dedicate a section to the technique of cyanotype, which relates to astronomy in its origins, some marine ecologies in its presence, and as a microbial entity might also play a pivotal role in the space colonisation of the future. For this, I invited a contemporary photographic artist (Louise Long and her cyanotype series, *Having the Moon for Company*), whose work, revolving around and created in collaboration with lunar phenomena, come into dialogue with the content of my writing, while also generously illustrating its body.

Keywords moon, feminine, lunar study, intersectional ecology, queer-feminisms, space exploration, mythology, occult crafts, advocacy, transdisciplinary selenology, photography, science-fiction

Acknowledgements

First, I would like to acknowledge our lunar companion with deep respect for igniting this journey. We, earthlings, are blessed by its magical luminance through the darkest of nights.

I likewise radiate strong beams of gratitude to my supervisor, Lucy Davis, whose guidance felt like floating on an oceanbed, shaken up by the waves when my thinking needed a spin, and gently swayed to the shore when I was eager to retreat.

I equally thank my advisor, Harri Laakso, who tirelessly helped in disentangling the often infinite thread of my words, and who challenged my perspectives with his mindful observations.

Both of their embodied wisdom deepened my curiosity in the best of ways.

Zsuzsanna Emese Budapest (a.k.a. Z Budapest) and Louise Long are two artists, craftworkers, and key contributors to this research, whom I have to thank for their generosity in sharing their thoughts and works with me through our personal correspondences. Their practices have been true inspirations to this research, while their words gifted this writing with life.

I am also indebted to Minna Långström for accepting to examine my work, and with that, venturing into the maze of pages that this thesis might often seem like. Her moving image works offered me examples of excellence, and her visual language rekindled my faith in the power of subtlety for conveying meaning.

Last, but not least, I thank the rainbow of humanborn and other creators, thinkers, artists, scientists, friends, colleagues, teachers, and else for supporting my learning with different expressions of their existence. I dedicate the following words to them,

1. PRELUDE

Dear Reader,

By opening this document, I suppose you accepted the invitation to join me in this process of artistic research, by taking a peak into my transdisciplinary selenological study. Distanced by space and time, but connected through our intentions, I share with you the imprints of my thoughts enclosed in these written words. The process or the outcome of this journey we are about to share might not be as you or I have anticipated, but I welcome it with an open heart regardless, and I can only hope that you do too. I have nothing else to offer in this experience than my companionship and our primary guide through it all, the Moon.

Thank you for contributing to this work with your attention.



1.1 The Moon as mother/deity

Artemis, Diana, Holda. They¹ have many names and many faces, yet they are essentially identical personifications of a deity who was worshipped long before the rise of Christianity and the Age of Enlightenment.² This deity, or goddess, if one prefers to call them that, is the epitome of the divine feminine and absolute equilibrium. They are the guardians of women, protectors of gestation, bearers of cosmic insights, and, best applicable to this particular research: affiliated with the Moon.³

¹ I will be using the third-person personal pronouns throughout the thesis when referring to lunar deities and mythological figures in order to refrain from assigning them any binary gender identities.

² Finney, "Religions and Cultures of Moon Worship."

³ Laurberg et al., *The Moon: From Inner Worlds to Outer Space*, 46.

In the following chapter on 'Mythologies' I aim to explore and further unveil the interconnections of goddess traditions across cultures and spiritual practices that were devoted to these three lunar deities. Besides, I inquire whether the cited scholarly discoveries and folk legacies of Artemis, Diana and Holda identify distinct divine beings or actually describe the same one from different angles. Some of these beliefs are still kept alive in neo-pagan religions, like the Dianic Wicca, which was founded in the United States by a celebrated witch and women's rights activist of Hungarian origin, Zsuzsanna Emese Budapest (more commonly known under the penname, Z Budapest).⁴

Diana and Artemis are generally associated with each other through convergences of the Greco-Roman mythological worlds, yet Holle, Holda, or Hulda as they are named across several Germanic dialects and regions, have been popularized by their transmutation into the leading figure of the famous Grimm fairy tale, *Mother Frost*.

Holda (as I will mostly refer to them for the sake of consistency), has been studied in modern scholarship as an ancient deity, later transcending as a character in heathen lore and superstition, always linked to magical realms.⁵ Because of their connection to nocturnal spirits and guidance of groups of feminine devotees, they were considered as the 'leaders of witches' and 'mothers of the dead' in the Catholic canon.⁶ Despite of beliefs in their nurturing, but principled character and recounts of its manifestations towards women and children, the church still demonized them and forbade their worship.⁷ As I will observe in closer detail the academic theories of Holda's descent and their association to better known lunar goddesses as Diana and Artemis, I will also outline a personal hypothesis of their names' influence on my own mother tongue; specifically on the etymological origin of the Hungarian word *hold*, which stands for 'moon'.

⁴ Temple of Diana, "Our Her-story."

⁵ Grimm, *Teutonic Mythology*, 1367-69.

⁶ Gimbutas, *The Living Goddesses*, 260.

⁷ Leek, "Holda: Between folklore and linguistics," 317.

On a maternal note, I would like to share a story my mother has recently reminded me of, which I used to tell her as a child about my imagined conception. According to her recollections (confirmed by her diary entry from the time), supplemented by my own fragmented memory, I claimed to have fallen from the Moon in the form of a small green pea, that rolled and rolled all the way down into her bowl of soup. As she ingested me, along with the rest of the dish, she suddenly fell pregnant. This infantile tale is the earliest sign I know of that indicates my fondness with this divine spatial entity, our mother, the Moon.

1.2 The Moon as mirror

The Moon is also often regarded as the mysterious cosmic counterpart of the Sun,⁸ as it is equally visible to us on the sky, most usually ruling the night. As the nocturnal darkness eclipses the skies, it became, together with the Moon, representative of the shadow side of the psyche. Henceforth, it is easily associated with mystic knowledges, referred to as the *occult* by Western scholarship,⁹ while also being linked to practices originating from spiritual wisdom, deemed by the Christian church as *witchcraft*.¹⁰

Despite some misconceptions, it does not radiate any light of its own, but acts as a mirror, reflecting the Sun's vitalizing rays.¹¹ This is quite apparent through its changing visibility, due to the course on which it orbits our planet, and along with us, the Sun as well. On certain occasions, when it is aligned with both the Earth and the Sun, but being on the opposite side of the latter, this reflection is much stronger, resulting in the phenomenon we

⁸ Sadoff, "Mythopoeia, the Moon, and Contemporary Women's Poetry," 98.

⁹ Britannica, "Occultism."

¹⁰ Smoley, "Introduction: The Old Religion," para. 2.

¹¹ NASA Science: Earth's Moon, "About the Moon."

call a Full Moon. On others, when it is again aligned with the Earth and the Sun, but this time hidden behind our planet, it is seen to us as fully dark, which we call a New Moon.¹²

The recurring cycles of these two extreme poles (together with the different phases in-between) are thought to heighten not only earthly aquatic forces, but also our receptivity to the domain of the subconscious and/or the spirit.¹³ Although, I will exhibit some of the scientifically confirmed data on the Moon's influence on bodies of water, I am personally more interested in the unacknowledged (by Western scholarship), untangible, and often unexplainable phenomena that connect the observations, thoughts, and stories that I am about to examine throughout this thesis.

As an ancient terrain of embodied knowledge, that women and queer mystics, healers, craft and energy workers have cultivated and passed down, the Moon has also become a muse of the literary arts, most known through poetry (waka) and science fiction (lunar voyage). As a combination of the two, the chapter, 'Lunar Fiction' will be predominantly dedicated to an analysis of an early masterpiece of science-fiction, *Laura's Dream; or, The Moonlanders* (usually referred to as *The Moonlanders*, as I will also continue to accredit it) authored by Melesina Chenevix Trench in 1816.¹⁴ As the first published work in the lunar voyage genre written by a woman, this piece not only carries important values within a feminist discourse, but likewise inspires ideas on the mysterious relationship of feminine and celestial domains.

Furthermore, Trench's text may also be examined alongside another cardinal work of lunar fiction, that her writing was seemingly influenced by,¹⁵ which is the infamous

¹² Altmann-Wendling, "Conclusion - Of Moon and Men: Observations about the Knowledge of the Moon in Antiquity," 282.

¹³ LacusCurtius: Into the Roman World, "Plutarch, Moralia: Concerning the Face Which Appears in the Orb of the Moon." sec. 28.

¹⁴ Spenser and the Tradition: English Poetry 1579-1830, "Melesina Chenevix Trench: Laura's Dream; or, The Moonlanders."

¹⁵ Kittredge, "Wingless Women Living Backwards on the Moon: Melesina Trench's "The Moonlanders"," 21.

dissertation of Johannes Kepler, entitled *Somnium* (translated as *The Dream* in English).¹⁶

The reason to observe both of these texts together is to accentuate recurring elements within them that involve imagined lunar ecologies, visions from the subconscious mind, as well as ascribed significance to the character of the mother and their occult gifts.

1.3 The Moon as companion

The Moon,¹⁷ our planet's sole natural satellite, as many like to refer to it, has been a key factor of our terrestrial existence and a site for spiritual, scientific, and artistic ventures for as long as human civilizations have been observed. The Moon in many cultures and spiritual practices has been connected to the feminine domain for various reasons,¹⁸ some more physically obvious, while some still hidden, residing on its shadow side.

The most commonly approved hypothesis about the Moon's origin dates its formation to approximately 4.5 billions years ago, at the early development of the Solar System, and suggests its conception to be a result of a collision between a Mars-size planet and Earth. The crash hurled away a mass of terrestrial pieces, which gathered around our planet by tidal forces, remaining far enough to not get pulled back into its body.¹⁹ Observing this faithful cosmic companion of ours not only brings us deeper in the understanding of universal forces, but also in unravelling our own origins, as it holds a vast amount of geo-chemical information that echoes our own planetary evolution.²⁰

¹⁶ Christianson, "Kepler's Somnium: Science Fiction and the Renaissance Scientist."

¹⁷ I will be capitalizing the Moon throughout the whole text as I will be referring to Earth's moon specifically, but also to grant it with the esteem it deserves for having such a pivotal role in our planet's survival.

¹⁸ Laurberg et al., *The Moon: From Inner Worlds to Outer Space*, 45.

¹⁹ *Ibid.*, 111.

²⁰ NASA History Division, *Cosmos & Culture: Cultural Evolution in Cosmic Context*, 3-4.

In the chapter entitled, 'Women on the Moon,' I will examine current mission plans for exploring the Moon, looking at NASA's (National Aeronautics and Space Administration) Artemis program as a case study, which is anticipated to launch its first crewed spacecraft in 2024.²¹ Taking matters of ecology, legal rights, political and corporate interests into account, it is crucial to remark that whatever happens in the next chapter of humankind's outer space ventures, it will set the foundation for future colonizing of not only the Moon, but, foreseeably Mars too.²²

The mission of Artemis has been carefully marketed around its "feminist" agenda, promising to land the first woman astronaut on the Moon.²³ The decision behind its naming might seem as a simply smart choice, as Artemis in Greek mythology was not only a lunar goddess, but the twin sister of the Olympian god, Apollo, whose dominion over light and knowledge²⁴ suitably symbolised the American triumph in getting the first humans on the Moon.²⁵ However, with the current pursuits for becoming an interplanetary species, there is a lot more at stake than gender equality and national pride (not that either of these should be trivialized).

By dissecting international space legislation upheld by the United Nations Office for Outer Space Affairs,²⁶ with special focus on the 1979 *Moon Agreement*,²⁷ this chapter of the thesis will be inquiring about social and environmental responsibility. The current programs' undeniable objective to capitalize on celestial bodies, by extracting outer space matter for

²¹ National Aeronautics and Space Administration, "Artemis Plan: NASA's Lunar Exploration Program Overview," 9.

²² Aldrin, "Humanity's Future in Space," 81.

²³ National Aeronautics and Space Administration, "Artemis Plan: NASA's Lunar Exploration Program Overview," 9.

²⁴ Cartwright, "Apollo."

²⁵ Scott and Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, xii.

²⁶ UNOOSA, "United Nations Office for Outer Space Affairs."

²⁷ United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 34/68. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*.

commercial purposes,²⁸ seems somewhat incompatible with ecological ethics and previous protocols for the use of our Solar System. With respect to the invaluable service of Eilene Galloway, who played a pivotal role in aiding the legal protection of outer space and advocating for its peaceful, cooperative exploration,²⁹ I, the author, am turning to the present generations of Women@NASA³⁰ with the hope that their leadership and influential work may regulate operations in interest of the future of humankind and beyond.

1.4 The Moon as luminary

I choose to observe the intersections of the afore mentioned topics through a feminist lens, which is a vital part of the critical perspective that I cultivated during my studies on the programme of Visual Cultures, Curating and Contemporary Art. As the curriculum of this degree is not only based on epistemological, but visual cultures too (hence its name), I wish to introduce another element to the mix of lunar arts, which I investigated for the purpose of this research, the element of light.

Physical light naturally originates from the central source in our stellar system, the Sun, and it is essential for most organisms living above the ground. Those earthlings who can sense with vision may capture the Moon's transient presence on their complex optical apparatus of sight. Pansy Duncan argues for the manifold politics of light,³¹ which from an astronomical viewpoint may also be applied. We, as humans, live from it in bio-chemical,

²⁸ M.B., "The Theory and Economics of MARS and MOON Colonization: Steps and Policy Advocacy," 247.

²⁹ Billings "Eilene Galloway, the Woman Who Helped Create NASA, Dies at Age 102."

³⁰ A pun citing the extensive platform dedicated to honour the work of women professionals employed by NASA: Nagaraja, "Women@NASA."

³¹ Duncan, "Lights, Camera, Lumino-Politics: Lighting *The Searchers*, from Paraffin to LED," 184.

creative and spiritual ways, so questions around “the direction, dissemination and distribution of light”³² are requisite for our welfare.

The conception of the photographic medium, which I will later argue to possess occult qualities, was a result of our complex entanglement with light. A particular technique, called cyanotype, which I would like to focus on is a process connected to astronomical sciences and feminine crafts through several layers, from its peculiar invention to its ecological potentials.

One of these contact points is the work of Louise Long, a contemporary photographic artist, whose wondrous prints, *Having the Moon for Company*,³³ not only illustrate this writing, but also enrich the conceptual understanding of blueprints that are created with the power of our thoroughly contemplated companion., the Moon. Louise's project has led me on a path where I stumbled upon a web of creations, with elements related to image narratives (still and moving), critical anthropology, and biochemical politics. The common denominator that they all encompass and depend on for different reasons is light.

Within the broad scope of light, many of these afore mentioned elements connect to its blue spectrum. From the inorganic pigment of Prussian blue—that accounts for the unique color of cyanotype prints—to microorganisms of cyanobacteria—whose multifaceted abilities could be the foundations to Martian human colonies, I will draw examples of ecological and artistic realities that intersect with lunar light and its blueness in manifold ways.

³² Ibid., 185.

³³ Long, “Having the Moon for Company,” n.d.

1.5 The Moon as methodology

Lastly, I would like to give a glimpse of the methodology that constitutes my current artistic research practice, whose primary media is written, as well as spoken words (in the form of storytelling). I regard language as a magical form of worldmaking, therefore, by having the privilege to understand and express myself in a few tongues, I gain access to different etymological microcosms. I am grateful for my ability to be literate, and do not take it for granted. It enables me to explore various perspectives and connect disciplines that sometimes contradict each other, but most often share fundamental ideas.

These disciplines could also be seen as distinct languages, as they often have their own jargon and are based on specific paradigms. I aim to work with language mindfully, as I believe that words possess immense power, and every one of them has the potential to be a spell.³⁴ So writing as a physical manifestation of research, and research as a critical method for caring about, compose my method of mantic meditation.

I wish to apply the same method for this work, which is conducted through a carefully predetermined approach that favours inclusion within an academic context. This intention partially manifested in an experiment I did in the early stages of the writing, where I only used third-person plural pronouns for all the humans and other beings whom I mentioned, cited or quoted. I was eager to implement this seemingly modest, but to me radical gesture in order to refrain from assuming gender identities of human-born earthlings, and to reject the gender labelling of divine or mythological figures. Unfortunately though, the English grammar and my non-native wording skills, seemed to fall short in this trial. As the feedback

³⁴ Depending on the motive behind them that may be a prayer, blessing, or a curse for example.

from my guides confirmed, the uniformity of the pronouns led to confusion when connecting the references, and as a result, made the writing difficult to read.

Consequently, I decided to only follow this principle in the case of divine and mythological figures, who throughout the following text will be referred to in the third-person plural pronouns of they/them. Nonetheless, I would still like to admit this fallacy, because it shows how languages that are structured around binary gendered pronouns, (like English at its current state) hinder the considerate addressing of identities from other parts of the social spectrum. Despite my personal drawbacks in the case of this thesis, I hope to dedicate my work in the future to find ways for creating more inclusive communication.

The means to strive for more inclusive knowledge sharing also in respect to my own benefits. In the process of this research I encountered how inaccessible scientific reasoning can be, at least to my limited comprehension of natural sciences. Thankfully, the *Astronomical View of the World* course, which I attended in the fall of 2019 at the School of Electrical Engineering of Aalto University, helped me obtain some elemental insights into astronomy.

The narrative I hope to weave in this thesis shall be a fusion of scientific theory, cultural philosophy, legal studies, literary fiction, remnants of mythological and mystic traditions, as well as fragments of my own reflections and interpersonal correspondences. Along with the dialogue that I engage in with the well of sources that educate this research, I also wish to contribute to the critical discourse of lunar studies by identifying recent theoretical propositions,³⁵ emerging from past knowledges, that have the potential to shift our collective self-reflection towards more modest views on our species' role, not only on a planetary, but within universal existence.

³⁵ White, "The Overview Effect and the Human Implications of Settlements in Space. A Personal Journey of Discovery," 55.

2. MYTHOLOGIES

In the 'Prelude' I shed light on the topics I would like to involve in this research, and introduced the methodology through which I will do so. Now, I suggest we start at the beginning, a few billions years from now when the Moon was formed. In this chapter I would like to understand the astrophysical mechanisms of this celestial body and the significance that it has had on our earthly ecologies. I would also like to start untangling some of its connections to feminine powers. I will do that by inviting the mythologies of a triad of lunar goddesses to observe the influence their powers had on our spirituality, folk traditions and language.



2.1 Lunar ontology

But the magical efficacy of the Feminine is not confined to the elementary character and the fertility ritual; in a sphere transcending the fertility of animals and men, of the earth and heaven, the goddess as Great Round becomes a force for sublimation and rebirth. Not only does the night, leading through death and sleep to healing and birth, renew the cycle of life; but, transcending earthly darkness, it sublimates the very essence of life through the eruption from the depths of those powers that, in drunkenness and ecstasy, poetry and illumination, manticism and wisdom, enable man to achieve a new dimension of spirit and light.¹

There is a spherical body orbiting around us, whose luminous image we encounter night by night. It is the sole natural satellite of our planet, the Earth's Moon, the most noticeable celestial entity on the firmament accessible to us. Over decades of astronomical scholarship and mythological culture there have been many tales and speculations about its

¹ Neumann, *The Great Mother: An Analysis of the Archetype*, 291.

origin, which is something no living being could have witnessed, as it took place billions of years ago.²

Italo Calvino fictitiously weaved some of these ideas into his lunar short stories, including *The Distance of the Moon*,³ which was published only a few years prior to the first men landing on lunar territory. The most commonly approved theory is the Giant Impact one,⁴ which presumes that the Moon formed from terrestrial parts that detached upon a Mars-size planetary entity crashing into Earth in the early period of the Solar System's formation. This collision was then followed by the settlement of the Earth-Moon system, which refers to the co-dependent state that binds the two spatial giants together through the gravitational pull.⁵ Certain aquatic and meteorological conditions have been subject to this influence induced by our planetary companion, resulting in the ancient belief that its phases effect the growth of all life forms—from plant to animal and beyond—a conviction that possibly catalyzed forms of lunar worship.

The fact that the Moon is slowly, but surely distancing itself from our planet (poetically portrayed through a platonic love story in Calvino's text)⁶ has left past and present thinkers with nothing but dystopian imaginaries of foreseeable future consequences.⁷ One of the many reasons why studying the Moon can foster a deeper understanding of our own universal evolution is that it reserves ancestral and descendant qualities through the evident genealogical ties to our homeland.⁸ Even though the relative position and orbit of the Moon

² Laurberg et al., *The Moon: From Inner Worlds to Outer Space*, 111.

³ Calvino, "The Distance of the Moon," 1-9.

⁴ Grant, "Soft Moon: Exploring Matter and Mutability in Narratives and Histories of the Earth-Moon System," 437.

⁵ Ibid.

⁶ Calvino, "The Distance of the Moon," 5.

⁷ Laurberg et al., *The Moon: From Inner Worlds to Outer Space*, 111.

⁸ Nasmyth, Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 443.

might indicate a sense of subordination, acknowledging its major contributions to our earthly operation essentially allows for establishing a companionship with it.

After all, the tidal motions of our aquatic surrounding is a phenomenon we primarily owe to the lunar agency, which prevents seas and rivers from stagnation, thus benefitting the organic lifeforms living in, as well as alongside them. These “bodies of water,”⁹ under the aiding influence of the Moon, also serve human communities in their sanitary welfare, which in the case of cities built along riversides means delegating the discard of sewage to its stream.¹⁰ Moreover, the flood-tide is a partially unutilized source of power that is speculated to be an ecologically and economically more sensible alternative to the conversion of nonrenewable organic resources for energy.¹¹

The Moon, besides being in charge of our tidal flows, has also been regarded as a celestial mirror that reflects those contemplating upon it from terrestrial grounds.¹² The image supposedly peeking back is an echo of Earth encompassing all its living and non-living entities. The Moon reigns over the night along with all the mythological representations associated with its obscurity such as; the underworld, the spiritual or mantic realms, the unconscious mind, negative emotions and their behavioral imprints, and of course, the Feminine.¹³

A personal suggestion upon the primordial symbols of the Feminine—involving earth, water, mountain, cave, vessel etc.¹⁴—is to consider the Moon as a planetary tombstone,

⁹ With a nod here to Astrida Neimanis' book, *Bodies of Water: Posthuman Feminist Phenomenology* (Bloomsbury Academic, 2016), Retrieved from

<https://www.bloomsburycollections.com/book/bodies-of-water-posthuman-feminist-phenomenology/>

¹⁰ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 427-429.

¹¹ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 430.

¹² Grant, “Soft Moon: Exploring Matter and Mutability in Narratives and Histories of the Earth-Moon System,” 436.

¹³ I capitalized the word to assert its fundamental eminence.

¹⁴ Neumann, *The Great Mother: An Analysis of the Archetype*, 292.

devoid of all earthly livelihood, a potential fear designated to our cosmic companion's barren topographical qualities. Without an atmosphere to embrace its cold, solid globe, the Moon's terrain is absent of air, which means that there is no chance for water to form or persist on it either.¹⁵ Its naked surface is constantly exposed to the extreme conditions of space weather, its hemispheres are either frozen by the temperatures of its barren environment (approx. 200 degrees Celsius below zero) or enduring an approximately 200 degrees Celsius heat for the 14 consecutive days when it is illuminated by the Sun.¹⁶

2.2 Feminist mysticism

To face the rawness of the self may be a challenging experience, especially through the medium a cold, dark, yet at times blindingly radiant mirror. This figurative encounter with ourselves has been a critical subject of psychology since its early discourse, in which Carl Gustav Jung's work has to be recognized for its relevance. Jung proposed several theories on the conscious and unconscious imagery, gender characters, and archetypal figures, in which the primordial image, later denoted as “the archetype,” is described as “the self-portrait of the instinct.”¹⁷ Our instincts are the forces that order the unconscious behavior into patterned symbolic images that later manifest in the conscious terrain. This psychic reciprocity between the conscious and unconscious mind is an organic entanglement that may be either dissected into binary notions, or can be observed with honor for its complexity. The former, I argue, is an approach that patriarchal lineages of knowledge have been profiting from, whereas the latter aligns more with the values of a feminist research praxis.¹⁸

¹⁵ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 126.

¹⁶ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 286-287.

¹⁷ Jung, *The Structure and Dynamics of the Psyche*, 136.

¹⁸ Tresch, “Cosmologies Materialized,” 160.

I would like to adopt such values for this present research, and therefore, will take the chance to recognize the very act of writing as a ritual that I see as evoking pre-existing expressions (ideas and myriad of transdisciplinary informative media); by way of initiating intellectual as well as spiritual dialogues with them, in order to revitalize these ancestral knowledges with present intentions.¹⁹

Paying attention to the locally situated acts and objects through which historical actors divide and connect parts of the universe keeps us at the level of observable, material practices, while showing how they assemble and situate themselves within greater wholes—however incomplete or fragmented these may be.²⁰

I, therefore, call upon inspiring thoughts, practices, beings and deities, inviting them with gratitude to contribute to this formulation. I must also profess that this study is a mode and record of self inquiry, as is looking up at the Moon when the skies are clear and appreciating what it sheds light on, even through the darkest of matters.²¹

As James Nasmyth and James Carpenter have so beautifully articulated in their collaborative book, *The Moon: Considered as a Planet, a World, and a Satellite*; it is almost inevitable for the lunar observer (in their example a telescopist) to not identify themselves with their studied subject and become an imagined “lunar being.”²² Perhaps all whom have ever been mesmerized by the distant celestial landscape, regardless of identity or background, may find solace in relating their spiritual constitution to a domain that is not completely alien (as in deriving from the same allotment of cosmic debris), yet which may have been similarly subject to othering by networks of oppression. What I am arguing here in a concealed manner

¹⁹ Tresch, “Cosmologies Materialized,” 292.

²⁰ Ibid., 163.

²¹ Science@NASA, “Dark Energy, Dark Matter.”

²² Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 395.

is that transdisciplinary selenology²³ has the potential to be a fertile platform for inviting queer, xenofeminist²⁴ practical philosophies into its framework, as a contrast to the **historically white heteropatriarchic**²⁵ astronomical sciences.

The Moon has barely been affected by human history, despite its ancient past. Although it is geologically infertile, it may be still inclusive of all other life (or non-life) forms, and as the current legal framework suggests (which I will examine in more detail in one of the subsequent chapters, 'Women on the Moon'), it belongs to the whole of humankind. In regards to its accessibility, it is our closest planetary neighbor, therefore it may be the best extraterrestrial facilitator for social, ecological, artistic, philosophical, spiritual, or other kinds of knowledge production. My point is not to propose transferring all our creative and intellectual assets away from Earth, but I would argue for considering the Moon (or other cosmic entities) as a reference point in more transdisciplinary education and research, beyond the fields of STEM (science, technology, engineering, mathematics).

2.3 Love

Without much intention to project a moral character onto the Moon, the main actor to my research, I do feel a liability to defend its integrity, counter to the mythical philosophies of François Hemsterhuis. He suggested in one of his last writings (*Alexis our de l'age d'or*)²⁶ that the formation of the Moon and its sudden attachment to our planet was actually a terrible misfortune that disturbed an Eden-like golden era on Earth, only bringing ailment and decay upon humankind. This is especially interesting in light of a widespread philosophical thought

²³ A term I came up with to denote my research practice. Selenology, as a preexisting discipline refers to, “The scientific study of the moon.” (Lexico.com, “Selenology.”)

²⁴ Laboratoria Cubonicks, “The Xenofeminist Manifesto.”

²⁵ Ahmed, *Living a Feminist Life*, 91.

²⁶ Melica, *Hemsterhuis: A European Philosopher Rediscovered*, 85.

of the time, in which all planets of our Solar System were believed to be inhabited by distinct civilizations, whose intellectual level was based on the physical distance their hosting planets maintained from the Sun.

Immanuel Kant illustrated this in *Universal Natural History and Theory of the Heavens* by speculating on Jupiter, whose inhabitants he claimed to be superior to our species, due to the lesser amount of daily sunlight they are exposed to. He established this hypothesis upon the inquiry on how the intellectual capacity of human beings is affected by their material body, whose composition he attributed to the power of the Sun.²⁷ As may be noted, astronomy, philosophy, mythology and other disciplines had a tendency of overlapping in the 18th century.

The theoretical work of Hamsterhuis is representative of that, as he also denominated the Moon as an allegory of love by virtue of its correspondence to feminine attributes (he demonstrated this by citing the lunar divinities, Diana and Juno), similarly, and often in comparison, to the planet Venus.²⁸ This idea is deep-rooted in early human cultures across all continents, to which the eighth addition is our lunar companion, sometimes referred to as such (the Eight Continent that is), admitted to be a remote extension to Earth by cause of the common global origins they share.²⁹ Hamsterhuis also connected the Moon and the affectionate transformation of energy³⁰ —also known as love—under the laws of physics, both abiding by the universal forces of attraction to other bodies (planetary or human), a realization accredited to Isaac Newton.³¹

²⁷ Kant, *Universal Natural History and Theory of Heaven*, 183-184.

²⁸ Melica, *Hemsterhuis: A European Philosopher Rediscovered*, 98.

²⁹ Grant, “Soft Moon: Exploring Matter and Mutability in Narratives and Histories of the Earth-Moon System,” 437.

³⁰ Just one of the myriad approaches to describe it with.

³¹ Newton's law of Universal Gravitation (Melica, *Hemsterhuis: A European Philosopher Rediscovered*, 99.)

Following this line of thinking, the question arises in me: could love be an abstraction of gravity, or gravity be a simplified appearance of fondness, illustrating its relativity to the space-time continuum? As Sara Ahmed suggests in *Living a Feminist Life*; forces connecting willful humans may be loving, living or electric, yet they all have the capacity to generate proximity between the affected parties.³² Such proximity can facilitate ideological or physical unions that may serve collective efforts striving to generate more equally pleasant experiences of existence across-the-board, which is essentially the code of conduct for intersectionality.³³

2.4 Time

Despite the Moon's selenographic³⁴ intricacies, I will keep the astronomical complexities to a necessary minimum, as the scientific approach is only one in the constellation of epistemologies I would like to draw from, especially in this chapter. The lunar research that I engaged in is more concerned with the origins of the Feminine principle (properly introduced in subchapter 2.5) and its connection to the Moon with the potential it holds for shifting perspectives. Possibly the most culturally prevailing indication of this is our notion of time. Our systematized perception of this intangible phenomenon is owed to the cycles of the Moon, whose completion is almost equivalent (differing by approximately 16.4 hours)³⁵ to the average 28-day menstrual cycle of a female. The lunar course, predominantly identified by the four quarterly phases,³⁶ served as a visible aid for early civilizations to relate themselves to a changing celestial phenomenon, and, consequently, to record temporality (fig.

³² Ahmed, *Living a Feminist Life*, 82.

³³ *Ibid.*, 5.

³⁴ Defined as “The scientific mapping of the moon...” by Oxford's free English online dictionary. (Lexico.com, “Selenography.”)

³⁵ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 140.

³⁶ Generally marked with eight phases in total; Ahlquist, *Moon Magic: Your Complete Guide to Harnessing the Mystical Energy of the Moon*, 16.

1). Even the words 'moon' and 'month' are etymologically connected in several languages besides English (in Hungarian, for instance, which happens to be my mother tongue, these are 'hold' and 'hónap'), supporting the evidence of early Moon-based chronology.³⁷

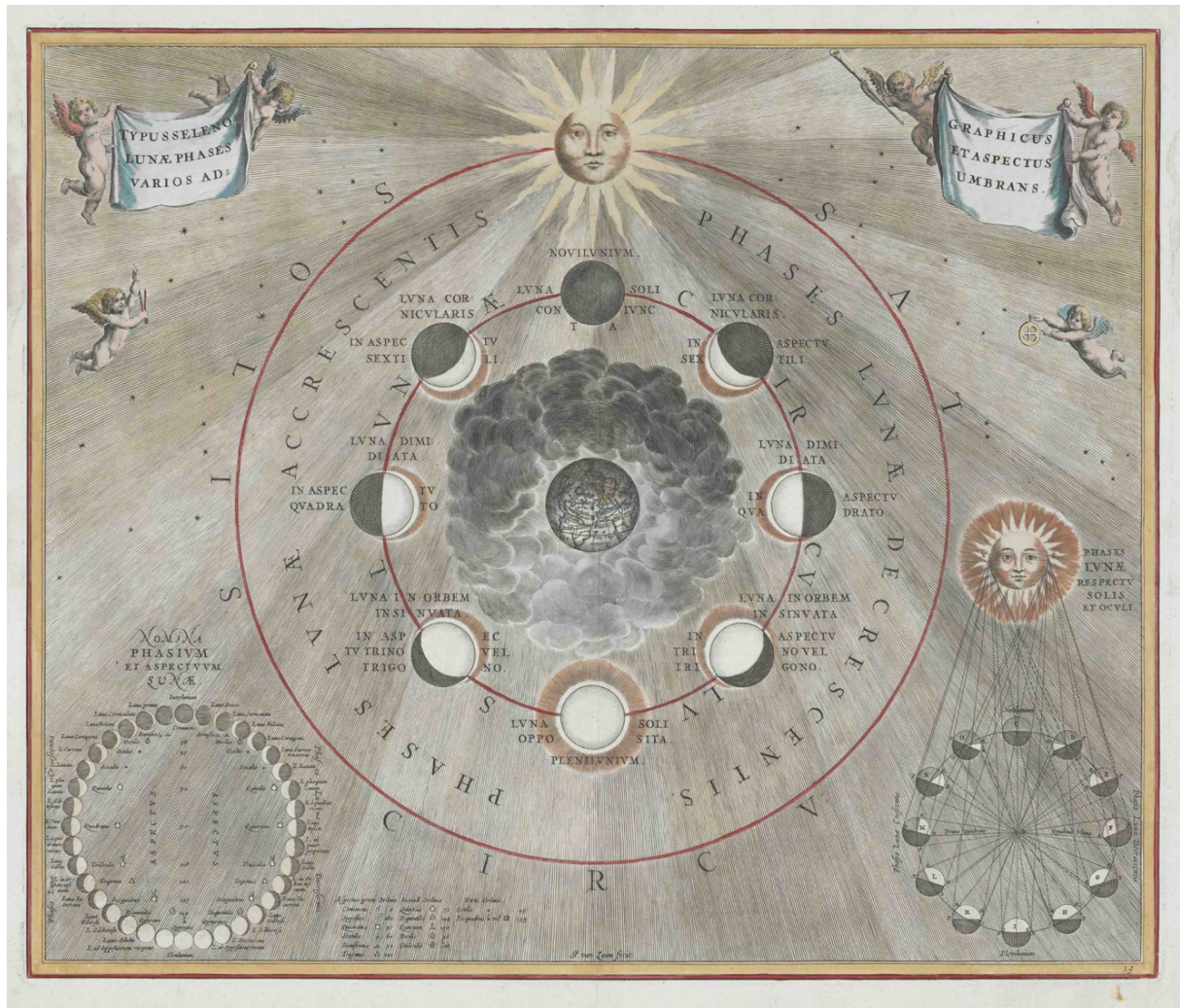


Figure 1. The eight phases of the Moon, with the Earth in the center. *Typus Selenographicus Lunae Phases et Aspectus Varios Adumbrans*. Engraved copperplate by Andreas Cellarius. Amsterdam, 1660. Image from the Glen McLaughlin Map Collection of California as an Island, courtesy of Stanford University Libraries.

The nocturnal timescale has inspired various lunar mythologies and divination, as exemplified in one of the main literary guides of this thesis, Erich Neumann's *The Great*

³⁷ Altmann-Wendling, "Conclusion - Of Moon and Men: Observations about the Knowledge of the Moon in Antiquity," 280.

Mother: An Analysis of the Archetype. In the book, he thoroughly investigates matriarchal societies where the Feminine archetype is a goddess of space and time, two elements that archetypically unite in the symbol of the starry sky, coinciding with this present discourse. This archetype is described as both a “containing vessel” and “cosmic egg,” a simple deduction that I personally find to be quite essentialist. However, these symbols (applicable together, apart, or perhaps complemented by others) are potentially beautiful aspects of the Feminine, amongst its various other incarnations, many of whom are also typified in the book. Menstruating earthlings, as Neumann points out, have a particular connection with time, as it regulates their bio-chemical make-up by triggering cyclical fluctuations and changes, both on a monthly basis (in general) and across stages of their lifetime, including menstruation, pregnancy for some, and menopause.³⁸

Eternity, as an unmeasurable amount of time, is a scale that is possibly only attainable in the spheres of magic and mysticism. However, time has no power over the Jungian concept of archetypes either, an example to which is the “Eternal Feminine.” The Eternal Feminine is the transcultural and transgenerational manifestation of the “Feminine Self” that spans across all humanly perceivable realms via the web of the collective unconscious.³⁹

This idea is also the essence of the physical law known as the *Conservation of Energy*,⁴⁰ which states that no energy in the universe can be produced or destroyed, only transformed into other states. If all matter consists of energy and that quantity is fixed, then everything that we are, that surrounds us and that we encounter is the same mass of energy recycled since the conception of the universe. This astonishing enigma is the fabric that

³⁸ Neumann, *The Great Mother: An Analysis of the Archetype*, 223-227.

³⁹ *Ibid.*, 13, 336.

⁴⁰ Nasmyth & Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 49-50.

connects everything in the cosmos, and that holds space for ideas such as the matriarchal consciousness⁴¹ or spiritual reincarnation.

2.5 The Feminine principle

The feminine domain, referred to as 'anima' in Jungian theory, also happens to be the Latin word for soul. This analogy is rather questionable, especially when contextualized alongside its counterpart, 'animus', the term denoting the masculine principle.⁴²

Although the binary that Jungian psychology has erected is rather problematic, the Feminine appears to have been more susceptible in its association with spirituality since the earliest civilizations. Marija Gimbutas reinforces this with an archeological research that studies the remnants of Neolithic civilizations, which proved to be matriarchal in their social organizations. As this orientation also extended into their belief systems, it resulted in a deep-rooted devotion to motherly deities, or, arguably, to one goddess in various forms.⁴³

Gimbutas and Neumann correspond in their discoveries around the prevailing worship of the primordial goddess, whose life-creating and dynamic-transformative attributes determined early human culture.⁴⁴ However, is the intellectual ability to revere a prerequisite for cultural development? Does that make culture an idiosyncratic achievement of humankind, or could culture be imagined as an ecology of consciousness instead? I pose these questions with the speculative idea that such an ecology, without necessarily being perceivable to us, could also be manifested by other earthly species. Both in those with analogous sexual distinctions and biological embodiments (menstrual cycles, gestation) to us,

⁴¹ Neumann, *The Great Mother: An Analysis of the Archetype*, 293.

⁴² Sadoff, "Mythopoeia, the Moon, and Contemporary Women's Poetry," 95.

⁴³ Gimbutas, *The Living Goddesses*, 181.

⁴⁴ Neumann, *The Great Mother: An Analysis of the Archetype*, 282. and Gimbutas, *The Living Goddesses*, 24.

and other species that are not limited by such bodily concerns. In the case of the latter, I would be curious to learn how the Feminine archetype influences dimensions of social cohesion.

The language of mythology perpetuates an overarching kinship between the Mother Goddess, the mother of goddesses, and the Moon. Because they are both epitomes of change, fertility, and the subliminal, they empower lunar deities in channeling cosmic wisdom, amongst whom Artemis, the leading figure of this thesis, is one divine manifestation. The name Artemis supposedly derives from the verb *artamein* which means 'to slaughter', and may be linked to the goddess' command that stretches across the animal kingdom and the hunts.⁴⁵ Hunting was one of the ways, besides gathering, that enabled the subsistence of early humans, for which they heavily relied on the Moon's illumination in the night. Lunar veneration has been noted from that Paleolithic era, followed by the rising traditions of Sun worship, as agricultural practices started to be established in the Neolithic.⁴⁶

Artemis is one of the Greek virgin goddesses⁴⁷ from the triad of lunar deities.⁴⁸ They (Artemis) are symbolized by the waxing crescent Moon (the optically growing phase prior to its fullness) which resembles the Maiden,⁴⁹ the first archetypal stage of a woman's becoming. They are usually portrayed with a bow and a quiver of arrows, symbols that illustrate the determined power they hold within their spirit, rather than violent tools for catching prey.

⁴⁵ Neumann, *The Great Mother: An Analysis of the Archetype*, 276.

⁴⁶ *The Urantia Book*, 639.; Gimbutas, *The Living Goddesses*, 25.

⁴⁷ Not necessarily implying physical virginity, but a strong mental and spiritual autonomy that may realize in the choice of living a single or child-free life; the other two of these goddesses are Athena and Hestia (Bolen, *Artemis: The Indomitable Spirit in Everywoman*, 152.)

⁴⁸ Alongside Selene, archetype of the full Moon and Hecate, archetype of the waning phase. (Ibid., 18.)

⁴⁹ Followed by the Mother and then the Crone in the three-fold image of the Triple Goddess. (Ibid., 190.)

Here, the act of archery, as Jean Shinoda Bolen interprets in her book, *Artemis: The Indomitable Spirit in Everywoman* (another significant textual guide for this research), refers to a practice that requires the skill of turning inward and cultivating a deep sense of focus when preparing for action.⁵⁰ Such an inclination for immersion and instinctual wisdom is a trait that clearly resonates with Moon-related mysticism. This "lunar attribute", so to say, enables a sensibility that is quite detectable in spirited activists and those with concerns for social or environmental justice.

2.6 The Artemis archetype

The Artemis archetype is personified in the plane of mortals by willful activists, “feminist killjoys,”⁵¹ unappreciated advocates, “closet mystics,”⁵² care workers, and midwives amongst others.⁵³ They are emblems of sisterhood, fierce protectors of women—especially those in vulnerable positions—and children; a side of Artemis' character that is depicted in their own mythology, as the first-born daughter of Leto (the pre-Olympian goddess of motherhood) and Zeus (considered as the king of Olympian gods ruling over the sky). According to **their** story, when Artemis was born their first act was to help deliver their twin sibling, Apollo (the Olympian god of the Sun), after recognizing that their mother was in painful labor (brought upon by Hera, the Olympian goddess of marriage and queen of the gods).⁵⁴ This unimaginable ability not only determined their independent identity, but also endowed them with deep care for childbirth and young mothers.

⁵⁰ Bolen, *Artemis: The Indomitable Spirit in Everywoman*, 17-18.

⁵¹ A term coined by Sara Ahmed across their invaluable educational and scholarly work.

⁵² Barbara Ehrenreich, *Living with a Wild God: A Nonbeliever's Search for the Truth about Everything* (New York: Twelve, 2014), quoted in Bolen, *Artemis: The Indomitable Spirit in Everywoman*, 18.

⁵³ *Ibid.*, 160.

⁵⁴ *Ibid.*, 154-155.

A protective impulse of similar intensity is specific to the nature of mother bears, a special species to Artemis, symbolizing the protective energy they innately carry.⁵⁵ Their relation to the bear as companion is not only symbolically meaningful, but in the literal sense of connecting them to the wildlife where their being thrives the most. An appointed “mistress of wild things,”⁵⁶ they were widely celebrated in prehistoric hymns and worshipped with the sacrificing of untamed animals, such as deer, boars, wolves and birds.

The purpose to pick Artemis as a primary lunar deity for this research originated from the fact that I found them to be the most emancipated from the rest of the mythological characters and archetypes, by virtue of their strong ecological relations and fiercely punctuated moral compass, which made them also seem most relatable in the contemporary to a wider multitude of fellow humans. Artemis is found to be embodied by sensitive, yet ambitious people with predominantly, but not exclusively feminine dispositions, from various age groups and identities. As an archetype of the maiden, their purpose or personhood might still be well under evolvment, which again, leaves nothing but an infinitude of possible life paths. And where possibilities, even if solely speculative, do exist, futures can be imagined, igniting a spark of hope behind the eclipse of multifaceted uncertainties.

2.7 Dianic witchcraft

As I have previously laid out in the 'Prelude,' I would like to parallel two additional primordial Moon goddesses of European origins with the archetype of Artemis, who coincide with one another to varying extents, but whom I chose to include in this thesis because of

⁵⁵ Gimbutas, *The Living Goddesses*, 208.

⁵⁶ *Ibid.*, 220.

their relevance to several elements in it. The Roman equivalent of Artemis, Diana, is one of them, whose contemporary pertinence I will demonstrate by examining an active branch of the neo-pagan religion, the Dianic Wicca movement.

Wicca⁵⁷ is the Old English term for Pagan Witchcraft, instituted on the grounds of a pre-Christian ancient faith referred to as the “Old Religion,” and publicly inaugurated by Gerald Gardner. Gardnerian Wicca, which is still practiced today across many English-speaking countries, venerates two deities, known to realize the union of female and male principles through their dual being of the Great Goddess (Diana) and the Horned God (Cernunnos).⁵⁸ Somewhat deviated from this theology is the line of Wiccan traditions where the Goddess is the solely worshipped deity, in alignment with the scholarly views of Marija Gimbutas, James Mellaart, J.J. Bachofen, and possibly many others whose discoveries point to the ancient European cultures of women-led societies, preceding today's patriarchal system.⁵⁹

These Wiccan movements were established as a return to the matrifocal fate in which priestesses were the acclaimed prophetesses, and could preside over the council that served as their community's decision-making body.

During the Inquisition of the 15th century and the following Christian era, such priestesses were demonized and prosecuted as "witches" for their knowledge and power, and, if convicted, then they were most likely executed under atrocious circumstances.⁶⁰ In spite of their horrific nemesis, we inherited an astonishing amount of figurine art from these communities, whose sculptures, besides common features, are thought to portray the distinct aspects of the Great Goddess,⁶¹ like materialized versions of their archetypes.

⁵⁷ Literally meaning 'male witch', whose feminine equivalent is wicce. (Smoley, “Introduction: The Old Religion,” para. 4.)

⁵⁸ Ibid., para. 5.

⁵⁹ Smoley, “Introduction: The Old Religion,” para. 6-9.

⁶⁰ Gimbutas, *The Living Goddesses*, 188.

⁶¹ Ibid., 30.

Mária Szilágyi, a late Hungarian ceramic artist also produced such figurines in the mid-20th century, devoted to the same pagan deity. Her collection of artworks has been permanently housed in city of Celldömölk (fig. 2).



Figure 2. Triplet figurines with round heads and eight holes around the edges (perhaps resembling the Moon and its phases). *Asszonyok*. Ceramics by Mária Szilágyi. Budapest, 1977. Colour paper print from the exhibition catalogue of the Budapest Kunthalle's Chamber room (original title: Szilágyi Mária kerámikus kiállítása, Budapest Műcsarnok Kamaraterem, 1977). Image from Iparművészeti Archivum, courtesy of Erzsébet Koleszár.

2.8 Z Budapest

Szilágyi's daughter, Zsuzsanna Budapest,⁶² is most commonly known as the founder of the Dianic Wicca movement that she initiated in the United States during the 1970s, after emigrating there from the Hungarian Revolution of 1956. Zsuzsanna (or Z, after her penname) currently lives in California and has had a rather adventuresome life as a witch, activist, author, educator, and tarot reader. The first women's circle she led under the Dianic tradition was the Susan B. Anthony Coven #1, named after the renowned women's rights and abolition activist of the late 19th century.⁶³ Similarly, Zsuzsanna served as an actor of the women's liberation movement, co-creating supportive groups as the Anti-Rape Squad and the Take Back the Night organization, on top of working at the first Women's Center in Los Angeles for years.

On the side of her activist and support work, she has written a number of books on feminine mysticism and lunar divination, including *The Holy Book of Women's Mysteries: Feminist Witchcraft, Goddess Rituals, Spellcasting & Other Womanly Arts...*,⁶⁴ and *Grandmother Moon: Lunar Magic in Our Lives - Spells, Rituals, Goddesses, Legends & Emotions Under the Moon*.⁶⁵ In 1975 she gained a lot of media attention after being arrested for tarot reading at her self-owned book shop, a practice which at the time was still forbidden in California. After years of legal battling and being deemed as “the first witch prosecuted since Salem,” the law against “fortune telling” was revoked by the state's Supreme Court and Dianic Wicca became an official religion.

⁶² She was born as Zsuzsanna Emese Mokcsay, but decided to change her name to Budapest, following the feminist initiative of the 1970s in which women swapped their father's surname for one indicating the place of their origin.

⁶³ National Women's History Museum, “Susan B. Anthony.”

⁶⁴ Zsuzsanna E. Budapest, *The Holy Book of Women's Mysteries: Feminist Witchcraft, Goddess Rituals, Spellcasting & Other Womanly Arts...* (Berkeley: Wingbow Press, 1989).

⁶⁵ Zsuzsanna E. Budapest, *Grandmother Moon: Lunar Magic in Our Lives - Spells, Rituals, Goddesses, Legends & Emotions Under the Moon* (San Francisco: HarperOne, 1991).

I was fortunate to be granted a chance to interview Zsuzsanna for this research, who at the age of 80 years is still full of vitality and ambitions, characteristics that she attributes to her astrological make-up, in which the fire sign of Aries is extensively present. To me, Zsuzsanna is a primal example of someone with traits of the Artemis archetype, or in her case, of Diana. When inquiring about her spiritual awakening, Zsuzsanna told a personal childhood story clearly indicating that the gifts she possesses are part of the legacy from her motherline;

...my Grandmother was always very much attached to me, because she was the first spirit that I have seen. (...) I was three years old or four maybe, praying in the yard. And she appeared. And it was sort of like a bust, you know. And then she said in a very sweet, but sad voice: Oh, my darling Zsuzsikám⁶⁶, you won't have your dear Grandma anymore. And I cried, and said, well, why not? And then she disappeared when I went in and told my Mom and then it turned out, that that was the hour when she passed. We found out so much later because nobody had telephones and when the telegram came that was the only way to find out that her Mom died. So I consider that kind of being my early opening to see and feel spirits. And Grandmother continued to protect me to this day. Because when she died, my name was her last word that she said, which in Hungarian lore means that that person signs up to protect the person whose name she says with the last breath.⁶⁷

Masika, as she refers to her Mother, was also involved in pagan spirituality which permeated into her own artistic practice as much as their transgenerational family business of owning a herbal store: "...because my Mom was an artist, and together with other artists they were steeped in mythology, they were constantly making mythological references, mostly because the communists were watching what they were doing and they had a little bit of sense

⁶⁶ Used as a diminutive in Hungarian, meaning, 'my dear little Zsuzsa.'

⁶⁷ Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

when they noticed that it is again them, or they are being portrayed, so you had to be very clever.”⁶⁸

As she unraveled cultural and personal connections through religion and politics, it became obvious how well acquainted she is with sacral history and Hungarian folklore. “The blessed Virgin in fact in Hungary as we call her ‘A magyarok istene,’⁶⁹ is a woman. ‘A magyarok istene’ is Ishtar actually (...) in our Sumerian memories Ishtar was the most important goddess, and the oldest that we know of with a name (...) a great cosmic goddess who was associated with war and love and rebirth.”⁷⁰

She confirmed what I have presumed from previous literary sources, that Diana⁷¹ is just one of the many “cultural shades,” of nature deities, who are actually just named aspects of an “all-embracing cosmic mother,” the Goddess with a capital G. This claim she attributes to the idea that spirituality is all-inclusive because “the goddess always looks like the people who worship her.”

We also conversed about the Moon, especially her relationship with it, to which she accredited several dynamic processes; some more culturally confirmed, as its role in teaching us time and calendar, others more abstract, as being a “life giver” or the “opener of the womb,” referring to its domain over feminine fertility. Zsuzsanna asserted that the Moon stands for the life stages of womanhood; when new, it resembles a young woman, when full, it becomes like a pregnant mother, and when waning, it illustrates the final, reflective phase dedicated to the gathering of wisdom, the one that she currently experiences.

⁶⁸ Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

⁶⁹ Translated to English as the 'God of the Hungarians.'

⁷⁰ Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

⁷¹ Whose status in Central Europe is believed to have influenced the naming of the river Danube, or *Duna* in Hungarian. (Koch, *Celtic Culture: A Historical Encyclopedia*, 569.)

The Moon taught us calendar, the Moon taught us time. And the Moon said: every 28 days when I change, women bleed. (...) and anything growing, anything germinating, anything bringing fruit, it's all because of the Moon. We would not have weather without the Moon. If we don't have weather, we would have no life on this planet at all.⁷²

When we dove into subjects of ecology and feminism, I encountered the true activist in her, but also how radically she denounces toxic masculinity. To the question about her opinion on space exploration and lunar tourism, she stated to have no interest in travelling to the Moon, as she finds such pursuits unnatural for humans (who are the only mammals from this planet with such longing), similarly to flying;

I would not give a blade of grass for the experience to be out there. I just would not. I mean, I question the mental health of those who dream of that. Dreaming is okay though, dreaming is fine. Just don't take the resources away from this very real planet we are on and she's got at least a few billion more years in her to roll about in the universe and be part of the big cosmic picture. So, what I would say humanity should be doing is looking at what we have. What we have is certain amount of years that we get to live here.⁷³

She correlates these aspirations to the ultimately destructive ideals of the male psyche, one she sees as violent for most typically desiring conquest. I was somewhat surprised to learn that her beliefs on the possible reasons behind the human curiosity for outer space lean towards the theory of past extraterrestrial intermarriage. This controversial hypothesis, as she explained, suggests that extraterrestrial creatures have visited our planet in the past and mated with humans, thus begetting a generation of hybrid beings, whom we descended and evolved

⁷² Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

⁷³ Ibid.

from. The eagerness to reunite with our extraterrestrial ancestors is therefore spiritually ingrained, and manifested in our fascination with the cosmos.

Zsuzsanna's moral and spiritual compass is incredibly sensible and peace-oriented. Despite some of her strong claims on men, she assured me that she does not despise those identifying with this gender, she just does not recognize their capability for governance; "I don't hate men, but I solely know that they are not the leaders of life. It should be women who are the leaders of life. Men should fall in line, because we create peace and culture and we appreciate them in that context. They really fear having no war anymore."⁷⁴

Her conviction is that females have been blessed with the ability to gestate, therefore they, we symbolically "include the world in our bodies." Everyone comes from a female body, so there is no need "to glorify the bleeding or the womb," or completely disregard it. When asked about how she perceives the present feminist movement and how her comprehension of this practical ideology might have changed over the years, she noted, "Patriarchy left so much wounds, that no matter where you look, you'll find something to heal. To heal the mind is an art form in itself, that would require a philosophy that culture adheres to, a life-oriented and joy-approving one that does not take away women's choices."⁷⁵

She regards patriarchy as a system of accumulation and control, where the ego wants to own everything, even planetary terrain, which is something humans can never possess. Instead, she advocates for standing up for our species, and taking responsibility of our actions; a duty of all humankind which in reality has mostly been practiced by diligent feminists. She

⁷⁴ Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

⁷⁵ Ibid.

also appraised women's leadership as a kind that is based on the honoring of elders and instinctually strives for peace; “Just because you kill somebody or own something, that doesn't make you a leader. A leader is ... with wisdom and who has raised a generation that knows respect. Respect is everything. If we don't respect each other, there can be no culture and there can be no peace.”⁷⁶

I was personally very inspired by her hopeful attitude and recognition of the generation of young feminists today, who work relentlessly towards protecting the planet, which is a crucial agenda in her view. It was also a pleasure to listen to her anecdotes on the work she shared with fellow activists in the 1970s, like Gloria Steinem;

I love Gloria, I consider her one of my mothers. Gloria is only five years older than me, but she was already on television and explained feminism with fun, with humor. And I think that's how things have to be explained, because then people remember it. (...) Humor, wit, insight, philosophy and a good giggle is all you need to explain humans anything.⁷⁷

Even after decades of dedicated work as an activist and spiritual leader, Zsuzsanna Budapest is still on the frontline; managing the Women's Spirituality Forum, a non-profit organization she launched, and working on a script for a TV show with the pursuit to break into Hollywood as a woman writer. With the warrior spirit she is fortunate to embody, I have no doubt in her ability to surprise us.

⁷⁶ Zsuzsanna Budapest, telephone conversation with author, November 2, 2020.

⁷⁷ Ibid.

2.9 Holda

The goddess Diana, like Artemis, was interchangeably identified with another divine figure of Germanic Paganism, best preserved in the local folklore as Holda (also known as Holle, Hulda, Holla): an ancient deity of death and regeneration. Their origin and transmutations have been subject to scholarly discourse ever since the first thorough examination conducted by Jacob Grimm.⁷⁸ Their earliest traceable mention is recorded in the *Passion of St Kilian*, dating back all the way to the 7th century. It recounts a story of a devoted community in the city of Würzburg, where apparently the people worshipped a deity named Diana so ardently that they refused to convert to Christianity.⁷⁹

Marija Gimbutas accounted Holda as a triple goddess (embodying the transformation between maiden, mother and crone) with the contrasting associations of the “Dark Grandmother” and “White Lady,” referred to their versatile nature, that sometimes comes across as a protective goddess, and at other times as punishing mistress. Unlike Artemis (also referred to as White Lady), Holda is usually personified as an elder woman who barely complies with the European beauty standards, representing their character of both a regenerative mother, but also a fearsome “death wilder.”⁸⁰ Wolfgang Golther's theories leaned more towards Holda's role as the “leader of a mass spirits,” while also being responsible for the group of *hulden*, who were speculatively denoted as a coven of sorceress followers.⁸¹

⁷⁸ Heath, “From Fairytale to Goddess: Frau Holle and the Scholars That Try to Reveal Her Origins,” 2.

⁷⁹ *Ibid.*, 7.

⁸⁰ Gimbutas, *The Living Goddesses*, 260.

⁸¹ Leek, “Holda: Between folklore and linguistics,” 8, 10.

Today, despite their dispersed narrative, Holda is still widely recognized from the fairy tale, *Frau Holle* (equivalent translations include *Old Mother Frost*, or *Mother Holle*, fig. 3), transcribed and popularized by the Brothers Grimm. I would like to put the emphasis on transcribe here, as Jacob and Wilhelm Grimm made no secret of the fact that their stories were composites of oral folktales that they gathered from external sources (mainly from women storytellers), like the one of *Frau Holle* which was told to them by Dortchen Wild.⁸²



Figure 3. *Mother Holle*. Pen and ink illustration by Jane E. Ward. 2015. Image from Jane E. Ward Art, courtesy of the artist.

⁸² Heath, "From Fairytale to Goddess: Frau Holle and the Scholars That Try to Reveal Her Origins," 3.

Without any intention to analyze the Grimms' fairy tale, I would still like to highlight a peculiar element from it, as it is the most concise and available lore involving this goddess. This element is the one of water, discretely interwoven across the story. There is a pond by the Hoher Meißner mountain region in Hesse that is dedicated to Holle, called Frau-Holle-Teich. According to a German legend, the women who bathe in its water will be blessed by good health and fertility.⁸³ In the fairytale, water is present as a medium for travelling between worlds. The two sisters, who are the main characters besides Holle, jump into a well through which they arrive at another magical realm where they stumble upon Holle's residence.

As Catherine Heath reminds us in the enlightening study, *From Fairytale To Goddess: Frau Holle And The Scholars That Try To Reveal Her Origins*, water is a historically renowned symbol for transformation (such as the beliefs pertaining to the Frau-Holle-Teich), as well as transportation (as burial of bodies in certain cultural traditions, and sites for divine offerings), both in the literal and figurative sense.⁸⁴ Its material consistency makes it an ideal agent for carrying and connecting, a feature that also benefits divine practices, “for the original utterance of seerdom is the language of water.”⁸⁵ When frozen, it enchants us with perfectly symmetrical crystalized patterns. In the Grimms' tale, this is illustrated by Frau Holle's charge over the snowfalls. When they shake their bedding well, with the feathers flying from the sheets, the Earth is conversely sprinkled with snowflakes. Documents from the 13th century lead to Holda's association with the sky, similarly to the common title of the Christian Mary, referred to as the “Queen of Heaven,”⁸⁶ whose dominion also resides in celestial dimensions.

⁸³ Leek, “Holda: Between folklore and linguistics,” 1.

⁸⁴ Heath, “From Fairytale to Goddess: Frau Holle and the Scholars That Try to Reveal Her Origins,” 12-13.

⁸⁵ Neumann, *The Great Mother: An Analysis of the Archetype*, 296.

⁸⁶ Leek, “Holda: Between folklore and linguistics,” 13; Heath, “From Fairytale to Goddess: Frau Holle and the Scholars That Try to Reveal Her Origins,” 11.

The conception of Holda's name is possibly the biggest mystery this deity possesses, although there are a couple of suggestions offered via academic investigations. As Thomas Leek concludes in his research, *Holda* most likely comes from the German *hold*, an adjective to describe someone as 'delicately beautiful' and 'kind.'⁸⁷ This explanation seems to match well the eternal grace that heathen goddesses, like Holda, are admired for, yet it also couples well with the story of the sweet (but principled) old lady that Frau Holle is portrayed as. The other potential root may be the verbs *helanan* or *verhehlen*, both of which mean 'to cover' or 'to conceal', but in all cases with a protective intent.⁸⁸ This option is also suitable, perhaps if aligned with Holda's dominion over the underworld and authority in mediating between the sacral and the secular.

2.10 Hold/Moon

As I have previously mentioned in section 2.4 Time, the Hungarian equivalent for the word 'moon' is *hold*, a discovery I could not resist scrutinizing further, due to its undeniable semblance to Holda's name. Unfortunately, I could barely find any detailed sources in English about the word's etymology. However, I got a number of verified leads upon consulting Tamás Farkas,⁸⁹ the Director of the Institute of Hungarian Linguistics and Finno-Ugric Studies, as well as a specialist from the Research Institute for Linguistics of the Hungarian Academy of Sciences. The older and more recent dictionaries I had access to, unanimously related the word's origin to the one for 'month', which is *hónap* (*monat* in German), and the

⁸⁷ Leek, "Holda: Between folklore and linguistics," 7.

⁸⁸ Leek, "Holda: Between folklore and linguistics," 7-8, 20.

⁸⁹ Tamás Farkas, email to author, October 14, 2020.

one for 'tomorrow', *holnap* (morgen in German), confirming the cultural significance of the Moon in temporality.

Hold is a derivative word of ancient Ural descent, coming from *hó* (the added letter 'd' at the end being a diminutive suffix), meaning 'snow'.⁹⁰ Akin to the German *Mond-monat*, *hold hónap* is a coherent term still in use today, indicating a 'lunar month'.⁹¹

Moreover, the Hungarian word *hódol*, meaning 'to worship' is another noteworthy phrase in this lingual junction, that is claimed to have been borrowed from the Middle High German *holden*, used to indicate the act of 'making someone into a willing servant'.⁹² Today this is expressed with the verb *huldigen*, meaning 'to subscribe to', that actually derives from the noun *hulde* (corresponding to Hulda), translating to 'benevolence' or 'obedience'.⁹³

These may be stereotypical traits of a nurturing, submissive mother figure, but Holda (or Hulda) is the personification of the Great Mother archetype,⁹⁴ which implies that their depiction is ought to be more composite. In connection to these distinct terms related to time, care, devotion, and most applicably, to the Moon (despite the lack of clear scholarly evidence to support them), I am curious to learn more in the following chapter about the intangible relationship between the maternal and the lunar through its imprints on our earthly cultures.

⁹⁰ Zaicz, *Etimológiai Szótár: Magyar szavak és toldalékok eredete*, 285-286.

⁹¹ Horger, *Magyar Szavak Története: Közérdekű Magyar Szófejtések Gyűjteménye*, 81.

⁹² Later adopted in English as *beholden*, meaning "to owe someone a duty in return for help or a service." (Lexico.com, "Beholden," accessed on November 1, 2021. [https://www.lexico.com/definition/beholden.](https://www.lexico.com/definition/beholden))

⁹³ Zaicz, *Etimológiai Szótár: Magyar szavak és toldalékok eredete*, 285.

⁹⁴ Neumann, *The Great Mother: An Analysis of the Archetype*, 228.

3. LUNAR FICTION

In the previous chapter I summoned the mythologies of some divine entities to learn about the ways they incarnate the aspects of the Moon. The veneration of these lunar goddesses has interestingly infiltrated into folklore, therefore, I would like to further examine how language and literary practices have been inspired by the Moon's light. The now popular genre of science fiction has its roots in fantastic lunar poesis, therefore, I will analyse a couple of examples that align with the feminine and occult interests of my research.



3.1 Dreaming poetry

As claimed in the previous chapter, I regard the art of writing as a ritual, and in the case of this thesis it is a practice that is also illuminated by the agency of the Moon. I was rather inspired by the Master's thesis presentation of a fellow colleague in the Visual Cultures, Curating and Contemporary Art (ViCCA) programme, Laura Leif, who shared a remark about intentionally creating together with the Sun, meaning within the hours of its presence, to then use that artwork (which in their case was most often musical) as an offering at the next encounter, the following day. Besides being touched by the poetic nature of this habit, I also recognized a similarity to my own manner of working that was unnoticed before.

My process of articulating ideas through the ritual of writing is regularly in tandem with the phases of the Moon and is most heightened at its daily reigning hours. I tend to think of it as a compass whose guiding role I honour, rather than treat as a tool. The Moon is hospitable to the various disciplines and approaches I seek to interconnect, while also facilitating a particular space in time in which I can articulate the contemplations I come to

realize. As I am enchanted by shifting phases of both inspiration and lunacy, my methodology may be best described as an embodied sense of artistic research.

And so, I see the Moon as a luminous jewel on the celestial nightgown, a kind of gem that inspires artists in their nocturnal labor, guided by their dreams and imagination. The contemporary author and poet, Yoko Tawada noted in her interview with Kasper Bech Dyg that most poetry is born from lunar visions, as it is a medium dominated by the night time, and therefore highly influenced by the presence of the Moon on the sky.¹ The significance she ascribed to the Moon in regards to the poetic practice made me realize the prevalence this concept has in European folk traditions, followed by a rising curiosity to find out where this comes from and what kind of reality it may be based on.

Many of Earth's living beings experience the biological mechanism of rest and replenishment during the night time. In humans this translates into the act of sleeping, often complimented by the occurrence of dreams. If dreams are understood as a series of visions surfacing from the subconscious mind, then according to the classical scholar and philosopher George Thomson, the resemblance they have to the poetic expression might be more evident.²

Dreams and poetry may be paralleled, both seen as manifestations of the subconscious, which is the psychic domain governed by the Moon. Visions, dreams, poesis,³ inspiration, and fantasy are all attributed to irrational, perhaps even spiritual states. When these are being articulated in a coherent form, the result may be considered as a literary piece and appreciated for its artistic value, yet when its language is incomprehensible, it is declared delirious, or pathologised as insanity. But in the early stages of human evolution these lines

¹ Yoko Tawada, "Yoko Tawada: On the Moon," interview by Kasper Bech Dyg, *Louisiana Channel* (Vimeo Video), 06:41-07:30.

² Thomson, *Studies in Ancient Greek Society*, 455.

³ Meaning, "The process of making; production, creation; creativity, culture." (Lexico.com, "Poesis.")

were far more blurred than in the dichotomous tendencies of succeeding civilizations. A concrete example of this is the synonymous nature of inspiration and possession (by spirit), which beyond its semantic connection is also confirmed by the etymological root of the former.

Inspiration translates from Latin as 'inhaling' or 'being animated'.⁴ This sort of breathing in excitement was associated with a divine influence, and therefore related to the source of the word, *spirit*. As Thomson notes in his book, *Studies in Ancient Greek Society*, prophecy was a medium through which almighty forces or spirits communicated to the mortals (whose earliest traces lead us back to what he calls “primitive people.”)⁵ The prophet's subconscious was regarded to govern these states to such an extent that fantasy and hallucination blended into utterances that could have been regarded as poetry. For this reason that prophecy and poetry were recognized interchangeably, the emergence of literacy from ritual can be determined.⁶

3.2 The language of magic

In his study, Thomson describes how language developed between individuals as a device to accompany the use of tools, later forming into a system of communication, both for

⁴ Etymonline.com, “Inspiration.”

⁵ I decided to directly quote this terminology to express my deep resentment towards the supremacist mentality that downgrades past or indigenous civilizations and knowledges by condemning them with words as: primitive, brute, savage, etc. Unfortunately, Thomson also replicated this, as demonstrated by the following quote from his book; “Modern capitalist civilisation has grown out of the pre-historic cultures of Europe and the Near East, which developed with exceptional rapidity. In contrast to these, the primitive cultures still surviving in other parts of the worlds are products of retarded or arrested development.” (Thomson, *Studies in Ancient Greek Society*, 35.)

⁶ *Ibid.*, 463.

practical reasons (colloquial speech), and magical ones (poetical speech).⁷ But what is magic really? According to Thomson's analysis, it is based on the means to control nature; to observe how events occur through natural laws and then learn to make those happen by will. The purpose of magic is to master, rather than blindly obey the cosmic forces.⁸

“Collective acts of ritual” would either serve spiritual purposes, or support the maintenance of the community, however, in both cases they were rather laborious. Spoken words derived from the incantations that accompanied spiritual rites, while labor songs developed from the practical objective to stimulate production, as Karl Bücher examined extensively in *Labor and Rhythm*.⁹ However, our language patterns have also been impacted by the reciprocal formulation of activity (or work/labor) and speech, which might be akin to the musical connection between tempo and tone.

Poetry, as Thomson concludes, stems from magic.¹⁰ Magic rituals and poetry are both based on rhythmic structures that fluctuate between monotony and ruptures. The quasi hypnotic state that such evocations can bring upon, when exercised in a certain intensity, is what might be called a “prophetic trance.”¹¹

3.3 Lunacy

Similarly, the cyclicity of the lunar phases also vary between extremes, while their disturbances on the psyche may result in a delirium labeled as lunacy. According to the arguments of M. Esther Harding, early civilizations believed the striking of such madness to

⁷ Thomson, *Studies in Ancient Greek Society*, 439.

⁸ *Ibid.*, 438.

⁹ Bücher, *Arbeit und Rhythmus*, 63-243.

¹⁰ Thomson, *Studies in Ancient Greek Society*, 443.

¹¹ *Ibid.*, 460-61.

be a countereffect to the blessing of visions by Moon goddesses, like the Greek Hecate.¹² Nonetheless, it must be a great challenge to distinguish creative inspiration from insanity during ecstatic states, as it is a terrain where the objective world is bent by subjective perceptions of reality. The complexity of such a diagnosis is further illustrated in contemporary psychopathology, where the effects of the lunar phenonema on human psychology and physiology are referred to as “the Transylvanian Effect.”¹³

In spite of its special terminology, no academic research has so far been able to verify the credibility of what we account as lunacy. Yet, according to the MSc thesis of Monica Diane Angus from British Columbia, many of the local healthcare workers she interviewed seemed to hold a strong belief in the cause-effect of lunar cycles and mental disturbances.¹⁴ The conclusion in Angus' report is reinforced by other similar studies gathered in an article that was published in the German Journal of Psychiatry, entitled *Madness and the Moon: The Lunar Cycle and Psychopathology* (Owens and McGowan, 2006).

In antiquity, however, psychology was not yet an envisioned discipline, so the processes of the mental faculty were attributed to the spiritual realm. In most ancient cultures, as Harding notes, the Moon was the cosmic force related to the underworld, therefore, the appearance of psychic visions or trance-like states were thought to be the spells of Moon Goddesses. Lunar deities were incarnations of the Moon's character traits, and as such, the governance of magic and destruction was believed to be in their nature. As opposed to the all-embracing almighty god image, the Moon Mother was literally thought to be the source of all earthly life, but also the responsible one for its elimination. I have described in the previous

¹² Harding, *Woman's Mysteries Ancient and Modern*, 209.

¹³ Mason, “Seclusion and lunar cycles,” 14-18.

¹⁴ Angus, “The Rejection of Two Explanations of Belief in a Lunar Influence on Behavior,” 42.

chapter how multiplicity is a key aspect of lunar divinities, but I would like to further untangle the Moon's portrayal as the Great Mother (also referred to as *Magna Mater* in Latin.)¹⁵

3.4 Moon Mother

To begin, it is important to clarify that the Great Mothers have always been personified as virgin deities across human communities, like Artemis in Greek society, or Mary in the Christian tradition. Contrary to common belief, chastity in their example does not necessarily mean physical abstinence from sexual engagement, but rather an independence that entails the possession of their own being, as M. Esther Harding has so eloquently put it, to be “one-in-herself.”¹⁶ They are free to share their bodies and their lives with whomever they choose, outside the bounds of standard relationship structures. This can manifest in their decision to remain unmarried, which is often the case with Moon goddesses, or to be child-free, which is what Artemis preferred.¹⁷ After all, these goddesses are not exactly human, so their fertility and maternity is not determined by childbearing.

In her book, *Woman's Mysteries Ancient and Modern*, Harding states that Moon deities, especially from Western Asia and Europe were known to give birth to all living beings, which explains their usual depiction with animals and plants, either as their companions or body parts. Apart from mothering the flora and fauna of this world, their fertility also manifested in the waters of our planet. In the previous chapter I have already mentioned the symbolism of the element of water that the Moon was believed to be the guardian of. In this section, however, I would like to reiterate its connection to the dualistic

¹⁵ Harding, *Woman's Mysteries Ancient and Modern*, 72.

¹⁶ *Ibid.*, 82.

¹⁷ *Ibid.*, 76., 80.

nature of the Moon's character; the nurturing aspect of the calm water surfaces that is also balanced by the fury of the storms that reside on them occasionally. The changes these phenomena resemble are like the inner complexity of the feminine, which carries both the creative and the destructive potentials in its fluid qualities.

The ancient Moon Mother was responsible for the cyclicity of life and death and as part of this role she was believed to carry the souls of the dead over the seas. In Hindu¹⁸ mythology the moon boat was a symbolic vehicle for this, which Harding argues to be analogous to the biblical Noah's arc. I was intrigued by her proposal that the figure of Noah may have been inspired by Nuah, a Babylonian Moon goddess.

Harding validates this suggestion by pointing to the linguistic relation between the Hindi word *argha* and the Old English ark, which derives from 'arc,' meaning a 'crescent'.¹⁹

I would like to compliment this fascinating hypothesis with the convictions of Lucius Mestrius Plutarchus (most commonly known as Plutarch) which he specified in his work, *Concerning the Face Which Appears in the Orb of the Moon*. In one of the dialogues, a figure called Sulla recounts the wisdom he was told about the real constitution of people. He explains that humanbeings are composed of three parts: a body that originates from the Earth, a mind that was given by the Sun, and a soul derived from the Moon.

When a person dies, the first factor that is taken away from these pieces is the body that deteriorates in the earth. The lunar deity (whom Plutarch associates with Artemis, due to their supportive nature) then gently detaches the soul from the mind, which is returned to the solar terrains, and then sets the former free to wander between the Earth and the Moon.

¹⁸ I must note here that Harding used the archaic spelling, 'Hindoo' throughout the whole book, which as I have learned from my supervisor, is a derogatory form of referring to (Wikipedia 2021)the Hindu religion and culture, as well the Hindi language. (Wikipedia, "Hindoo (disambiguation).")

¹⁹ Harding, *Woman's Mysteries Ancient and Modern*, 95.

This stage is significant because it is when spirits are cleansed from all the toxicities contracted from their earthly bodies before returning to their motherland, the Moon.

Sulla describes a rather utopian lunar existence where souls partake in mystic rituals and work to prevent harmful deeds. They are only "sentenced" to reincarnate in an earthly body if their intentions are corrupted by even the slightest means of maliciousness. When such punishment is cast upon someone, the essence of their soul still remains on the Moon, but reminds the earthling occasionally of their true, immaculate nature through dreams and memories.²⁰

3.5 *The Moonlanders*

— *The Moonlanders* is the shortened title of the two-canto epic poem by Melesina Chenevix Trench from 1816. The poem tells the story of a young woman, named Laura, who in her ill state has a delirious dream in which she travels to the Moon. After waking from her sleep, she narrates the recollections to her mother, who receives the story very sceptically.

On the utopian lands of the Moon, Laura met a fantastic civilization, whose members are like angelic beings. They possess powers through which they can telepathically communicate with the abundant flora and fauna, and they only express joyous and loving feelings. Laura falls in love with Aurelio, one of the lunar males, but then finds out that he already has a predetermined mate. Laura cannot escape the jealousy that arises in her when she witnesses the ideal connection of the two Moonlanders, resulting in her expulsion from the Eden-like planet. —

A dear friend and inspiring colleague, Emma Clear, has asked in a recent conversation where the desire to travel to the Moon stems from in human culture? This apt inquiry made me think of the array of sources I examine in this thesis, but left me still without the ability to identify an exact origin. Having said that, there is a specific category in literature under the

²⁰ Plutarch, "Concerning the Face Which Appears in the Orb of the Moon," 215.

name of the “imaginary voyage,” that could serve as potential lead to determine the root of our longing to explore outer space. The core of this extensive genre, as its name indicates, was the romantic journeys it depicted to real or fantastic destinations, with the earliest example tracing back to the beginning of 17th century.²¹ Although not all of its creators portrayed extraterrestrial expeditions, some texts can retrospectively be labelled as science-fiction.

I previously stumbled upon an article in the journal of *Science Fiction Studies* by Katharine Kittredge, in which she revived an early piece of the “lunar voyage” tradition (a subgenre within the imaginary voyage), a poem by Melesina Chenevix Trench entitled *Laura's Dream; or, The Moonlanders*, published in 1816.

Trench's work was actually the first one within this subgenre that was released under the authorship of a woman, excavating an entry space for the few succeeding pioneers. It was still omitted from the mainstream canon possibly for its unconventional style, as it was written in the form of an epic poem with a dialect most appropriate to the period, thus, perhaps less accessible for readers of the following centuries.²²

The story revolves around a young woman, Laura, who recounts her fever dream to her mother, in which she found herself on the Moon in a paradise-like environment, among a civilization of angelic beings. Interestingly, certain elements that Laura recalls from the conditions of lunar life are in exact accordance with Plutarch's ideas presented earlier. These include, amongst others, the harmonious atmosphere of everyday life and the purity of the lunar beings she witnesses, but also the unfortunate ending to her extraterrestrial journey due to a feeling of jealousy that came upon her and which caused her expulsion from this utopian

²¹ Moors, “Imaginary Voyages,” 9.

²² Kittredge, “Wingless Women Living Backwards on the Moon: Melesina Trench's "The Moonlanders",”19.

environment. Even though it is uncertain whether Trench was familiar with Plutarch's *Moralia*, she was most certainly educated in astronomy and knew of the acclaimed thinkers of the time, like Johannes Kepler.

3.6 *The Dream*

— *The Dream*, originally known as *Somnium* in Latin, was the last book published from Johannes Kepler in 1634. It is a fictional tale that the author recounts as a dream he had about a young man named Duracotus, who is sailed off to Northern Europe by his Mother, as punishment for a misdeed. After arriving to Denmark, he starts studying astronomy in the class of renowned scientist, Tycho Brahe. Once he returns to his homecountry of Iceland, he reunites with his Mother, Fiolxhide, and tells her about his scientific endeavours. Fiolxhide, who is a gifted herbalist and sorceress, decides to share some of her wisdom of the occult arts with her son, after learning about his interest in the cosmic realms. Through a ritual she evokes a spirit named the Deamon from Levania, who helps them to travel to the Moon. When they arrive, the author presents us an unexpected lunar ecology that is nothing like Trench's romantic paradise.

Through a detailed scientific description (with page-long footnotes), Doracotus describes the extreme climate of the lunar environment, according to which an ecology of strange nomadic creatures have evolved. The scientific speculations that frame *The Dream* are mostly about the sensorial experiences of enduring Moon as a human, who by nature is physically unfit for its conditions. The astronomical fractions are based on Kepler's sound observations, while the social and spiritual insights are informed by some autobiographical elements from the author's own life. —

Kittredge examines *The Moonlanders* alongside Kepler's controversial dissertation from the 17th century, entitled *Somnium* (which is translated to English as 'The Dream,')²³ due to some conspicuous parallels between the two literary works. In Kepler's case it has been confirmed that he was indeed inspired by Plutarch's previously cited work, echoed in the

²³ Kittredge, "Wingless Women Living Backwards on the Moon: Melesina Trench's "The Moonlanders"," 21.

naming of his main character, Duracotus, a Greek mythological figure also mentioned by Plutarch.

I have no intention to reiterate the comparative analysis that Kittredge has already laid out in her article, however, I would like to ponder two elements from it whose inclusion in the discourse of this thesis I find beneficial. The first and most evidential one that both texts indicate through their titles is their setting within the leading figure's dream. In both cases, the choice to center the plots in the frame of a fantastic vision carries a socio-political importance.

In Kepler's reality the only way to publish some of the radical ideas proposed in his lunar journey without having to fear legal prosecution was by dressing his scientific observations and occult interests in the guise of a fictional narrative.

Likewise, for Trench it was much easier to conceal her critique on beauty standards and social expectations towards women by carefully weaving it into an interspecies love story set in an idealized version of earthly existence. When her leading figure, Laura, bears witness to the birth of her beloved Moonlanders' spirit mate, she is puzzled by the deformed crone who emerges from the ground; “Caducity and dire decay, / Seemed to have marked her for their prey; / She, — with sunk eye and panting breath / Appeared to wait the stroke of death.”²⁴

Besides, because the reality of travelling to the Moon was still inconceivable at the time when it was speculated in Kepler's *The Dream* (as I will continue referring to it for consistency in language), the prospect of such an experience was only attainable through the world of dreams.

Kepler's main character, Duracotus, as well as Trench's Laura both fell into their unconscious states involuntarily, thereby the dream might have been employed as a tool, but

²⁴ Trench, “Laura's Dream; or, The Moonlanders,” st. 66.

also an alibi under which the imagination could be freely explored. Dreaming, if considered incremental to the basic need of sleep, granted the subconscious with expressing unorthodox imagery under justified circumstances, a privilege that the mediums of poetry or prophecy were unlikely to have.

3.7 Wise women

The other detail that captured my attention, underlined not only by Kittredge, but by Gale E. Christianson too,²⁵ is the character of the mother, especially in *The Dream*. The mothers in both stories are the secondary characters, who either receive the recollections of the imagined lunar journey or, in the case of Kepler's narrator, facilitate said journey.

In *The Moonlanders* there is barely anything disclosed about Laura's Mother, so the reader is ought to formulate their impression of her through her responses to Laura's experience.²⁶ Her comments in their dialogue are brief and often sceptical (trying to hush Laura and encourage her to forget such illusions), yet in a brief remark she reveals some fundamental wisdom: "...The form we love has angel wings, / And love can see a Seraph's grace, / Though crime and passion stamp the face."²⁷ Overall, she is a personification of the nurturing mother archetype, who is a caring listener, and a vigilant protector to their offspring. The reader's perception of the Mother character and her relationship with Laura might transmute in the light of the author's own experience of childbearing.

²⁵ Christianson, "Kepler's Somnium: Science Fiction and the Renaissance Scientist," para. 16.

²⁶ Kittredge, "Wingless Women Living Backwards on the Moon: Melesina Trench's "The Moonlanders"," 21-22.

²⁷ Trench, "Laura's Dream; or, The Moonlanders," st. 11.

Melesina Trench suffered the loss of her parents at a very young age, and as an adult she also had to mourn three of her children, a misfortune that according to Kittredge, had left her immersed in depression. These personal accounts have possibly played a role in Trench's creative decisions when conceiving her Moonlanders. These humanlike beings live in perfect harmony with the lunar ecosystem, whose mechanisms they are able to influence with mere thoughts. But the way they procreate is even more compelling, as it is not anything like our Earthly way of reproduction.

Trench invented an alternative mode of existence by reversing the course of life and seemingly absolving the Moonlanders from the prospect of death. In her dream, Laura witnesses the welcoming of two Moonlanders to the community, as they emerge to life from the depths of the lunar land in the frailty of old age. In just the matter of days they rejuvenate to mature adults and acquire their full strength. Due to the lack of gestation and childbearing, there is no trace of ancestry, nor a need for parenting, as they do not experience infancy at all.

The lunar society fosters each Moonlander together, framed by a concept of collective care that could potentially be a beneficial idea for terrestrial communities too.

Although Trench erased the need for biological sexes, her Moonlanders still abide by binary gender identities. Laura recalls the gruesome details of a woman's birth in the poem, who, as mentioned earlier, is also her romantic "rival": "The crumbling clay —I saw it heave, / Saw the wan form her precincts leave; / An aged sorceress thus might crawl / To prophecy a nation's fall."²⁸ Trench here paints a noteworthy image of a hag animated by the Earth who possesses qualities of a prophetess. Perhaps the last line is also an expression of the author's belief of the significance of the feminine gender and the decisive role that the people who identify with it carry with them.

²⁸ Trench, "Laura's Dream; or, The Moonlanders," st. 65.

The figure of a sorceress also manifests in Kepler's narrative, namely in the character of Fiolxhide, the Mother of Duracotus. She is a herbalist by profession, who, according to the story set in Iceland, gathered her ingredients from the lands alongside the volcano named Hekla, which has a peculiar recognition. Different myths since the 12th century have denoted this existing landmark as a gateway to otherworlds (activated by volcanic eruptions), where witches were said to gather during Easter.²⁹ Fiolxhide is also described to be in possession of occult gifts, which her son, the narrator, reveals in the beginning of the text by admitting that he can only disclose the following information due to his Mother's passing:

Because of the recent death of my mother, Fiolxhilde, I am free to write of something which I have long wanted to write about. While she lived she earnestly entreated me to remain silent. She used to say that there are many wicked folk who despise the arts and interpret maliciously everything their own dull minds cannot grasp.³⁰

The arts that Fiolxhide mentions in her prohibition is the spiritual practice that has given her access to travel to the Moon, and whose knowledge she passes on to her son. She admits to have been undertaking said journey many times by the power of a spirit, which is referred to in the text as the "Daemon from Levania."

Lavana is the fictional name of the Moon in the story, while the Earth, interestingly, is called Volva. *Volva* in the botanical science is the cup-shaped base of certain mushrooms, while as a Latin verb it means to 'wrap around.'³¹ Perhaps Kepler was imagining our planet as a vessel that holds the life it births. However, the Old Norse *völva*, or *vǫlva* in Icelandic also

²⁹ The Somnium Project, "Hekla, Witchcraft and Katharina Kepler."

³⁰ Lear & Kirkwood, *Kepler's Dream*, 89.

³¹ According to the Oxford English Dictionary Online, the word originates from "Mid 18th century modern Latin, from the Latin *volvare* 'to roll, wrap round'." (Lexico.com, "Volva.")

denotes a female prophetess or shaman,³² which I translate as a nod to the feminine mystical terrains that the Mother figure embodies.

This Mother, unlike the one in *The Moonlanders* is firm and punitive as she gives her son away to seamen after Duracotus naughtily wasted the herbs she prepared for sale. The ship he boards sails to Denmark where he starts studying astronomy with Tycho Brahe, a highly acclaimed astronomer of the time, whom Kepler actually worked for as an assistant.

While being away, Duracotus often recalls traits or habits of Fiolxhide, like how she used to talk to the Moon, which is something he remembers while observing celestial phenomena with his classmates. When he returns, his Mother decides to initiate him into her secret knowledge. Fiolxhide gives a detailed explanation of how she summons the wise spirit who enables her to travel to the Moon. She then goes on to perform the ritual required for the journey, in the approved presence of Duracotus:

...and there are present among us very wise spirits who, finding the noise of the multitude and the excessive light of other regions irksome, seek the solace of our shadows and communicate with us as friends. Nine of these spirits³³ are especially worthy of note. One, particularly friendly to me, most gentle and purest of all, is called forth by twenty-one characters.

With his help I am transported in a moment of time to any foreign shore I choose, or, if the distance is too great for me, I learn as much by asking him as I would by going there myself. Most of what you have seen, or learned from conversations, or drawn from books, he has already reported to me, just as you have. I should like you to go with me now to a region he has talked about many times, for what he has told me is indeed marvelous. She called it Levania.³⁴

³² WordSense.eu, “Vqlva.”

³³ Kepler's footnote for this line goes as follow, “These spirits are the sciences, which reveal the causes of things. This allegory was suggested to me by the Greek word *daimon*, which is derived from *daiein*, that is, “to know,” as if it were *daëmon*.” (Lear & Kirkwood, *Kepler's Dream*, 97.)

³⁴ Lear & Kirkwood, *Kepler's Dream*, 97-99.

There is no doubt that Fiolxhide portrays the figure of a wise woman, or a witch, but the question is why would Kepler be inspired to write about such mystic accounts and where would he have the insights for it. Part of the answer to this hypothetical question may lay in the opening scene of the *The Dream*, in which Duracotus admits that his Mother has forbidden him from revealing the knowledge about the spiritual journey they shared, because she feared that it would be misunderstood. Fiolxhide's wariness is not unjustified, especially when considering the era that Kepler conceived the story in, which was right in the middle of the early witch-hunts.³⁵

The truth of the matter is that the author's own Mother, Katharina Kepler was accused of witchcraft and arrested in 1615, while her aunt who raised her was allegedly burned at the stake for the same account.³⁶

“Witchcraft was used to explain misfortunes and the shattering experience of *malum*, of something grave, disorientating, and out of the ordinary happening in a person's life.”³⁷

Even though Katharina was freed from her charges after years of legal battling, her death not long after was still attributed to the trauma she experienced, which also deferred the publication of *The Dream*.³⁸ Many scholars who studied Johannes' work, including Gale E. Christianson affirmed that the motherline in *The Dream* was an adaptation of Kepler's personal story with his Mother.

The Dream later became regarded as the pioneering piece of science-fiction, which shows how the hardship that Katharina Kepler (and many others in the near centuries) had to endure for the knowledge she might or might not had access to, at least influenced her son's

³⁵ Rublack, *The Astronomer and the Witch: Johannes Kepler's Fight for his Mother*. 3-5.

³⁶ The validity of this information is questionable according to; “We only have records for three witchcraft executions in Weil before 1616, and there is no evidence that one of these women in 1559 or 1595 might have been related to Katharina.” (Ibid., 298.)

³⁷ Ibid., 79.

³⁸ Ibid., 269.

literary work in a fruitful way.³⁹ Unfortunately, the patriarchal social order seldom welcomed the wise women amongst its ranks, yet still benefitted greatly from their precious knowledge, as in the case of Johannes Kepler.

In spite of past and present intentions for eradicating othered mothers off the Earth, the Moon bears its virtue by becoming a Mother for said others, because all living and non-living beings are constitute(d) from the same energy and matter as our planet and its moon. Seeing through this lens might give a clearer view of the inherent connection that the Great Mother archetype (in the science of psychology) or spirit (in the art of mythology) has with the lunar domain. And if I invite back the idea of culture as an ecology of consciousness, which is not solely exclusive to the human species, then tapping into the ecology of feminine spirituality with liberty and care might be another mode **to culture** our potentials, as well as our connection to the core of existence.

³⁹ Christianson, "Kepler's Somnium: Science Fiction and the Renaissance Scientist," para. 44.

4. WOMEN ON THE MOON

By way of literary visions and magical words, we may find ourselves on the Moon. Or, at least, that is the hope of some powerful humans, whose methods rely on scientific and engineering technologies instead. In the following chapter I would like to introduce the plans for a coming lunar expedition program, and the international legal framework that supports it. As we shall see, space exploration is currently more fueled by interplanetary colonial pursuits, than scientific curiosity, which is why its ethical and ecological considerations deserve more scrutiny.



4.1 NASA's Artemis

The main catalyst for the topic of this thesis stems from the 50th anniversary of the historic lunar landing celebrated in 2019. As anticipated, one of the main subjects of cultural and scientific discourse that year was the commemoration of this evolutionary landmark. I fully acknowledge the significance of this event, however, I remain uncertain regarding the values of its impact. That is why I decided to examine the subject of space exploration from a critical perspective through NASA's next crewed lunar landing program, Artemis.

Although the American interplanetary explorations have always been marketed to glorify the human race as a whole (besides the infinite insertion of the star-sprangled banner in their publicity), I am still wondering how much of that can actually be called "ours". The Earthly legacy of territorial discoveries has already left very deep scars in the land and the beings who suffered under colonialism, as well as in those who still live through its violent consequences. So, if we consider the ethnic and economic backgrounds, as well as the gender

identities of the few privileged who get to go to be involved in space programs and represent humankind, perhaps it is not irrational to ask the question: Have we healed and learned sufficiently from past collective traumas to avoid re-enacting them all over again in another cosmic space?

I know that my worries are shared by many others, like Nelly Ben Hayoun-Stépanian, Vice-Chair of The Committee for the Cultural Utilisation of Space, who on an episode of the *Woman's Hour* podcast of the BBC expressed her concerns of romanticizing a military administration's agenda.¹ But let us not assume any oppressive or greedy objectives without taking a closer look at the available statements, reports and speculative studies on the subject.

Artemis is the name of the next lunar program of NASA, operated together with several international collaborators. Its mission is to land the next team of astronauts, including the first woman on the Moon by 2024. Before that, it will launch two preparatory space flights, the first of which will be uncrewed and is planned to depart in 2021, with instrumental payloads that will deliver technical devices and research equipment provided by the carefully selected commercial partners.²

The program's chief flight director is Holly Ridings, the first woman in this position at NASA, who was also interviewed by Jane Garvey from the BBC about her leadership ambitions and the diversity that the program's campaign aims to implement. In alignment with the well-coordinated public relations formulas, Ridings insisted that human spaceflight is a

¹ Nelly Ben Hayoun-Stépanian, "Women and Space: Nasa's Holly Ridings, the psychology of space travel, Rocket Women and the cultural significance of space," interview by Jane Garvey, *Woman's Hour* (podcast), 39:40-41:55.

² National Aeronautics and Space Administration, "Firs Commercial Moon Delivery Assignments to Advance Artemis."

global triumph and that Artemis will set a positive example for future generations by taking the first woman to the Moon.³

This ambition has not only become the socially charged slogan of the program, but the whole identity of it. The campaign centers around its pursuit for gender equality in spaceflight, with concrete plans to explore unknown areas of the Moon, and extending our reach to Mars in the future. NASA even provided detailed explanation of the mission patch's design on their website, describing the colours and nuanced symbols of the chosen typography (fig. 4).

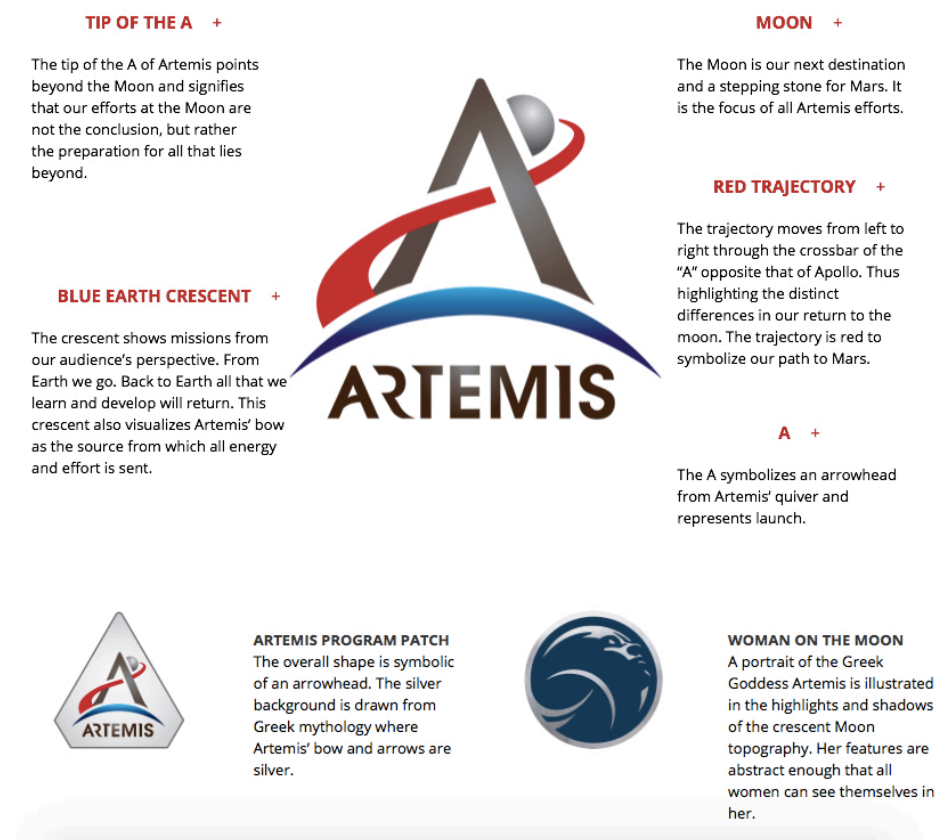


Figure 4. Analysis of the Artemis program patch. Screenshot taken by the author from the NASA Artemis site on January 1, 2021. Image courtesy of the National Aeronautics and Space Administration.

³ Holly Ridings, "Women and Space: Nasa's Holly Ridings, the psychology of space travel, Rocket Women and the cultural significance of space," interview by Jane Garvey, *Woman's Hour* (podcast), 00:55-17:45.

Nothing short of the expected, the Artemis identity tries to be contemporary (in alignment with past traditions), relatable and inspiring. Whether or not it is a successful public relations⁴ hack is upon subjective reception. However, the means through which this was done I see rather questionable, because Artemis was in fact a worshipped goddess in Ancient Greece, therefore the use of their image for a marketing campaign I argue to be quite problematic. As I have intended to summon some of the complexities that Artemis as a mythological figure carries, I would also like to draw attention to the simplified and polished version of this legacy that the administration has repackaged, in order to gain sufficient public and corporate support, as NASA still chiefly operates on American taxpayers money.⁵

There are a number of hints that repeatedly position the Artemis mission in relation to its precedent, the Apollo program. In his foreword of the Lunar Exploration Program Overview, NASA's Administrator, Jim Bridenstine starts describing the eponym of the next lunar program by referring to them as the “twin sister of Apollo.”⁶

Sara Ahmed denotes this common practice of citing women figures only in relation to their men relatives, as a way of sexism.⁷ However, this is not the only gesture that makes the public know that the Artemis program, and the planet it is intended to approach is subordinate to the larger NASA agenda. As indicated by the top part of the logo, the little Moon symbol is only peaking from the side by tip of the 'A', illustrating what Bridenstine declares about using

⁴ Understood as David Meerman Scott and Richard Jurek described the term, as a “process (an aspect of marketing, in fact) by which a company or an institution tries to encourage broad, public understanding and acceptance of an idea, product, or service.” (Scott & Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, ix.)

⁵ The Planetary Society, “Your Guide to NASA's Budget.”

⁶ National Aeronautics and Space Administration, “Artemis Plan: NASA’s Lunar Exploration Program Overview,” 8.

⁷ Ahmed, *Living a Feminist Life*, 150.

the Moon “as the stepping stone for our next greatest leap”, which is no other than the colonisation of Mars.⁸

The divine character of Artemis as an archer and torchbearer seems to have inspired the metaphorically bridging role of the mission. However, the underlying pressure becomes apparent in the successes that the program is expected to accomplish in order to pave the way (or mine the grounds of the Moon) to something "deeper"; the establishment of human presence in deep space.⁹

4.2 Interplanetary colonies

The question is, why return to the Moon almost half a century after the first humans set their feet on it? (fig. 5) Many have been contemplating the reasons behind the sudden plans to rush back into space.

One of the key arguments, as Michael Najjar reveals in *Plantary Echoes: Exploring the Implications of Human Settlement in Outer Space*, is climate change. The Intergovernmental Panel on Climate Change (IPCC) expects the global temperature to increase by an average of 4.5 degrees Celsius within the next eighty years, which is way over the currently experienced 1.5 degrees Celsius that the Paris Agreement was avoiding to exceed.¹⁰ The warming of our biosphere endangers several systems of organic life, including our own. M.B. Dastagiri remarks, that because humankind is bound thus far only to one planet, climate change (or any natural disaster deriving from it), can actually put our whole species on the brink of extinction.¹¹

⁸ National Aeronautics and Space Administration, “Artemis Plan: NASA’s Lunar Exploration Program Overview,” 8.

⁹ National Aeronautics and Space Administration, “Artemis Plan: NASA’s Lunar Exploration Program Overview,” 12.

¹⁰ Allen et al., “Framing and Context,” 51-52.

¹¹ M.B., “The Theory and Economics of MARS and MOON Colonization: Steps and Policy Advocacy,” 240.

National Aeronautics and Space Administration 

WHY THE MOON?

THE DAWN OF THE TRUE SPACE AGE LIES AHEAD OF US.

In the not-too-distant future, people around the world will be able to look through a telescope and see evidence of human and robotic exploration on the moon. In 2004, President Bush directed NASA to send humans back to the lunar surface – this time to stay – and to get ready for a journey to Mars. Since then, we've determined what transportation we'll need, set goals for our activities, identified real benefits of exploring the moon, and even started building the spacecraft to get us there. We'll spend 2007 maturing our ideas on the equipment that future lunar explorers will need to accomplish these exciting plans.

WHATEVER WE DO, IT WILL BE FOR THE BENEFIT OF ALL MANKIND.





Human Civilization
Extend human presence to the moon to enable eventual settlement.



Global Partnerships
Provide a challenging, shared and peaceful activity that unites nations in pursuit of common objectives.



Scientific Knowledge
Pursue scientific activities that address our fundamental questions about the history of Earth, the solar system and the universe -- and about our place in them.



Economic Expansion
Expand Earth's economic sphere and conduct lunar activities with benefits to life on the home planet.



Exploration Preparation
Test technologies, systems, flight operations and exploration techniques to reduce the risks and increase the productivity of future missions to Mars and beyond.



Public Engagement
Use a vibrant space exploration program to engage the public, encourage students and help develop the high-tech workforce that will be required to address the challenges of tomorrow.

BECAUSE HUMANS EXPLORE

"The earth is the cradle of mind, but one cannot forever live in a cradle."

– Konstantin Tsiolkovsky, 1896



www.nasa.gov

Figure 5. A poster illustrating the Global Exploration Strategy of NASA, listing the benefits of continuing lunar exploration. *Why the Moon?*. Poster by the National Aeronautics and Space Administration. Image from the Beyond Earth webpage of NASA.

NASA has taken note of this by setting up a dedicated 'Global Climate Change'¹² site, and started planning accordingly with its corporate partners, who mainly include aerospace and defense contractors.¹³ The Artemis Plan specifically underlines this in the first chapter by stating that, “America will lead the monumental shift that frees humanity from our innate bonds to Earth. This is the decade in which the Artemis Generation will teach us how to live on other worlds.”¹⁴

Former president of the United States, Donald Trump also called on the administration in 2019 to return humans to the Moon within the next five years.¹⁵ His challenging request was opposed by several experts on the grounds that a hasty space expedition can have fatal consequences, as was the case with the Space Shuttle Challenger disaster in 1986.¹⁶ At the same time, history seems to have repeated itself, as the incentive for the Apollo 11 mission was also coming from the president of the time, John F. Kennedy, who in 1961 "commanded" NASA to land the first Americans on the Moon by the end of the decade.¹⁷

Today, the primary goal of the administration is to return to the Moon and develop permanent settlement there sustainably.¹⁸ Whether a sustainable lunar habitation can be possible will soon unravel in the process, however, the scientific development of past decades

¹² Global Climate Change: Vital Signs of the Planet, “The Effects of Climate Change.”

¹³ Scott & Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, 35.

¹⁴ National Aeronautics and Space Administration, “Artemis Plan: NASA’s Lunar Exploration Program Overview,” 11.

¹⁵ *Ibid.*, 9.

¹⁶ Holly Ridings, “Women and Space: Nasa's Holly Ridings, the psychology of space travel, Rocket Women and the cultural significance of space,” interview by Jane Garvey, *Woman's Hour* (podcast), 14:18 - 14:43.

¹⁷ Garber, “The Decision to Go to the Moon: President John F. Kennedy's May 25, 1961 Speech before a Joint Session of Congress.”

¹⁸ National Aeronautics and Space Administration, “Artemis Plan: NASA’s Lunar Exploration Program Overview,” 9.

seems to support its likelihood. Dastagiri also attributes the present surge of lunar and martial expedition plans to the recent advancements in space and rocket science.¹⁹

Despite national competition and hopes to escape global warming, most attribute the booming interest in lunar expeditions to the economic and technological prospects of an interplanetary colony. These rather promising factors have awoken several private projects that are either collaborating with governmental space programs, like the American SpaceX, or decided to take their business into their own hands and tender independent missions, as the Japanese iSpace. The number of publicly available governmental and corporate space plans are so many that this thesis has little capacity to list them all, nevertheless their core objectives for the next decade or so are quite analogous.

It is clear that the Moon will be used for resource extraction with industrial settlements, as well as a "gateway" to deeper space, while the truly desired destination for the first extraterrestrial human colony is Mars.²⁰ In order to enable human and robotic Mars missions though, NASA first had to update their Planetary Protection Policies that previously restricted such intentions, due to the risk of harmful biological contamination.²¹ They managed to implement the new directives based on the expert knowledge that research and robotic Mars missions have provided in the past years. *NASA's Lunar Exploration Program Overview* illustrates the administration's dedication to reach Mars with a crewed spacecraft, following the Artemis program.

Tepper and Whitehead, however, underline that the administration wishes to do that, and have the base for an 'Earth Independent' colony already in the 2030s. They have a number

¹⁹ M.B., "The Theory and Economics of MARS and MOON Colonization: Steps and Policy Advocacy," 240.

²⁰ Tepper & Whitehead, "Moon, Inc.: The New Zealand Model of Granting Legal Personality to Natural Resources Applied to Space," 288-289.

²¹ NASA: Moon to Mars, "NASA Updates Planetary Protection Policies for Robotic and Human Missions to Earth's Moon and Future Human Missions to Mars."

of competitors in this journey, the loudest of which is probably Elon Musk, who famously announced his plans to reach Mars by the early 2020s at the 2016 International Astronautical Congress in Mexico. Additionally, there is China and India who are aiming to do the same on similar schedules, while Russia and the European Space Agency want to have Moon villages within the next ten years.²²

Despite the fact that the main focus of this research is the Moon, I still wanted to place the future plans around Mars in relation to it, in order to highlight how lunar exploration is only a stage in the bigger picture of space colonization. Its great distance, as well as the fairly unexplored nature of Mars make it appear as the extraterrestrial "wilderness" that wealthy white men (for the most part) are keen to tame for their own demands.

Marie Laurberg, curator of the exhibition, *The Moon: From Inner Worlds to Outer Space*, notes how this attitude "arouses memories of the colonial period's hunt for land and resources".²³ And when the rest of the human collective is also considered in this endeavour, then Mars is often referred to as a potential refuge from the disasters that humans have brought about.

But who would then stay here, if future generations were either bred on, or evacuated to the lands of Mars? I can only hope that this will not be a cruel turn in the unnatural selection, where only the most privileged will have the chance to survive by leaving Earth. As if fleeing from the troubles our species have caused on this planet would provide a clean slate on another...Instead, perhaps, deeper examination into human behaviour that acts to the detriment of its external environment is where intellect and capital should be really invested in.

²² Tepper & Whitehead, "Moon, Inc.: The New Zealand Model of Granting Legal Personality to Natural Resources Applied to Space," 288-289.

²³ Laurberg et al., *The Moon: From Inner Worlds to Outer Space*, 30.

4.3 Women at NASA

In the aforementioned interview, Holly Ridings also complimented the administration's work in diversity inclusion, which might still be a bit of an exaggeration to state, considering the results of NASA's own *Equal Employment Opportunity Program Status Report* (2019). Despite the administration's repeated rank as “the best place to work in the Federal Government” issued by the Partnership for Public Service, women still made up only 34% percent of total employees in 2019, with a miniscule 18% on senior level scientific and executive positions (where black people are only present with a shallow 2%.)²⁴

On top of that, The Washington Post also reported about a troubling wage gap that NASA is no exception from, in which women only earn 80 cents for each dollar that men do. So I dare to ask: to whom exactly is it the best place to work?

With the efforts listed in *EEO Strategy Plan*, including staff trainings on 'Cognitive and Unconscious Biases in Decision Making' and 'Diversity Dialogue Facilitation', as well as improvements confirmed by the status report,²⁵ some credit should be given for the dedication of the Office of Diversity and Equal Opportunity.

The administration has also launched a targeted website under the Open Government Initiative, called Women@NASA, featuring career stories and professional accomplishments of their women employees (fig. 6), and providing educational resources and outreach programs for interested students.²⁶

²⁴ NASA Office of Diversity and Equal Opportunity, “Model Equal Employment Opportunity Program Status Report: FY 2019,” 10.

²⁵ NASA Office of Diversity and Equal Opportunity, “NASA Equal Employment Opportunity Strategic Plan: FY 2017-19,” 5-13.

²⁶ Nagaraja, “Women@NASA.”

However, there is still need and a lot of space for growth. Christian Davenport, for example, points to the troubling use of terms as “manned spaceflight”; something that the administration is now trying to avoid, as indicated in the “Gender-Specific Language” section of their Style Guide.²⁷ On this account, I also noticed that in both EEO documents from 2019, the tables that supposed to categorise their employees by gender, listed them by biological sexes instead.²⁸ This confusion demonstrates that regardless of NASA's newly acquired mindfulness on gender neutral jargon, they could still benefit from further clarification on concepts of social identity.


²⁷ Garber, “Style Guide for NASA History Authors and Editors.”

²⁸ NASA Office of Diversity and Equal Opportunity, “NASA Equal Employment Opportunity Strategic Plan: FY 2017-19,” 4, 17, 19 and NASA Office of Diversity and Equal Opportunity, “Model Equal Employment Opportunity Program Status Report: FY 2019,” 57, 59, 60.

Women@NASA


Change the World through STEM
Science. Technology. Engineering. Mathematics.

Sally Ride



Dr. Sally Ride was the first American woman in space. She was selected as an astronaut candidate in 1978 and flew for the first time in 1983. After retiring from the astronaut corp, Dr. Ride became a professor and started her own organization called *Sally Ride Science* to inspire young girls to enter STEM fields.

Kathryn Sullivan



Selected by NASA in January 1978, Dr. Sullivan was a member of the first class of female astronauts and the first female to perform a spacewalk in 1984. She is a private pilot, rated in powered and glider aircraft. Dr. Sullivan is a veteran of three shuttle missions and a 2004 inductee to the Astronaut Hall of Fame.

Women in Space History




Honoring those who paved the way so we could be part of the mission...

Christa McAuliffe



Christa McAuliffe was selected from over 11,000 applicants as a payload specialist astronaut for the *Teacher in Space* program in 1985. In 1986, the space shuttle experienced a fatal launch, taking the lives of all seven astronauts aboard. She was previously a teacher from New Hampshire.

Shannon Lucid



Of the six women in this first class with female astronauts, Dr. Shannon Lucid was the only one who was a mother at the time of being selected. During her career, she held the record for the longest duration stay in space by an American at that time. She flew in space five times.



Women and Girls Initiative
<http://women.nasa.gov>

Figure 6. Women in Space History. *Women@NASA - Change the world through STEM: Science. Technology. Engineering. Mathematics.* Brochure by the National Aeronautics and Space Administration. Image from the Women at NASA Outreach Programs site.

And if we take a second to think outside the binary box, then an inquiry might arise of how queer representation is ensured in the field of space technology. The previously mentioned report does not provide specific data on LGBTQIA+ employees, perhaps due to privacy protection policies, yet the strategy plan describes an 'LGBT Special Emphasis Program'. The aims of the program is to express support for the community, and to aid the recruitment of more queer individuals to the administration's workforce. This has been realized by sponsoring conferences on queer issues like 'Out and Equal', organising presentations as 'The Science of Being Transgender' by Dr. Keo-Meier at the their centers to raise awareness, and granting training sessions on creating safer workplace environments.²⁹

But what about the work environment of outer space? According to the statistics, approximately only 11,5% of human spacefarers have been women, none of whom reached the Moon so far.³⁰ The gender bias of the astronaut community seems to be a sensitive topic, which in the past was based on speculative theories and a good amount of ignorant attitude.

The lack of feminine involvement in space travel has been primarily justified with the uncertainty of how an extended exposure to microgravity would impact female reproductive organs and the menstrual cycle, an area that Dr. Varsha Jain is an expert in.

Jain is a gynaecological researcher with a focus on the impact of spaceflight on human physiology, and has been working with NASA on the subject of women's health in space. In another episode of the Woman's Hour podcast she revealed that there are indeed differences in how the male and female body responds to the extreme conditions of a spaceflight, but it does not seem to impact female astronauts any worse than their male colleagues. She did

²⁹ NASA Office of Diversity and Equal Opportunity, "NASA Equal Employment Opportunity Strategic Plan: FY 2017-19," 11, 28.

³⁰ Garber, "Women in Space."

stress, however, that because there have only been approximately half a thousand people to space in total, there is still insufficient data to conduct adequate research.³¹

The second common reason that has been prohibiting women from travelling more extraterrestrially is the social factor. This is largely owed to the patriarchal system of the American society that influenced the public relations professionals of the Apollo programs to market the first moonlanders in accordance with the figure of 'a young, sturdy masculine aviator, who ventures into the unknown and returns as a celebrated hero.'³² This publicity myth not only idolized and put unnecessary pressure on everyday human beings, but also excluded others, like their women colleagues, who did not fit the image.

In an article of National Geographic, Nadia Drake wrote about the fear that prevailed in the past of mixed-gender astronaut teams, due to prejudices of how work performance and conflict solving would be impacted by their dynamics. After conducting several Earth-based simulation experiments, research has affirmed that diversity can be highly beneficial for a successful mission, as it brings more perspectives when facing collective challenges, for example.³³

All in all, it is still a matter of individual personalities, not of presupposed gender characters how people behave in the intensity of a space adventure. Therefore giving professionals an equal chance to prove their worth (regardless of identity or biological make-up) is an expression of social responsibility.³⁴

³¹ Dr Varsha Jain, "The Future of Women in Space," interview by Jane Garvey, *Woman's Hour* (podcast), 07:33-09:10.

³² Scott & Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, 91.

³³ Drake, "Here's why women may be the best suited for spaceflight," para.18.

³⁴ The International Organization for Standardization summarized the term through identifying seven core subjects that are integral parts of it: organizational governance, human rights, labour practices, the environment, fair operating practices, consumer issues, community involvement and development (ISO, "Social Responsibility - 7 core subjects of ISO 26000.")

4.4 Xenoentities

Adriana Knouf, the founder of the tranxxeno lab³⁵ also writes about “othered bodies in space” in her article, *Xenological Life Potentials* (2020). As someone who has experienced a gender transition, she knows first-handedly about the adaptability that a human body is capable of when exogenous factors are introduced to it. Knouf notes that the radical self-modification that many alienated bodies, like the ones of transgender people go through on a daily basis actually makes them prime participants for interplanetary travelling.

Unfortunately, the lack of research with humans outside the white-able-cis cross-section makes it impossible to even consider how the empirical knowledge or endurance of these xenoentities could benefit the development of space technology. This is exactly why Knouf's artwork, *TX-1* (fig. 7) has such an important role in advocating beyond Earth for humans who are alienated on it. The small sculpture consists of elements related to the artist's transgender embodiment, including her hormone replacement medication, and in 2020 it has travelled to the International Space Station, where it spent some time flying in low-Earth orbit.

³⁵ tranxxeno lab, “About the tranxxeno lab.”



Figure 7. *TX-1, assembled pocket*. Artwork (mixed media: spironolactone pill, estradiol patch, miniature handmade paper sculpture, resin) by Adriana Knouf. 2020. Image from tranxxeno lab, courtesy of the artist.

On the one hand, this is a milestone for humankind, because it was the first known time that a transgender person has left their marks in outer space, even if indirectly and for a relatively short time. On the other though, it is ironic because the Earthlings who would probably be most keen to escape the violent environment they encounter on this planet, are the most restricted from doing so. Knouf brilliantly encapsulated that *TX-1* “offers a symbolic exodus to space from a planet that is often inhospitable to us”.³⁶

³⁶ Knouf, “Xenological Life Potentials,” 46-47.

4.5 Moon Treating

The previous arguments seem to validate how the Moon could be imagined as an alternative habitat for those seeking refuge from the cruelty they receive on their planet of origin. However, even if technologically that would be a feasible option, legally the Moon cannot be expropriated by any nation or community, as it is one of the two natural areas (besides the Deep Seabed Area) that is considered common heritage of humankind.³⁷ That means that everyone has an equal right to land, or operate on its grounds, as long as those activities benefit the whole of humanity.

This legal framework, called the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*,³⁸ or in short, the *Moon Agreement*, was created by the designated Committee on the Peaceful Uses of Outer Space, and endorsed by the General Assembly of the United Nations in December of 1979, a decade after the first Moon landing.

Yet, the discussion for establishing base rules for space exploration had already started in 1958, when the General Assembly recognized the growing interest in outer space from both main parties of the Cold War; the Soviet Union and the United States. A few years later, the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*³⁹ was passed, developing the still shaky foundation regarding our presence beyond Earth.

It was not, however, until 1966 that the first official agreement on the spatial rule of law was formulated, the *Treaty on Principles Governing the Activities of States in the*

³⁷ Fuentes, “Understanding the legal status of the Moon.”

³⁸ United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 34/68. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*.

³⁹ United Nations General Assembly, 1962 (XVIII). *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*.

Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,⁴⁰ commonly referred to as the *Outer Space Treaty*. The main principles of the treaty asserted the peaceful, cooperative use of space (including purposes to advance medicine, communications, transportation, weather and agriculture,)⁴¹ expecting all “State Parties to the Agreement” to support each other's activities as contribution to the collective human endeavour in the interplanetary realms. The treaty ensures that no governmental agency or non-governmental entity would appropriate any celestial body, including the Moon, and that all nation states could explore or use space without discrimination, but only with liability to their actions (*Article IV* specifically prohibiting the placement or use of weapons of mass destruction.)⁴²

The *Moon Agreement* was a necessary addition to the *Outer Space Treaty* to specify some key factors that the latter failed to do, due the advancement that lunar research had reached in the meanwhile. Along with restating previous criteria that settled a collaborative and responsible approach for exploring and using celestial bodies, it explicitly forbade activities whose purpose may be harmful to the local environment or humankind, including the construction of military settlements or testing sites for life-threatening equipment. It listed measures by which to manage possible interferences in expeditions, and suggested diplomatic ways to handle emergencies of any nature. It also granted freedom of scientific research, with *Article 5* requesting transparency regarding potential discoveries of cosmic phenomena,

⁴⁰ United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 2222 (XXI). *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*.

⁴¹ International Astronautical Federation, “2007: Eilene M Galloway” (Youtube Video), 1:08-1:20.

⁴² United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 2222 (XXI). *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, 14.

especially those “which could endanger human life or health, as well as of any indication of organic life” .⁴³

For the reason that the Moon is considered a collective property, its resources respectively become shared assets. *Article 11*, paragraph 5. encourages states “to establish an international régime” for exploiting lunar resources, in case that humankind could benefit from that in the future.⁴⁴

In his article for *The Space Review*, Urban Fuentes points to the research that has already found a rare element, called helium-3 (He-3) in the lunar grounds where it is abundantly present, that could be used for energy production in an environmentally friendly, non-toxic manner.⁴⁵ Whether or not the mining of this potential power source is the main reason for more and more countries, as well as corporate bodies to express interest in running lunar expeditions is unknown.

However, the legal structure that is currently in effect will require further support and development from all of them. The first major red flag that hinders the *Moon Agreement* from being “a valid source of international law,” according to Fuentes, is that none of the leading spacefaring nations (United States, Russia, China) have signed or ratified it.⁴⁶ The other one is that both the *Outer Space Treaty* and the *Moon Agreement* have missed addressing private entities in pursuing research or commercial endeavours, which could be a possible loophole from accountability, as Fabio Tronchetti warns in his presentation held at Vienna Space Law Symposium.⁴⁷ Therefore, if humanity wants outer space to remain a territory of international

⁴³ United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 34/68. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, 78.

⁴⁴ United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee, 34/68. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, 9.

⁴⁵ Fuentes, “Understanding the legal status of the Moon.”

⁴⁶ McCarthy, “The Countries That Signed The Moon Treaty.”

⁴⁷ Tronchetti, “Current International Legal Framework Applicability to Space Resource Activities.”

cooperation and shared discoveries, then pressing world leaders to acknowledge the rules along which to do that is vital.

4.6 Space advocacy

Dr. Eilene Galloway was an esteemed professional in space legislation, who not only helped to draft the *Outer Space Treaty* as representative of the United States, but had a pivotal role in NASA's conception. Galloway, who in 1958 advised then-senator Lyndon B. Johnson on constituting the National Aeronautics and Space Act (which legitimised its forerunner, the National Advisory Committee of Aeronautics, or NACA,) ⁴⁸ also suggested that NASA should become an administration, instead of an agency. She served in the Committee on the Peaceful Uses of Outer Space of the United Nations for decades, and was a founding member, as well as honorary director of the International Institute of Space Law, which is the main legal forum for research and debate on outer space activities.

In an interview with NASA, that celebrated her 100th birthday, Galloway remembered how formulating legislations like the 1967 treaty helped “turning fear of war into hope for peace.”⁴⁹ Although her claim might appear overly romantic, it is a testament to her scholarly, advisory and legal work, for which she received numerous honours, including the first Lifetime Achievement Award from Women Aerospace, and the NASA Public Service Award and Gold Medal.⁵⁰

It is undeniable that the current legislations in effect require supervision and more attention to ecological ethics, however, the positive impact of people, like Galloway who

⁴⁸ Scott & Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, 28.

⁴⁹ Eilene Galloway, “Eilene Galloway, The Woman Who Helped Create NASA,” interview by the National Aeronautics and Space Administration, *NASA Video* (Youtube Video), 00:53-1:00.

⁵⁰ Billings, “Eilene Galloway, the Woman Who Helped Create NASA, Dies at Age 102.”

lobbied extensively for nonviolent conducts and prohibition of weaponization in space, should be cherished.

That being said, the legal boundaries described in the previous subchapter seem to protect primarily the freedom and dignity of humans in space, in addition to preventing global forces from using the cosmos as their playgrounds or battlefields. Sadly, this attitude implies little consideration to the integrity of celestial bodies, as the Moon, apart from assuming ownership over them. This reminds me of the same domineering mindset that has imposed authority over a spectrum of lands, beings and knowledges on Earth. Although Galloway has previously stated that; “nations relinquish sovereignty in outer space,” unfortunately, it seems that humankind as a collective, still does not.⁵¹

With the intention to generate a hopeful mentality (both in the reader of this thesis and myself), I would like to introduce a newly founded social movement and a recently implemented governance model that I believe could offer ethical and practical guidelines for the continuing lunar explorations, and our future settlement in the cosmos.

Intersectional Environmentalism⁵² is the first of these examples, which was founded by eco-communicator and environmentalist, Leah Thomas, while studying 'Environmental Science and Policy' at college. It is both an activist movement and ideological framework that defines itself as a more inclusive version of Ecofeminism⁵³ and Environmental Justice,⁵⁴

⁵¹ International Astronautical Federation, “2007: Eilene M Galloway” (Youtube Video), 1:20-1:25.

⁵² Intersectional Environmentalist, “The Future is Intersectional.”

⁵³ One description retrieved from Susan Buckingham's *International Encyclopedia of the Social & Behavioral Sciences* (Amsterdam: Elsevier, 2015, Second Edition): “Ecofeminism, like the social movements it has emerged from, is both political activism and intellectual critique. Bringing together feminism and environmentalism, ecofeminism argues that the domination of women and the degradation of the environment are consequences of patriarchy and capitalism.” (ScienceDirect, “Ecofeminism.”)

⁵⁴ One description retrieved from the *Encyclopedia of Environmental Health*, edited by J.O. Nriagu (Amsterdam: Elsevier Science, 2011): “Environmental justice, environmental equity, and environmental racism are different phrases that describe and explain central features of the environmental justice movement, focusing on the disparate impact of hazardous waste sites and

while attributing its core to the groundworks of these movements, merging them together with Intersectional Theory,⁵⁵ a critical mindset whose popularization is commonly credited to Kimberlé Crenshaw.

The movement advocates for protecting the planet and all beings inhabiting it, within the cross-sections of species, gender, race, ethnicity, sexual orientation, physical and mental abilities, economic state, and so forth. The increase of structural violence against marginalised communities in the United States, as well as the apparent vulnerability of individuals from said communities in the midst of climate change were the catalysts to the conception of Intersectional Environmentalism.⁵⁶

I see a great potential in applying intersectionally environmentalist values to the legal protection of the Moon and outer space as a whole, because the issues that a movement like this has a critical understanding of could be highly beneficial in informing decisionmaking that concerns the extraterrestrial activities of humankind.

In addition to this, I would like to draw attention to a natural resource management model in New Zealand that was examined by Eytan Tepper and Christopher Whitehead in a paper published for *New Space* journal. The model was identified as the first one of its kind in the Western legal system, as it granted the previously known, Te Urewera National Park, a legal personality. Te Urewera was originally the homeland of the Tūhoe, a local tribe of the indigenous Māori people, but it was seized by the British Empire in its colonial pursuits, and later continued to be managed by the Crown, and governmental bodies of New Zealand. By

other polluting facilities located in or near distressed neighborhoods with high concentrations of ethnic minorities and economically disadvantaged populations.” (ScienceDirect, “Environmental Justice.”)

⁵⁵ “Intersectionality is a critical framework that provides us with the mindset and language for examining interconnections and interdependencies between social categories and systems.” (Atewologun, “Intersectionality Theory and Practice.”)

⁵⁶ Thomas, “Intersectional Environmentalism: Why Environmental Justice Is Essential For A Sustainable Future.”

way of the Treaty of Waitangi, as well as tribunal claims from the Māori, the Te Urewera Act in 2014 finally allowed the indigenous recognition of this natural area through what is known as the “concept of *mana*,” the Māori tradition that makes no distinction between the autonomy of human beings and the natural world.⁵⁷

Because Te Urewera cannot exercise its rights the same way as a human could, its governance has been delegated to a Board of nine elected members, who represent Te Urewera as a liable body, operating in alignment with the principles of the Act. The Board ensures maintenance of the area, and preservation of its biodiversity, while facilitating public engagement in a respectful manner.⁵⁸

Tepper and Whitehead analyse the New Zealand model through the Nobel Prize-winning design theory of Elinor Ostrom, who proposed a viable way to manage common-pool resources, by allocating their governance to decentralized local institutions, preferably a group of representatives from the community that uses the resource in question.⁵⁹

The authors then go on to outline these principles in the context of the currently existing space legislations, in order to speculate on prescribing them for the legal status of space resources. They suggest that the Moon, or the helium-3 on it may fall into the category of common-pool resources (CPRs) on the basis that the *Outer Space Treaty* declared them as the heritage of humankind.

Applying the NZ⁶⁰ model would first mean recognizing legal personality in space resources. Since various resources have different economic characteristics and may be far apart from one another, separate legal personality should be recognized for each space resource (*e.g.*, platinum, water, and Earth orbits) or, for each specific area, for

⁵⁷ Tepper & Whitehead, “Moon, Inc.: The New Zealand Model of Granting Legal Personality to Natural Resources Applied to Space,” 290-291.

⁵⁸ <https://www.ngaituhoe.iwi.nz/te-urewera-governance>

⁵⁹ Tepper & Whitehead, “Moon, Inc.: The New Zealand Model of Granting Legal Personality to Natural Resources Applied to Space,” 293.

⁶⁰ Referring to New Zealand.

all the resources that it contains (*e.g.*, resources on the Moon or on a certain near-earth asteroid).⁶¹

Additionally, if we keep in mind the increasing use (and number of users) of such resources, together with the foreseeable reality of space habitation on Moon or Mars, settling on their governance model will be imperative. The sooner these legal binds are formulated, the more functional and ecologically mindful our space activities can be. The examples of the Te Urewera Act, and Ostrom's theory for managing the commons are ones whose principles could be adopted as a base.⁶²

Intersectional Environmentalism and Te Urewera are just two examples that I have found through my research that could inspire broader considerations regarding the Moon, both ethically and legally. Although I firmly believe that the issues of lunar settlement and exploitation of its resources require more publicity and lobbying, I also wish to support the establishment of a pronounced critical discourse (in scholarship, arts, science, media), as a platform for universal activism (including social, political, environmental sections).

The ways to exercise our civic, as well as human rights are constantly shifting, due to increasing advancements, crises, and migration, so to make space (pun not intended) for local platforms that can facilitate dialogue on global sensitivities is a requisite for future ecological mindfulness. We also have to keep in mind that the legal system in outer space is still in need of definition, refinement, and ratification from all actors, so unless national and corporate leaders are willing to agree on fair governance models, the rest of society and cosmic ecologies will suffer the consequences.

⁶¹ Tepper & Whitehead, "Moon, Inc.: The New Zealand Model of Granting Legal Personality to Natural Resources Applied to Space," 294.

⁶² *Ibid.*, 293-295.

Knowledge is power, and with power comes responsibility. So I can only hope and suggest that those bearing the knowledge and power to access outer space, do so responsibly, because just like Earth, all other celestial bodies are autonomous ecosystems that will certainly be disrupted by human intervention.

The Moon has no atmosphere, therefore the footprints left on its powdery surface will literally stay there for the rest of the planet's life, due to the lack of wind or other weather agents to erase them.⁶³ Perhaps this image (fig. 8) might be a fitting metaphor to think about when considering our responsibility in setting foot on other terrains.

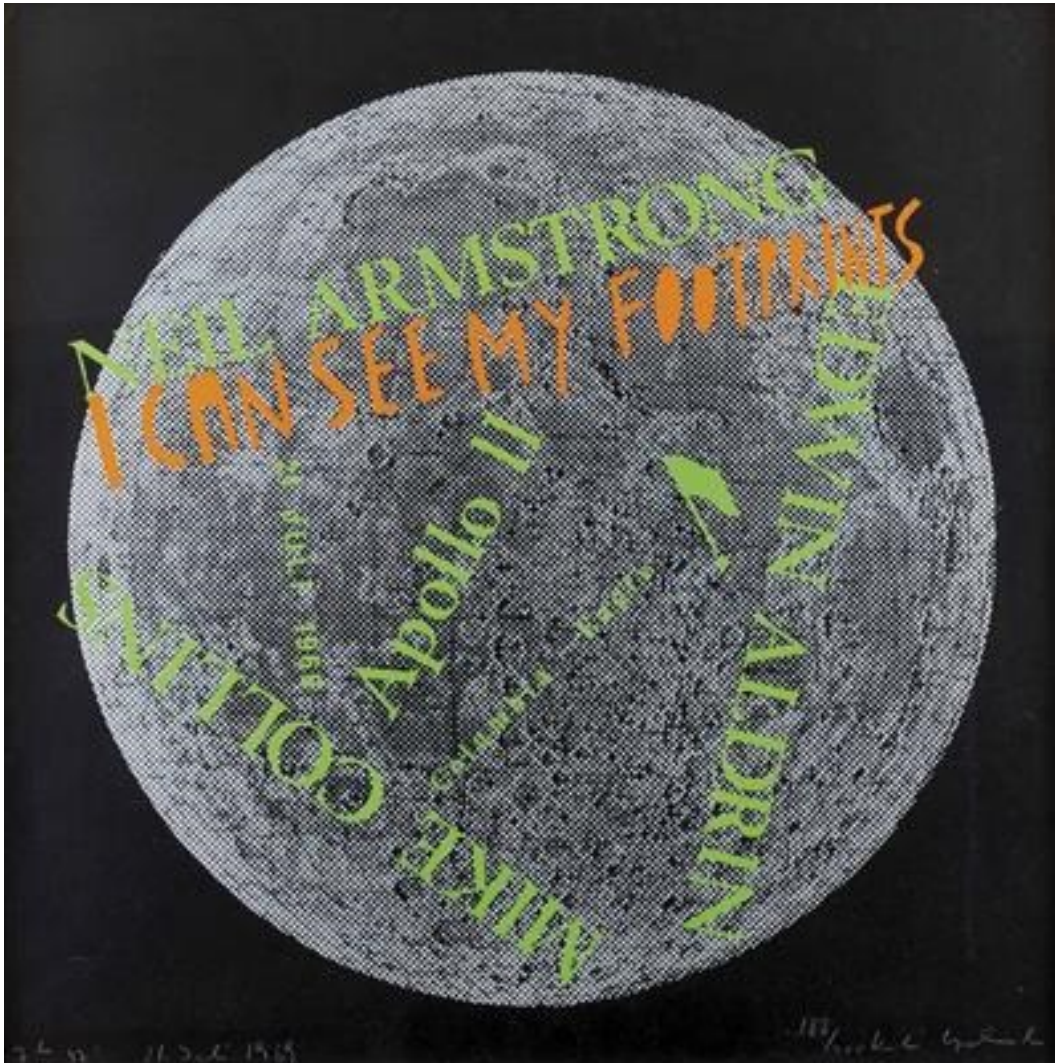


Figure 8. *Moonhappening - I can see my footprints*. Color silkscreen by Kiki Kogelnik. 1969. Image from Artnet.

⁶³ Andersen, "The Scientific Man," 114.

5. LUNAR CRAFTS

From the deep marks of human footprints in space, I will now ride on a beam of the Blue Moon's light and return to Earth. The following chapter will ground my research with some more tangible expressions after the atmosphere of beliefs, concepts, and theories. I will introduce an artistic medium very close to my heart and to my academic background, photography, through which I hope to expose the magical aspects of photo-sensitive ecologies. However, the mediation of light for image making purposes bears certain imperial politics whose harsh radiance we inevitably have to face. For that reason, I aim to compose this final piece of writing like a textual photograph, in the hope that it may leave not just a visual, but a spiritual impression too.



5.1 Cyanotype: from footprints to blueprints

Cyanotype is a photographic technique, whose name comes from the word *cyan* (derived from the transliterated *kyanós* in Greek¹), meaning “dark-blue impression.” It is based on two iron compounds: ferric ammonium citrate and potassium ferricyanide (which is the agent that turns into the mesmerizing blue tint). The method was a fortunate result of the photochemical experiments of chemist John Herschel—nephew of the first professional woman astronomer, Caroline Herschel—in 1842, yet, its conception was overshadowed by industrial ambitions.

The use of cyanotypes was dictated by economical directives, serving as a cheap and accessible proofing tool in the areas of photography, architecture and engineering. The word

¹ McCouat, “Prussian blue and its partner in crime.”

'blueprint,' developed from this exact association, also indicates the emblematic color of the imprints. This distinct hue is most commonly known as Prussian blue, after its birthplace in Berlin.² Prussian blue, or 'Berliner blau' also denotes the inorganic pigment that was produced from potassium ferricyanide used by painters and textile dyers. However, this material has a dual potential besides its coloring purposes. It can be a bodily remedy for certain kinds of heavy metal poisoning, but in reaction with other molecules, it may also turn into the deadly chemical, cyanide.³

Kerstin Schroedinger dissects the material politics of this intricacy in her video work, *Bläue* (Blueness).⁴ Here the blue impression becomes an allegory that captures the actions of the figure who moves in tandem with the narrative. The moving imagery of the film activates the process of photography, whose objective is to create stillness. In that stillness lies a muted history that demonstrates the exploitative nature of industrial work and its neglect of organic bodies. Schroedinger recounts the 1976 chemical disaster of the Swiss pharmaceutical factory, ICMESA, that caused the town's population of Seveso to suffer irreversible health consequences.

The same event catalyzed the legalization of abortions in Italy, as the endangered reproductive and mental health states of contaminated females were too much for the medical professionals to handle. It also led to the establishment of safety regulations for manufacturing sites working with hazardous substances. *Bläue* exposes these overlapping chains of reaction that connect Prussian blue to the insoluble imprints that its misuse left on personal histories and gendered social functions (fig. 9).⁵

² Wikipedia, "Prussian blue."

³ McCouat, "Prussian blue and its partner in crime."

⁴ Media School, "Narration and Material: seminar on artistic research methods."

⁵ Kerstin Schroedinger, "Bläue — Blueness."



Figure 9. *Bläue*. Video by Kerstin Schroedinger. 2017. Screenshot taken by the author from Vimeo (28:34) on February 6, 2021. Image courtesy of the artist.

In spite of the bio-chemically complex legacy of Prussian blue (and thereby, potassium ferricyanide), cyanotype as a photographing method is still considered relatively friendly to the environment. The two iron salts, combined to make cyanotype prints, pose no serious harm to living organisms (apart from being mildly hazardous if ingested), as opposed to the toxic chemicals of silver-based photo emulsions.⁶

Furthermore, cyanotype photograms, if created under natural sunlight, take a lot more time to develop than most camera-based methods. The process is fairly simple: paper or other

⁶ Stulik & Kaplan, *The Atlas of Analytical Signatures of Photographic Processes: Cyanotype*, 5.

material of choice is evenly coated with the previously mixed solution, ideally in a dark place to avoid premature exposure. Once the emulsion has dried, the object (or negative image) wished to be portrayed is placed onto the previously coated surface and is exposed under strong light for a certain amount of time. After the image has reached its desired intensity, it is fixed with a simple water bath that washes away the water-soluble iron salts.⁷ Due to the simple, slow, and fortunately non-toxic process that is dependent on natural elements and involving manual labor, cyanotype is one of the most ecologically ideal photographic methods.

Botanist and photographer Anna Atkins was personally acquainted with John Herschel at the time of his new invention, and allegedly became so fond of the technique that she chose to illustrate her studies with blue photograms of the specimen she collected. Her cyanotype series of various algae (fig. 10) were published in 1843, and are still recognized as the first books with photographic imagery in them.⁸

⁷ Ibid., 6.

⁸ Atkins, *Photographs of British Algae: Cyanotype Impressions*.



Figure 10. *Corallina elongata*. Cyanotype impression by Anna Atkins. 1843. Image from The Public Domain Review.

5.2 More than blue

Marine species, like algae or corals, have another interesting connection to the blue spectrum. Corals, in particular, are sensitive to blue colored light rays (measuring around 500 nanometers in wavelength), which is identical to the wavelength of blue light emanating from the Moon. Corals are therefore in synch with the intensity of Moonlight beamed to Earth that sets the rhythm of their reproductive cycles. The strength and duration of light at specific lunar phases, especially around full Moons, have been observed to set off their spawning activity.⁹

Corals form fragile ecosystems that the Moon cares for, however, they have been extremely endangered in the past decades, due to the inhospitable conditions that our climate crisis creates for them. Prior to their increased bleaching, coral reefs were home to a rainbow of marine life, but overfishing, ocean acidification (from the burning of fossil fuels), and other human-induced damages have pushed these precious communities to the edge of extinction.¹⁰

Sonia Levy illustrates an ambiguous solution to this issue in her cinematic piece, *For the Love of Corals*. The film shows the working processes of *Project Coral*, a research project developed by the Aquarium of the Horniman Museum and Gardens in London, in which marine scientists have been successfully breeding corals (fig. 11) for the first time in history.¹¹

⁹ Riddle, "Aquarium Lighting: Moonlight - A Concise Review of Its Spectrum, Intensity, Photoperiod, and Relationship to Coral and Fish Spawning."

¹⁰ Horniman Museum and Gardens, "Project Coral."

¹¹ Sonia Levy, *For the Love of Corals*.

Although the objective of the experiment was to save coral reefs from total devastation, the fact that aquatic experts are curating the sexual reproduction of these other-than-human animals under the limelight of public attention is ethically rather unsettling.

The organic habitat of open waters has been replaced by a dim, blue-lit laboratory where ultra violet lamps replicate the Moon, and the atmosphere of the space resembles a fabricated cosmos. It should not be forgotten that natural history collections from the Victorian era, like Horniman's, were built on the confiscation and exploitation of living and non-living beings. Therefore, the fact that the artificial spawning of these corals is set in the basement of a museum with a deep colonial history, seems like anything but natural.¹² Preservation and revival are central themes in Levy's work, both in the context of this postcolonial environment where the project is housed, but also in relation to the discourse around human-induced global decline.

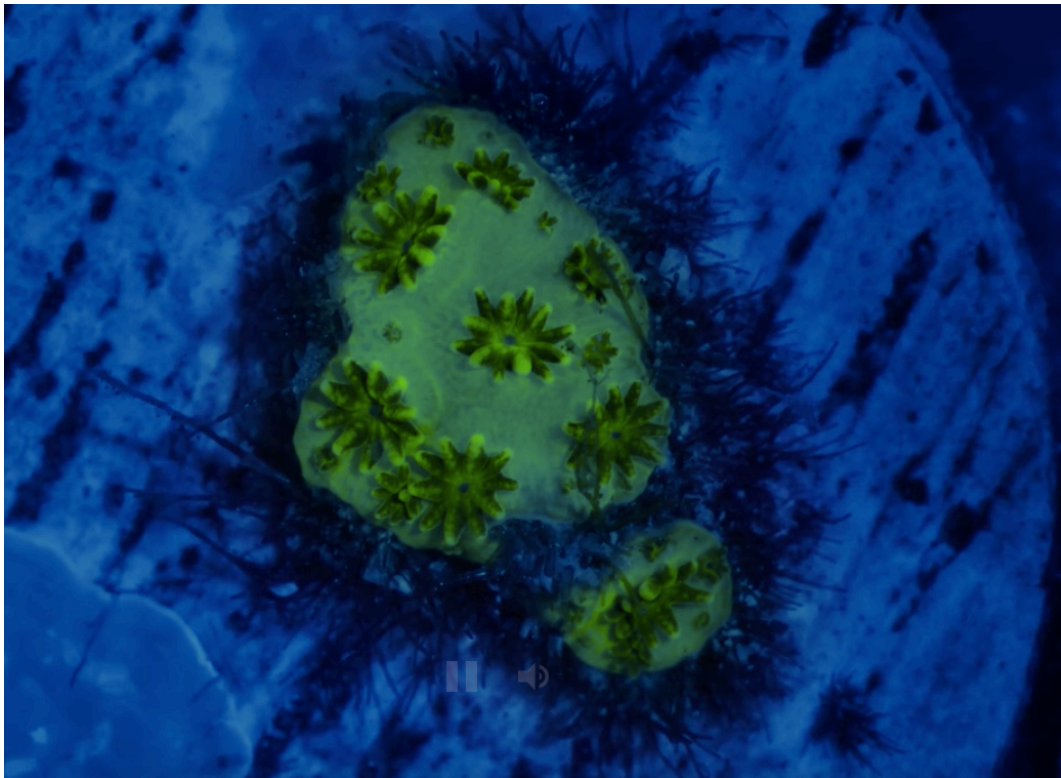


Figure 11. *For the Love of Corals*. Video by Sonia Levy. 2018. Screenshot taken by the author from the Critical Zones site on February 6, 2021. Image courtesy of the artist.

¹² Horniman Museum and Gardens, "Frederick Horniman's colonial legacy."

The research of this thesis is also engaged with mapping the borders between cosmic mechanisms and "external" interventions. However, instead of solely studying the notions that anthropocentric¹³ views propose, I would rather turn to other-than-human ecologies, like the *queerdom of flora*, to learn from.

Natasha Myers, who is the director of the Plant Studies Collaboratory,¹⁴ and Associate Professor of Anthropology at York University, coined the term, "Planthropocene," as she gently draws our attention to the "terrestrial magic" that photosynthesisers, like cyanobacteria, perform.

Myers reminds us with her poetic writing of how much we owe to these mattering organisms. She calls for a "radical solidarity project," in order to recognize that we not only share material origins with these powerful beings, but the terrestrial space of our planet. It is time for us, as a species, to contribute to this co-habitation, because so far it has been their invisible labor that made our existence possible, not vice versa.¹⁵

More powerful than any industrial plant, communities of photosynthetic creatures rearrange the elements on a planetary scale. They know how to compose liveable, breathable, nourishing worlds. As they exhale, they compose the atmosphere; as they decompose, they matter the compost and feed the soil. Holding the earth down and the sky up, they sing in nearly audible ultrasonic frequencies as they transpire, moving massive volumes of water from the depths of the earth up to the highest clouds.¹⁶

¹³ Defined as "Relating to or denoting the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment." by the Online Oxford English Dictionary (Lexico.com, "Anthropocene.")

¹⁴ "Plant Studies Collaboratory."

¹⁵ Myers, "Photosynthesis."

¹⁶ Myers, "How to grow liveable worlds: Ten (not-so-easy) steps for life in the Planthropocene," para. 15.

Cyanobacteria, also known as blue-green algae, are a blue tinted culture of microorganisms that live in water and transform sunlight into nutrients that feed them (they photosynthesize). Their innate dependency on the aquatic ecosystem and light creates a fascinating dialogue with other disciplines studied in this chapter.¹⁷

5.3 Curious nature

Besides critical anthropology, cyanobacteria have also been key to the research of establishing life on planet Mars. These particular microorganisms might be of great support in the "next evolutionary step" of humankind in extending its reach to interplanetary realms. Verseux et al. provide extensive evidence in their study to why cyanobacteria could be considered as a potential bridge between Earth-acclimated life forms and the environmental conditions of Mars. Although we cannot expect this one culture of microorganisms to provide full life support systems, they could still play a fundamental role in forming extraterrestrial ecologies. The most apparent advantage of cyanobacteria is their skill in producing oxygen via photosynthesis. Apart from exhaling this vital element, they are also capable of transforming atmospheric gases to carbon and nitrogen, which could then fuel other bio-organisms.¹⁸

Different species of cyanobacteria have distinct features that make them prime colonizers of Mars. The genus of the Anabaenal species, for example, has the ability to extract metal nutrients from rocks, which considering the wide spread of Martian regolith, is not at all insignificant. Seeing the already existent extractive practices on Earth that use

¹⁷ University of California Museum of Paleontology, "Introduction to the Cyanobacteria."

¹⁸ Verseux et al. "Sustainable life support on Mars - the potential roles of cyanobacteria," 66-68.

microorganisms for mining valuable metals, like gold or copper from volcanic rocks, this method could be easily adapted on Mars and equally destructive to its local geology.

In another example of the *Arthrospira* species, the dried biomass of this cyanobacteria is actually edible for humans and very high in protein. With some additional supplementation (of a few important vitamins and taste-enhancing substances), it could even be considered as a complete nutritional source.

With respect to the photosynthesizing capabilities of plants, the query of why they might be outrivaled by bacteria in the context of space colonization is an apt one to make. The answer to this lies in the resilience of cyanobacteria. As they are found amongst the most extreme temporal conditions on Earth: from the driest of deserts to the coolest icecaps of Antarctica, their prospect to endure the rough Martian habitat is much higher. This makes them the ideal troopers in the biological conquest of space, which, as I have argued throughout the last chapter, is only an extension of the prevalent capitalist patriarchal extractivism that impedes the flourishing of most life sources on Earth.¹⁹

Yet, as Verseux et al. note at the end of their paper, the research on Martian life potentials is constantly evolving, as daily updates from the Curiosity rover supply scientists and engineers with revised information.²⁰

Minna Långström provides a glimpse of that immense data in her documentary, *The Other Side of Mars*.²¹ The film follows a typical workday of Vandi Verma, roboticist and operations group leader at NASA Jet Propulsion Laboratory, who has been in charge of driving the Curiosity rover on Mars since its landing in 2011.²² The exquisite cinematic

¹⁹ Verseux et al. "Sustainable life support on Mars - the potential roles of cyanobacteria," 70-73.

²⁰ Ibid., 85.

²¹ Långström, *The Other Side of Mars*.

²² National Aeronautics and Space Administration, "Mars Explorations Program - Curiosity."

narrative confronts us with the reality that human presence, even if indirectly through a car-sized robot, has already been established on Martian terrains for the past two decades.²³

Most of the earthly population is likely unaware of the amount of labor and orchestrated decision-making that Verma and her team of diverse experts have to realize for each photograph that Curiosity takes. The peculiar knowledge that Verma has acquired through Martian photography is nothing short of magical (fig. 12). She is completely familiar with a planet she has never been to through an apparatus that she co-created and controls from an unfathomable distance.

Although the main purpose of this robotic imaging is to inform scientific research and technological engineering, Långström demonstrates how this footage may also be regarded for its philosophical and artistic values. Even without the technical education of roboticists, anyone familiar with Earth's rocky deserts might feel certain uncanniness when seeing the rusty landscapes of Mars. Especially when juxtaposed with the artistic representations of natural sceneries, the depictions of the Martian terrain echo the same colonial attitude that instituted the genre of landscape imagery on Earth. The distorted perspective ingrained in this nostalgia is also implied in *The Other Side of Mars*. The question about how unconscious replications of past practices may only result in the extraterrestrial reenactment of imperialism, is one that Långström ominously blends into her narrative, and also what I have explicitly critiqued earlier in this chapter, as well as the one prior to it.

²³ Tate, "Occupy Mars: History of Robotic Red Planet Missions (Infographic)."



Figure 12. *The Other Side of Mars*. Film by Minna Långström. 2019. Image from Minna Långström's website.

What are we exactly looking at when taking in the images produced by Curiosity? Is it a mediated reality? Is it the future? Or are these two concepts synonymous in terms of interplanetary existence?

5.4 *Having the Moon for Company*

Maybe not all worlds are as barren as Mars. I was trying to make a case in the previous chapters for the abundance of values that the Moon, our closest planetary neighbor, already gifts to us. Rather than travelling to the far away lands of the Red Planet, or disrupting the ecology of the Moon for our economic advantages, we should spend more time rekindling connections with our lunar companion.

Louise Long has done exactly that in her unique cyanotype series, *Having the Moon for Company* (fig. 13-14). Long was able to materialize the poetics of a kinship she developed, both with the photographic technique she utilized, and with her collaborator in the process, the Moon. The work was realized in the month of April, when the full moon is traditionally known in Western cultures as the Egg Moon, hence why the photograms carry

the imprints of eggshells. By incorporating the organic matter that illustrates the fertility that the spring brings forth, as well as exposing her prints under the lunar light, the artist makes a symbolic gesture to honor the influence of lunar cycles on terrestrial and spiritual growth.²⁴

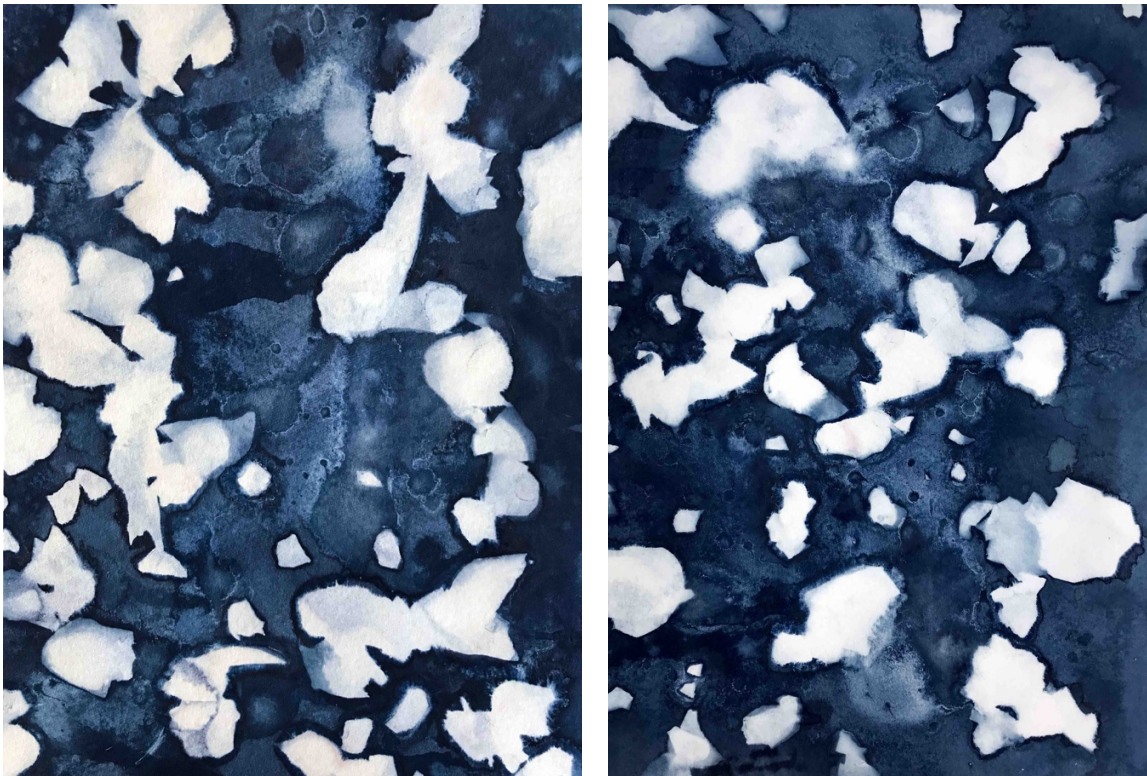


Figure 13-14. *Having the Moon for Company I-II*. Cyanotype handprints by Louise Long. n. d. Images retrieved from the artist.

Furthermore, the shifting character of lunar phases and their impact on the element of water is analogous to the wetness and transformation that cyanotype as a photographic process involves. It also requires attunement to manual labor, temporality, and the celestial phenomena of light. In conversation with Louise, she mentioned being drawn to this technique because of its tactility and the ritual that constitutes the development of the images;

²⁴ Infinite Multiple, "Having the Moon for Company."

I had been exploring ideas concerning the human ritual around sunlight - our need to harness and record its presence, and more universal considerations around a human relationship to nature. I first came to cyanotype through a focus on the physicality of the photographic medium, by allowing for serendipity to enter the image through handmade processes.²⁵

Being mindfully present in the process and the environment seemed to be important factors for her cyanotype ritual. However, in comparison to other photographing methods she works with, she claimed the authorship in this sort of image making to be different; “my own intervention is more that of a medium than author of the final image.”²⁶ Louise's outlook on her role and practice of mediation seems much more collaborative for approaching artistic exploration. A similar attitude, I would argue, should also be considered in the practices of space exploration.

I also asked Louise to reflect on her relationship to the Moon, to which she was apparently drawn to primarily for its luminous qualities: “I was keen to work with a natural light source with a long enough exposure to introduce non-human relation - such that the balance was swung in the favour of the natural world.”²⁷ As her artistic work is first and foremost based on light, which is also the most apparent way that the Moon is perceptible to us, it is no wonder that the intersection of the two resulted in a photographic “moon lore,” or what I would call entangled **craftwork**.

My practice is about an engagement with the physical world. An interest in urban & natural ecologies, botany, geology and topography, explored through a duality of

²⁵ Louise Long, email to author, November 23, 2020.

²⁶ Ibid.

²⁷ Ibid.

research and making. My concern is in exploring the physical materiality of a place, along with its less visible narratives - uncovering collective layers of experience.²⁸

²⁸ Louise Long, email to author, November 23, 2020.

6. EPILOGUE

I do not know about you, dear Reader, but for me the time has come to retreat and contemplate on all our previous ventures. Thank you for your willingness to embark on this research with me, I am honored to share it with you. I would like to farewell this journey now with some concluding remarks.



After studying some of the many ways that the Moon might be regarded in our earthly existence, my suspicion has only been reaffirmed, that this particular celestial body that was once part of our terrains, has a lot more active connections with our biophysical as well as metaphysical networks, than we might consciously know. Artemis, a companion in this research leads us through these myriad connections. They embody all at once an ancient venerated goddess and mythological figure, a spiritual archetype, as well as the emblem of a future space expedition.

In the process I have traversed a spectrum of epistemologies, including scientific, mantic, artistic, queer-feminist, and many others. These have in turn drawn me on different routes according to their own perspectives and in the process served to reveal some of the gravitational workings of my own. What I have come to realize in visiting these lineages is that they intersect in countless ways, despite their well-defined principles. It is for this reason that I decided to call this study *transdisciplinary selenology*, demonstrating that science is not only what patriarchal academia determines it to be.

Considering the amount of indigenous, magical, and queer-feminine wisdom that has been exploited and suppressed for white enlightened men to construct and fortify binaries between humankind and "nature," or art and science, I would like to once more acknowledge the privilege I have had in conducting this research without the fear of being prosecuted for it. And with privilege comes responsibility, so I humbly hope that my intentions to mindfully act in this position reflects in the well of cited sources that I listed in the footnotes and then laid out in the following 'Bibliography.'

But what is the Feminine principle that has been present in the previous chapters (especially in 'Mythologies') and echoed in the title of this thesis?

Lucy Davis, the academic supervisor of this work, has pointed out the questionable singularity of the word, while I have pondered the capitalization of it. In another thought exchange with my friend and colleague, Emma Clear, we were trying to demystify the concept that is so liberally cited in contemporary academic and popular discourses, but found ourselves with even more questions around it. The idea of the Feminine, or perhaps more suitably, *feminines*, I am still challenged to articulate, because my own comprehension of all that it/they embrace(s) is constantly evolving.

My interpretation of the Feminine/feminines has changed a lot throughout writing this thesis, and I admit that through different sources who have revealed various aspects of it/them, I was faced with an internalized repetition of essentialist thinking (in spite of my critique of the Feminine archetype in the chapter on 'Mythologies'.)

As I now reconsider, perhaps, it is/they are better described as a multiplicity of becomings. An all-embracing flow that is not bound to any bodies or identities, or an omnipresent source of light and shadow (and all shades in-between), that may be caring or

angry, vulnerable and devastating. It allows for diverse, even contradictory expressions because those are all integral parts of a web of energy that constitute(s) the Feminine/feminines. I regard the Moon as a planetary incarnation of this energetic fabric, and Artemis, in all their forms, who wear it as a robe. In the end, the Feminine has been left standing as a singular, capitalized word in the main title, in order to accentuate its significance in parallel with its celestial correspondent.

The Moon is an entity I will never cease to learn from. To follow the direction of Natasha Myers who advocates for the cosmic power and magical wisdom that plants embody, I would like to do the same service for our lunar companion, whose potential endangerment I truly fear. Although the Moon is often examined on its own, as a lone planet, or individual entity, I now believe that this might be a rather restrictive scope. It is a piece in the web of the cosmos, birthed from the same matter and energetic chasm as the rest of the Solar system. In spite of this web seemingly operating within polarities, it is still able to maintain balance, which is something that we, as a collective species should really adopt, if we wish to put an end to capitalist extractivism in the coming future, both on Earth and on other planets.

However, even just to recognize, let alone attune to this cosmic web requires the cultivation of deep listening. And what may be heard could then institute collective actions that derive from a more considerate place and better serve ecologically conscious purposes.

Cyanotype as a light-capturing craft, or poetry as a medium for the fantastic are only a couple of artistic practices that can serve to channel and cultivate such knowledges. Still, together with the exacting understanding of science, they might not be accessible to everyone. This is why different disciplines are necessary to include in more intersecting scholarship, without disregarding their sometimes distinct ontologies. I have learned through this research

how magical thinking can connect scientific, artistic and spiritual realms by injecting them with its life-giving force. This force, however, requires labor, and not only in its reproductive sense.

Counter to hegemonic social structures, I believe that working in solidarity, rather than in competition, is the only way to generate an abundance of resources that is accessible for everyone to share. Except, as the law of the *Conservation of Energy*— stating that energy can only be transformed, neither produced, nor destroyed¹ —reminds us once again, those resources are already generated, and out there, they might just be in another form still. With regards to such transformation, it is critical to acknowledge it as a form of caring labor that is done by many without recognition. So let us work on transforming, let us transform with care, and let us care for that work and about those who perform it...

¹ Nasmyth, Carpenter, *The Moon: Considered as a Planet, a World, and a Satellite*, 49-50.

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List of Figures

Cover (background). Long, Louise. *Having the Moon for Company II*. Cyanotype handprint. Retrieved from the artist on September 14, 2020.

Figure 1. Cellarius, Andreas. *Typus Selenographicus Lunæ Phases et Aspectus Varios Adumbrans*. 1660. Copperplate engraved. Glen McLaughlin Map Collection of California as an Island, Stanford University Libraries. SearchWorks catalog. <https://searchworks.stanford.edu/view/ys360dp2191>.

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Figure 3. Ward, Jane E. *Mother Holle*. 2005. Pen and ink illustration. Jane E. Ward Art. <https://janeewardart.org/drawings-and-illustrations/#jp-carousel-13>.

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