

Ethics and the Human Space Program: A Report from the Ethics Proto-Task Force, Overview Round Table

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Abstract

Space exploration, and the Human Space Program in particular, will present humanity with unprecedented moral dilemmas as well as unprecedented moral opportunities. It is incumbent upon us both to draw upon the existing tradition of ethical thought and to formulate novel ethical conceptions in thinking through the moral dimensions of human space exploration. The Ethics Proto-Task Force has approached these unprecedented dilemmas and opportunities from a variety of standpoints and in light of these variegated perspectives has formulated recommendations for a future Ethics Task Force as well as provisional recommendations that could be acted upon immediately.

Keywords: Ethics, space ethics, Overview Effect, Frank White, space exploration.

Introduction

Humanity's engagement with ethical concerns has roots in every human tradition, and over time has developed in many directions, in terms of both normative doctrines and analytical approaches to understanding human moral experience. The Human Space Program (HSP) will inevitably find itself engaged in ethical reflection, in the form of asking whether novel human experiences in space point to novel normative doctrines or suggest new analytical approaches. Within the timeframe and resource constraints of the HSP proto-task forces, we cannot hope to survey the whole field of moral thought, so we will confine ourselves to touching on a few highlights.

As a field of philosophical research, both the meaning and the content of ethics has been debated at great length and with little consensus other than the import of the discipline, being one of the traditional branches of Western philosophy (along with metaphysics, epistemology, aesthetics, and logic). We cannot settle these age-old controversies here, but we will adopt as a working definition that *ethics is the study of what makes actions right or wrong, of what is truly valuable, and of what makes moral claims and judgments true (or false)*. Moreover, space ethics as a distinct discipline (if there is such a discipline, or such a discipline comes into being) must consider the distinctive variables of the space environment, such as distances within the space environment (both distances from Earth to space and distances within space independent of Earth), and the scales of time inherent in cosmological distances. Thus, we can elaborate our working definition such that *space ethics is the study of what*

makes actions right or wrong, of what is truly valuable, and of what makes moral claims and judgments true (or false) in the context of the space environment.

The human beings who will ultimately constitute the HSP will require special provisions and technologies to travel through or to reside in the space environment, and these provisions and technologies will affect the human relationship to our immediate milieu, affecting human action and thus also our ethical deliberation. The facts at hand and the degrees of relation to and impact on others are as crucial to ethical reflection as normative and analytical perspectives are for ethical principles.

Frank White noted on the first page of *The Overview Effect: Space Exploration and Human Evolution* that "mental processes and views of life cannot be separated from physical location. Our 'worldview' as a conceptual framework depends quite literally on our view of the world from a physical place in the universe."¹ Two hundred years earlier, Georg Christoph Lichtenberg had written, "I have observed quite clearly that I am often of one opinion while lying down and of another while standing, especially when I have eaten little and am weary."² These factors of spatial location and bodily disposition, as well as countless other properties of embodiment, enter into the all-too-human realities of moral deliberation in an uncertain world, made the more uncertain when one is engaged in exploration. But it is precisely when we are exploring that we require a moral foundation.

The members of the Ethics Proto-Task Force come from diverse backgrounds and different life experiences, and so have highlighted different aspects of space ethics, which are discussed below. We note that life and work in space will ultimately be as variegated as life on Earth, such that every variety of human lived experience on Earth will be mirrored by human lived experience in space, and the many environments in space may offer opportunities for forms of lived experience not encountered on Earth. Moral experience may well expand along with human civilization in space, driving an expansion of ethics as a discipline.

Where We Have Been and Where We Are Going

Over the ages, human groups have established moral codes of conduct that fit the contexts of the times. It took millions of years for humanity to evolve the capacity to come down from the trees and incorporate the necessary social cooperative dynamics to assure species survival and to expand the scope of human action. That process resulted in changes to our physiology and neural pathways. Our brains grew larger, allowing human beings to take greater and greater control of the natural world (agriculture) and to extend the range of the species. We adopted technologies (from fire

¹ Frank White, *The Overview Effect: Space Exploration and Human Evolution*, 3rd ed. (Reston, VA: AIAA, 2014), 1.

² Georg Christoph Lichtenberg, *Aphorisms* (Harmondsworth, UK: Penguin Books, 1990).

through the wheel to CRISPR) as more efficient and effective means to assure species survival, continued expansion and, for a minority on the planet, greater wealth and higher standards of living. In light of these developments, one fundamental question is whether, as a species distributed on a planetary scale, we have fundamentally evolved, and in what senses have we evolved. Are we on a course for another evolution in human consciousness? How will any further evolution in human consciousness affect the moral life of humanity? How long can we expect the moral evolution of humanity to take? What can we do to assert our agency in that evolution?

There has been much written and there are ongoing discussions about the exploration and development of space starting with the Moon and, subsequently, Mars. Discussions to establish ethical treatment of the Moon (and Mars) beg the question of our moral relationship to the Earth. It will be difficult for stand-alone ethical norms for space to be respected (let alone reach a planetary agreement among national leaders/governments) until it is brought home that actions that have been and are continuing to be taken on the Earth threaten our very existence.

An adequate space ethic would, at the same time, be an Earth ethic, and such an ethic would be more comprehensive than any previous ethical conception. Thus, the importance of human moral evolution: a more comprehensive scope of moral reflection is called into being by a more comprehensive scope of human action; we become worthy of this increased scope of action through moral reflection on a commensurate scale. Such would be a moral code of conduct that would fit the context of the Overview Effect and the Space Age.

Normative Considerations for Space Societies

Given that all nations will initially be forced to share space as they do Earth, especially the space in immediate proximity to Earth, and that space exploration is conducted in an environment lethal to humans, for the survival of all humankind in outer space we must work together in harmony and establish institutions that foster this strong stance. Equality, regardless of origin, gender, and economic status, must be a cornerstone for future space ethics, so that space may become a separate place that has a separate culture. Current space treaties and agreements, whether international—the Outer Space Treaty, the Registration and Liability Convention, the Rescue Agreement—or multilateral—NASA's Artemis Accords, ISS Memoranda—engender interdependence and cooperation without prejudice to country of origin. All space agents must be transparent, help each other in emergencies, not interfere with foreign projects, and have due regard for fellow human beings. These agreements set the tone for ethics that parallel the best intentions of humankind now and in the future.

On an individual level, the Universal Declaration of Human Rights sets the standard for fair treatment of all. It states that every human is born with the right to live a free life in pursuit of happiness, and that all should have access to education, good health, and

family if they so choose. We may hope that barriers to individual achievement will be confined to Earth and not enter the space realm. It is incumbent upon us to create a new culture in space, so that space can be a different place with different customs, with a greater scope for freedom, and it is our job to ensure that the institutions we establish uphold this sentiment, protecting it across generations.

Aspirational Dimensions of Space Exploration

Space travel has been aspirational from its inception, and space ethics should take this into account. That human beings strive to attain difficult aims—"Ah, but a man's reach should exceed his grasp, Or what's a heaven for?"³—has been a motivating force in human history, and with space exploration this was made explicit in Kennedy's "Moon Speech":

We choose to go to the moon. We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too. It is for these reasons that I regard the decision last year to shift our efforts in space from low to high gear as among the most important decisions that will be made during my incumbency in the office of the Presidency.⁴

The aspirational quality of space exploration still lives in the imagination of every child who dreams of being an astronaut. Human moral psychology is such that aspirations for personal achievement are not clearly distinguished from aspirations for a better life and a better world. Some have identified these overlapping aspirations as a kind of faith:

Space workers, both religious and secular, describe permanent human communities elsewhere in the solar system as inevitable, with the significance of their work and its fated outcome creating a sense of hope about the work at hand. Faith in the future of humanity's relationship with space provides tremendous motivation; a feeling that one is destined to succeed encourages continued effort."⁵

³ Robert Browning, *Men and Women* (Boston: Ticknor and Fields, 1855).

⁴ John F. Kennedy, "Moon Speech," Rice Stadium, September 12, 1962, er.jsc.nasa.gov/seh/ricetalk.htm.

⁵ Deana L. Weibel, "Following the Path That Heroes Carved into History: Space Tourism, Heritage, and Faith in the Future," *Religions* 11, no. 1 (2020): 23, <https://doi.org/10.3390/rel11010023>.

Some have gone further and have discussed this faith in explicitly religious terms:

Without question, those associated with spaceflight have spoken of it in explicitly religious terms. For example, Chris Kraft, a leading NASA official during the Apollo era and director of the Johnson Space Center in the 1970s, characterized his support of space exploration in overtly religious language: "This step into the universe is a religion and I'm a member of it."⁶

We need not formulate our aspirations for space exploration in terms of religious faith, but the experience of space exploration has encouraged such terms through its potency and uniqueness. The Human Space Program has its origins in the recognition of the Overview Effect, which is a potent and unique experience due to space exploration and available through space exploration, rising to the status of an insight that leaves no aspect of life untouched. Ethics through the lens of the Overview Effect and other space philosophies are as likely to be transformed as are the social sciences, including religion and self-understanding.

The philosophy behind the Overview Effect is that we would wish to share the overview as widely as possible, and, while there are many ways of achieving such an awareness, we would want to proselytize it in its most robust form, which is actually to view Earth from space with one's own eyes. This we may call the *overview imperative*, and adopting the overview imperative as a moral principle, and acting upon this moral principle to the maximum extent possible, would have profound moral consequences that would ripple through human experience and shape the human future.

Long-Term Considerations in Space Ethics

The future is forged by the dreams, aspirations, and motivations of the past and the present. The present-day goal of human civilization becoming a multiplanetary species and how we go about achieving that goal will determine how we are perceived by the biological and post-biological civilizations we may encounter as we traverse the stars. More specifically, humanity's reputation might be all it has within the larger universe, considering that we do not know where humanity fits within the larger collective of potential civilizations already in existence. As to where humanity has been allowed to repeat mistakes or intended actions/decisions at a generational level, that will be less likely once we enter the broader community of space and the galaxy. Any long-term space ethics we formulate should consider not only how other civilizations could

⁶ Roger D. Launius, "Escaping Earth: Human Spaceflight as Religion," *Astropolitics* 11, no. 1-2 (2013): 45-64, <https://doi.org/10.1080/14777622.2013.801720>.

perceived the actions we take and the decisions we make, but how they could be perceived in the future if extrapolated to their fullest conclusion.

Long-term space ethics ultimately has two simultaneous missions: one, the far-future mission, which would address higher-order issues of uncertainty and complexity; and two, the near-future mission, which addresses more immediate and accessible issues of uncertainty and complexity that humanity might be able to resolve. One example of a far-future conundrum would be how humanity plans to survive as our Sun continues to age. The near-future focus of space ethics mainly concerns planet Earth and how seeing the positive long-view aspects of space, such as the Overview Effect, can help humanity to improve our relationship with our homeworld. At present, there is no universal set of human values that incorporates equitable human, nonhuman—animal or other, and plant rights as well as environmental rights that recognize Earth as a being in her own right vis-à-vis various legal institutions. With a better conceptual understanding of one another, our cultures, and the Earth, humanity will be better equipped collectively to address present-day and future challenges. For example, how does humanity evolve in such a way that the natural environment can be sustained? That the interconnected communities of nonhuman species on Earth can thrive and maintain their populations? That Earth can heal? That the human ecosystem can flourish without undermining the very foundation that has nurtured us to this point in time?

To begin working toward achieving both these missions, long-term space ethics should be flexible in scope (planetary scale) and adaptive in nature (at the national and local scale), taking into account creating solutions that consider as many communities as possible (if not all communities) to identify and implement the best courses of action. Space ethics should explore the formulation of a core set of principles that are consistent with the actions we take on the extraterrestrial, planetary, national, and local scales. More importantly, they need to incorporate how to protect and respect others, both on Earth and in space, while at the same time protecting humanity's safety and well-being, if that is possible to achieve. It will be challenging, to be sure. Some mindset shifts—the evolution of consciousness—will be necessary to create the balance we need to achieve a reasonable ethical and moral practice. Humanity is capable of doing this if it wants to.

As we look to the stars to inspire us to a new understanding of compassion and unity, humanity should keep in mind that once we join the broader community of potential civilizations traversing space, our reputation, actions, and decisions are all we can claim as our own. With every potential first contact scenario we could possibly experience, we might only have one chance to get it right. Therefore, the moral psychology of humanity's relationship to other species, as well as to inanimate nature, is a larger question than ethics *simpliciter*, and the discipline of space ethics will have to expand its scope to study these problems in an interdisciplinary context that draws from psychology, anthropology, sociology, and astrobiology, *inter alia*.

Future Research in Space Ethics

A more thorough future report for an ethics task force representing the HSP may wish to elaborate further on the themes developed above, as well as studying the moral implications of questions such as the following, *inter alia*:

- Why ethics for space?
- What if ethics is neglected in the space exploration epoch?
- What does space mean?
- What does nature mean?
- What do human rights mean?
- What do nonhuman animal, plants, and AI rights mean?
- What does Earth mean and how is it understood?
- What is the value of space exploration?
- What moral obligation, if any, does the Overview Effect entail?
- What moral obligation, if any, does a space program entail?
- Is the HSP relevant to ethics?
- What is the moral vision of the HSP?
- How is human moral experience changed by space exploration?
- Does any action/inaction today affect long-term human survival?
- Is humanity morally compromised by our space exploration to date?
- Will space exploration today have a negative or positive impact in the longer term?

The questions we ask will shape how we ultimately view space ethics. Furthermore, developing space ethics could be facilitated through the following research agendas, *inter alia*:

- Analogous formulations of traditional ethical doctrines, adapted specifically to a space exploration and development context.
- Thought experiments in space ethics specific to the space environment, employing the resources of experimental philosophy to probe our geocentric human intuitions regarding the realities and the ideals of human life in space.
- Illustrative scenarios of moral dilemmas in space and distinctive to the space environment.
- Educational initiatives in ethics for astronauts, space migrants, and the space industry.
- Detailed and specific formulations of research questions in space ethics as an agenda for space ethics as a discipline.

These potential research topics for a more thorough ethics task force could be extended and elaborated through an engagement with existing moral philosophy and

moral psychology. The potential scope of such an inquiry is as unlimited as are human possibilities in the universe.

Provisional Recommendations

In the immediate term, and before the HSP Ethics Task Force proper is constituted, the way can be paved for a comprehensive inquiry into space ethics by the eventual task force through the following steps:

- Hold space ethics essay contests with monetary prizes, ranging across all demographic cohorts, to engage the public in space ethics concerns and to draw interested persons into the space ethics community, from which members of a future Space Ethics Task Force may be drawn.
- Author a curriculum on space ethics specific to the HSP.
- Collect resources specific to space ethics—create public documents to which all interested parties can contribute, including a bibliography of space ethics, a list of ideas relevant to space ethics, and so forth.
- Create discussion forums on several social media platforms for space ethics, under the auspices of the HSP to discuss space ethics ideas and to build and broaden a virtual community around space ethics.
- Organize a space ethics conference, again under the auspices of the HSP.
- Conduct a survey of all cultures that demonstrate an interest in participating in space development to express conceptually how they understand space and space ethics, and what space means to them through their own language's terminology.
- Prioritize the cleaning up of space debris around our planet as an integral part of the HSP. For any extraterrestrial civilization that sees Earth as it is passing through our solar system, this would be a very telling sign for them that could impact how it views us; the externalities of our space program to date are a reflection of who we are as a species with a space program.

These recommendations are not to be considered exhaustive. Any effort that will raise the profile of space ethics and inculcate the importance of ethical reflection at the beginning of outer space development, whether for humanity on the whole or for the HSP in particular, will be a worthwhile endeavor.

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Editors' Notes: The *Overview Effect*, a term coined by KSI Professor Frank White, is a shift in worldview reported by people during spaceflight. It refers to the experience of seeing firsthand the reality that the Earth is in space, a tiny, fragile ball of life, without borders. The *Overview Round Table* is an informal group that meets weekly to promote sharing this perspective with others here on Earth. The HSP, founded based on Professor White's work, is dedicated to creating space exploration as a central project for humanity—one that will result in ethical, inclusive, and sustainable expansion into the solar ecosystem. This summer, for the first time, the HSP organized round table participants into several prototype task forces, each meant to consider a specific issue such as education, psychology, governance, or religion in relation to the coming human migration into space.

J. N. "Nick" Nielsen led the proto task force on ethics, which included Rebecca Schembri (who contributed another article to this issue) and others named in the byline. The group's work culminated in a presentation to the round table, and in this written report. We are glad to present it here in the *Journal of Space Philosophy*, where ethics, moral decision making, and moral leadership are of primary concern. The group's aspirational long-term thinking is evident in the questions they ask and the recommendations they leave for those who follow. ***Gordon Arthur and Mark Wagner.***