

The Obligation to Succeed¹

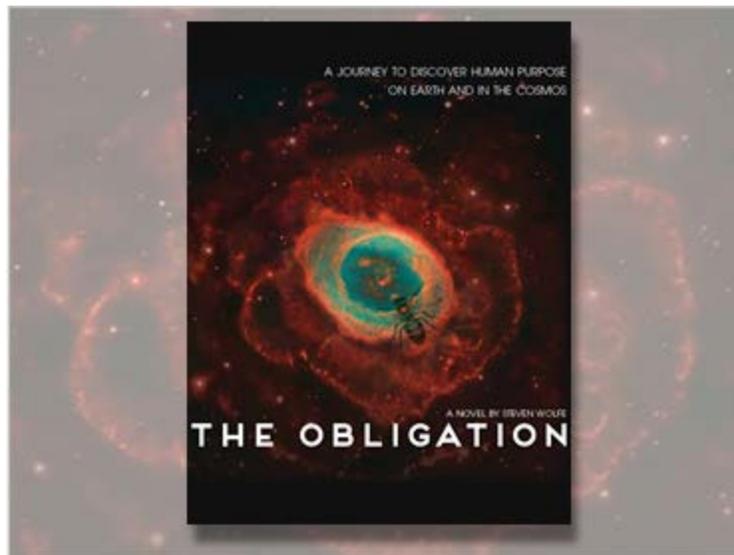
By Steven Wolfe

Abstract

The Moon calls us to wonder at her beauty and potential. The seeming indifference of the Moon as the author watched it through the smoke of the burning Twin Towers on 9/11 sparks an internal inquiry on whether the universe cares whether humanity survives or not. In a moment of revelation, it becomes clear that there is a primordial *Obligation* imbedded in human DNA that has been driving both the desire to reach outer space and the development of the capacity for achieving it. All of our basic human characteristics, or *endowments*, are ultimately drivers enabling our spacefaring proficiency. The other critical enabler is our innate tendency toward conquest and great central projects. The insatiable human desire to concentrate material and intellectual resources down through the ages has served as an engine for an increasingly technological civilization. The temples, palaces, and skyscrapers quite often resemble the very rocket ships and space habitats of which they are the undeniable precursors. As the technological pieces for human expansion into space finally come together in our age, a new bill will set the stage for the first permanent human settlements in space—the final fulfillment of the *Obligation*.

Key words: Space travel, space settlement, obligation, endowments, Moon, Mars, September 11.

Introduction



¹ This article is adapted from a talk presented on November 9, 2014 at the Next Giant Leap Conference held at the Waikoloa Beach Marriott, Hawaii Island. This piece presents a philosophical perspective contained in the author's book *The Obligation*, which explores the primal motivation for human space travel. The article also describes a specific legislative initiative that will attempt to elevate discussion of a space settlement goal in national space policy discourse.

I would like to invite you to take a moment to step back and contemplate just what it was that made you so interested in space travel. In the following pages, I want to discuss the “Why?” of space as I have detailed it in my book *The Obligation*. What is it about who we are as humans that has led us very intentionally to become the spacefaring race that we are?

Toward the end of this article I discuss a new piece of legislation about to be introduced in the U.S. House of Representative that places space settlement at the forefront of public policy discussions. If you stay with me, I think it will inform how you think about human purpose in context of the world in which we have emerged.

Why Space?



I have always been intensely interested in space technology and how it can benefit society. This interest led me to found an L-5 Chapter at college, and took me to Washington DC to work on space policy. But it was only after I left the Hill that I began an internal exploration of why it is that I am, like many others, so deeply interested in space development.

So let me start by asking: Why are you so interested in space? What was it in your life that got you so energized about the topic? Is there a particular event or a-ha moment? Or was the fascination with space something that was just always a part of you?

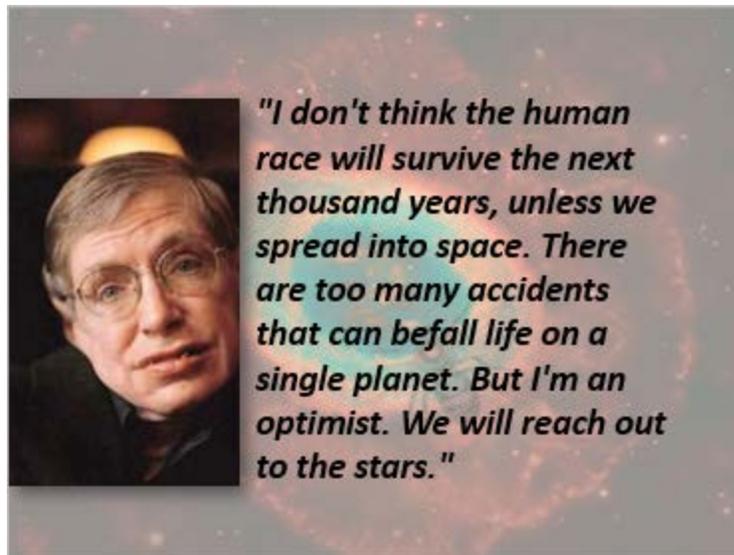
We are all here to talk about the Moon. We all have memories of gazing at the Moon. I remember the time my wife and I were sitting on the beach at night on Fire Island watching the Moon rise out of the ocean. I remember many times being woken up by the light of the full Moon shining through my bay windows. In those quiet moments you have to get up and just stare in awe and wonder.



But my strongest memory of moon gazing was one day on my way to the office when I watched the Moon darting in and out of the billowing cloud of smoke coming from the burning twin towers on 9/11. That is actually me looking up at the burning towers that morning. Someone with a video camera had captured my reaction, and the clip made its way into one of the 9/11 documentaries.

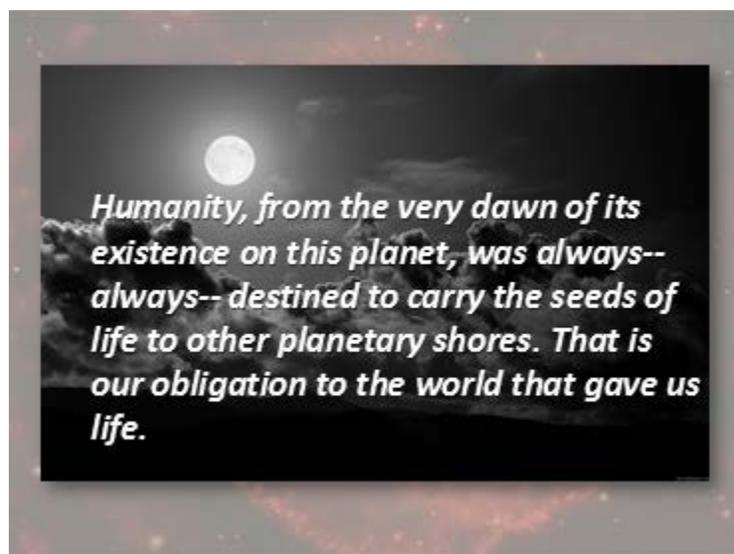
The Moon for me in that moment was a welcome sight amid the chaos that was unfolding all around. It seemed that the Moon did not care as it made its way gently across the sky. The universe did not seem to care that terrorists were invading American soil, or that we might destroy ourselves altogether, or that we might be annihilated by some errant asteroid or a runaway pandemic.

For a time during that period I wondered if it might not be just as well if we never left this planet, and just died out without having colonized the Moon or distant stars. Would it really matter anyway? But these doubts did not overturn my lifelong sense of urgency that humankind must expand into space. And I was left wondering why I even held such an unshakable view.



A month after 9/11, Stephen Hawking was quoted as saying, "I don't think the human race will survive the next thousand years, unless we spread into space. There are too many accidents that can befall life on a single planet. But I'm an optimist," he said. "We will reach out to the stars."

This thought offered some encouragement. Even if the universe did not care whether humanity lived or died, at least we did. Humanity certainly cares for its own survival, and that should be good enough. And of course, there are the many life-enriching benefits from a society that spans the solar system and beyond. But even Hawking's quote was not enough to satisfy my desire to understand why I—personally—cared so much about space development?



Eight months after 9/11, I was lying alone in a dark hotel room when this familiar question came to my mind: "Why am I so deeply interested in space development, and why are so many others?" I felt I was almost physically wrestling with this question. It

was a “dark night of the soul” moment for me. It was in that room at three o’clock in the morning that an overwhelming realization occurred to me.

It was this thought: Humanity, from the very dawn of its existence on this planet, was always—*a/ways*—destined to carry the seeds of life to other planetary shores. That is our obligation to the world that gave us life. From the moment we appeared on the plains of Africa, humankind was destined to spread life beyond this planet; this obligation is written in our DNA and we are now finally in the early stages of fulfilling it.

Therefore, we are not a spacefaring society as an outcome of a random evolutionary process. Instead, the need for us to have spacefaring capability was the very reason that the evolutionary process took the course that it did.

Gaia’s Agent



The logic of this idea began to make more sense when I looked at the biosphere, or Gaia, as a single living entity, as James Lovelock suggested. If Gaia is, in fact, a living organism, shouldn’t she behave in the same manner as every one of her constituent species? Could it be that Gaia herself has matured to a point where she too is ready to reproduce?



Speaking in biological terms, in order for this reproductive process to occur there needed to emerge within the biosphere the capacity to organize the resources of the planet into seedpods that can be sent out into the cosmos where life can take root and begin anew. In this context, humankind with all its particular complexity *needed* to emerge in order to serve this purpose.

This is an obligation we have been working to fulfill for 50,000 years without being aware of it. Like the bumble bees engaged in life-giving service to the flowers they harvest for sweet nectar—and having no idea how essential their actions are to the health of the whole ecosystem—we too have been engaged in an unconscious process of technological development whose ultimate purpose we could never before imagine.

This new perspective made me realize that space travel is not just about human survival. We will expand civilization into space for the sake of the whole biosphere. Earth very much cares that we succeed in space.

The Endowments



In contemplating this revelation further, one of the first questions I asked was, “what is it about who we are as humans that would prove, or at least support, the idea that such an obligation actually exists?”

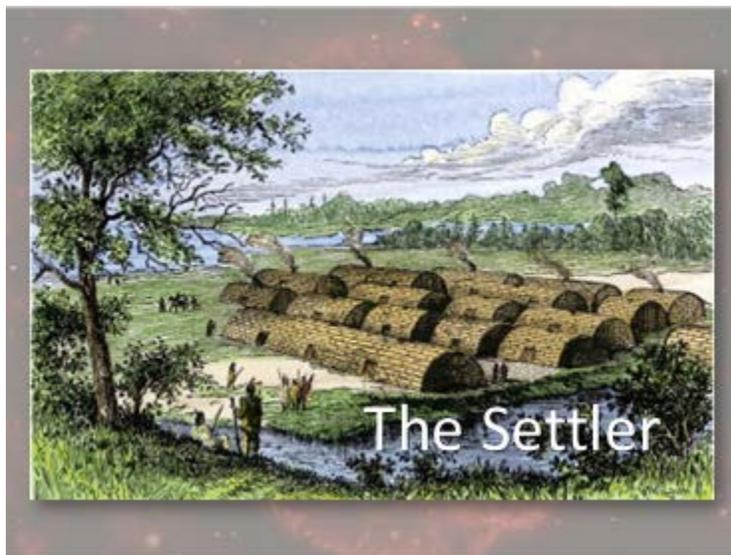
Certainly, at the heart of what it is to be human is our sense of wonderment about the world around us and our desire to understand what is in front of us.

Then I thought further about the human capacities that more directly impacted our eventual rise to spacefaring status. After some consideration, I defined a list of six traits, or endowments, that encompass the range of human capabilities that have enabled our species to go from hunters and gatherers to engineers and entrepreneurs capable of delivering payloads to an orbiting space station.

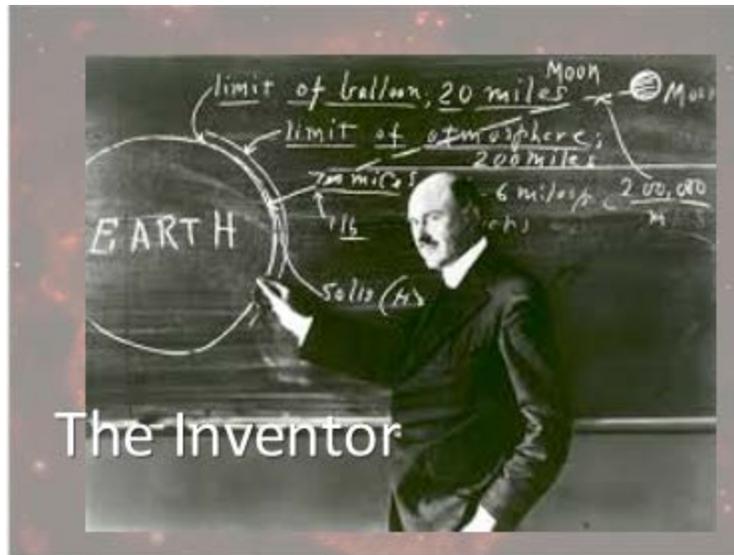
These six endowments can be explained as archetypes. All of these endowments are part of everyone. However, individually, we will each tend to express one or two of these traits more strongly than the others. So it is the confluence these endowments expressing throughout the population that has perpetually spurred society and technology forward throughout history. As I briefly describe each endowment, see with which ones you most identify.



The wanderer is the one who led his tribe some 60,000 years ago to leave the plains of Africa to populate every continent on the planet by 10,000 BCE. And she is the one who desires to explore the craters of moon and travel to distant stars



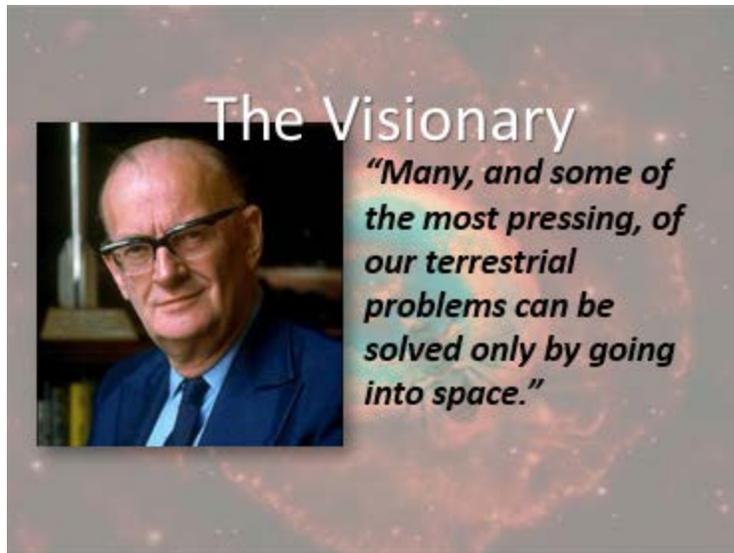
The settler is ever on the lookout for a safe haven for her tribe where its members can strengthen themselves and build a community. The Settler is not interested merely in making a fortune in space, he wants to build communities out there where people can live and work safely and comfortably.



The inventor is the problem solver. He asks, "How can I increase my crop yield? How do I build a better hut that will withstand the heavy rains?" The inventor will solve every problem and do whatever it takes to get us back to Moon, this time to stay.



The builder is the artisan, the craftsman, the business executive who is very good at performing the same type of job over and over again. The builder takes the ideas of the inventor and replicates them throughout society, and as a result civilizations are born. The builder will expand the first lunar colony from 100 citizens to 100 million.



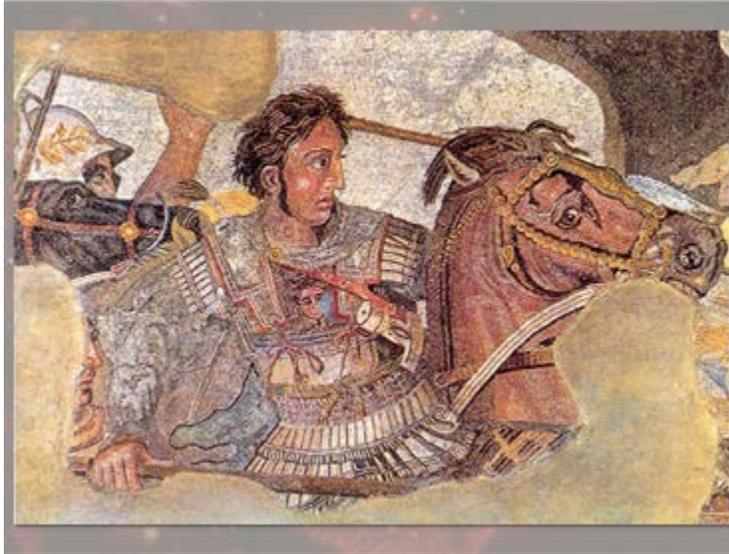
The visionary is the artist; the conqueror; the entrepreneur, who is able to see the big possibilities for herself and her community and empire. The visionary is the writer who can create a future world in space of such wonder and possibility that we are motivated to spend a lifetime trying to make it a reality.



The protector is determined to keep safe what we have built as a civilization so that we can continue to improve as we move into the future. She is the builder of the Great Wall of China, the Library of Congress, and JPL's near earth object program. He is most interested in the settlement of space because he sees that as the best way to ensure human survival.

Perhaps there are other endowments that we can add or replace to this list. The essential point is that without even one of these endowments, not only would space travel have not been possible, but civilization as we know it would not have existed either.

The Central Project

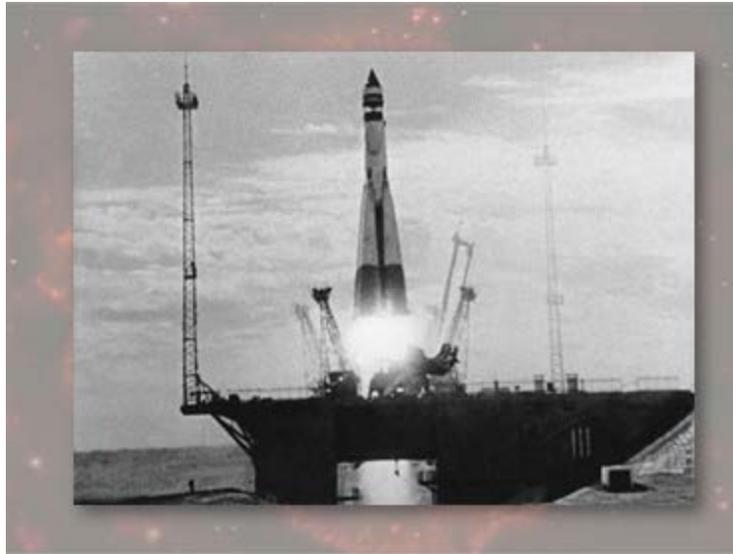


But the presence of the endowments in human consciousness alone is not enough to explain our march to space that began in antiquity. What has really propelled these endowments in the direction of the obligation is a particular pattern of collective behavior that we have seen repeated again and again throughout history.

The great conquerors of history, whether they were praised or vilified, were driven by a common urge to accumulate and control as much wealth and resources as they could.

Invariably, once such power was attained, the ruling class set to work on some great central project that most often included a structure that reached toward the heavens. Kings, chieftains, and business moguls have built ever more complex and sophisticated structures as symbols of their exalted power.

These central projects brought together the best inventors and builders, visionaries and protectors to go on pushing the bounds of what was possible, and with each project taking us one step closer to spacefaring capability. It was an iterative process that spanned 12,000 years that developed and honed our technological sophistication.



Once space travel finally did become possible, some of the wealthiest nations immediately adopted the space program as the new central project of the 20th Century, bringing us to the very threshold of fulfilling our ancient obligation.

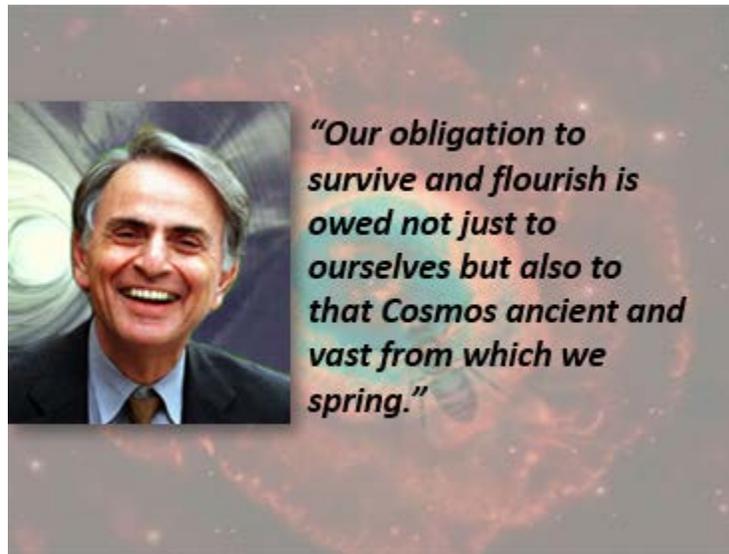
We typically assign Cold War geopolitics as the main reason for rapid development of space capability in the mid-century. I suggest, however, that all of our space-related efforts are in response to an evolutionary impulse to do so. The Cold War might have been an accelerator, but this evolutionary impulse, like water flowing downhill, would have found a means of expression one way or another.



We are now in the end stage of fulfilling our obligation—or at least I hope we are. I am optimistic because leading the way down the final stretch of road are the billionaires and entrepreneurs who have no other desire than to use their considerable wealth and talent to pave the way for eventual human settlement of space. They will pull the rest of humanity along in their wake.

The Universal Plan

I have briefly painted a picture of what it is about the human condition that gives credibility to the idea we have a primal obligation to carry the seeds of life to other planetary shores on behalf of the planet that gave us life. But this story is not just about Gaia and humankind.



Carl Sagan said, "Our obligation to survive and flourish is owed not just to ourselves but also to that Cosmos ancient and vast from which we spring." Sagan is right. We are part of a much bigger process that has been unfolding since the moment of the Big Bang.



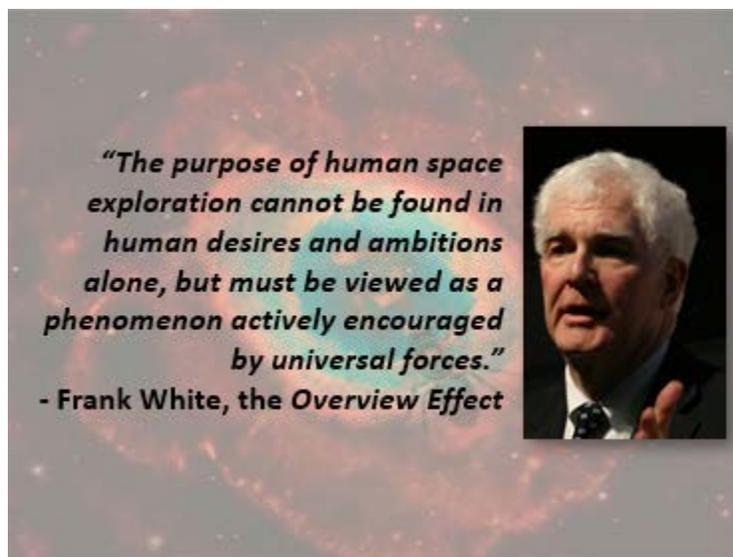
This story is a variation on the old idea of a clockwork universe theory that was popular in Newton's time. The metaphor for our age is to think of the universe as a living organism that has developed according to a universal DNA code.

The mass of super-hot, undifferentiated particles that emerged at the moment of the Big Bang were *destined* to form into gaseous clouds that would condense into galaxies, stars, and planets.

Similarly, life itself was *destined* to emerge from the soup of complex elements produced in the crucible of the stars. Was this particular planet we live on destined to evolve with sentient beings that looked exactly like us? I do not think that is the way it works. A better way to think about it is that sentient life is always destined to arise on any planet that adequately fits a certain set of criteria. We just happen to be fortunate enough to live on one of those planets. And the human role in taking life out into space is a continuation of this process.

So now you know the truth, or at least the way I see things. It is humbling to think that we are playing a predetermined part in a process that is quite literally as old as the universe.

This also brings me back to my thoughts on 9/11. If what I have just said is true, than what I thought on 9/11 was completely wrong. The universe in fact does care that we succeed and survive and continue to thrive out into the solar system and to the stars.



Frank White said it well: "The purpose of human space exploration cannot be found in human desires and ambitions alone, but must be viewed as a phenomenon actively encouraged by universal forces."

In this context, the actions of anyone involved in the space community are, in fact, a matter of vital urgency. And I want to suggest that we engage in our work as if the future of civilization were in the balance, because in a very real way, I believe it is.

A New Legislative Initiative

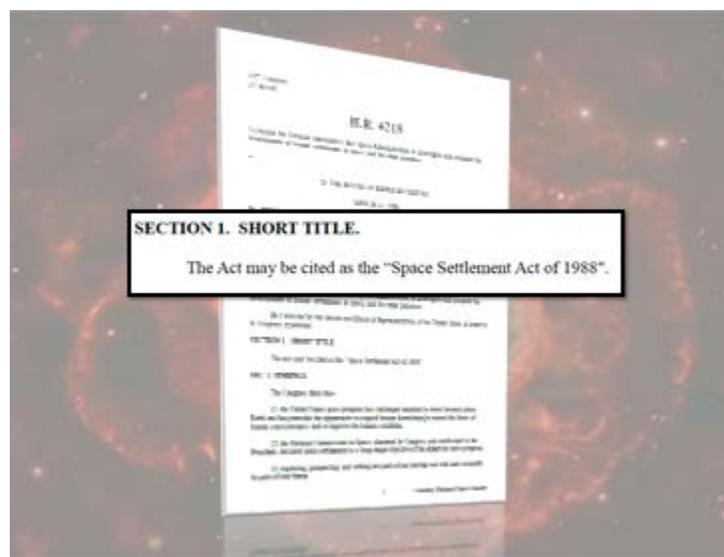
On that note, I want to shift the discussion from the obligation and the "Why?" question, to a concrete effort that could propel us toward the fulfillment of the obligation. There is

a new piece of legislation being developed that I expect will have a positive effect on the prospects for returning to the moon and establishing a permanent presence there.

First a little background.



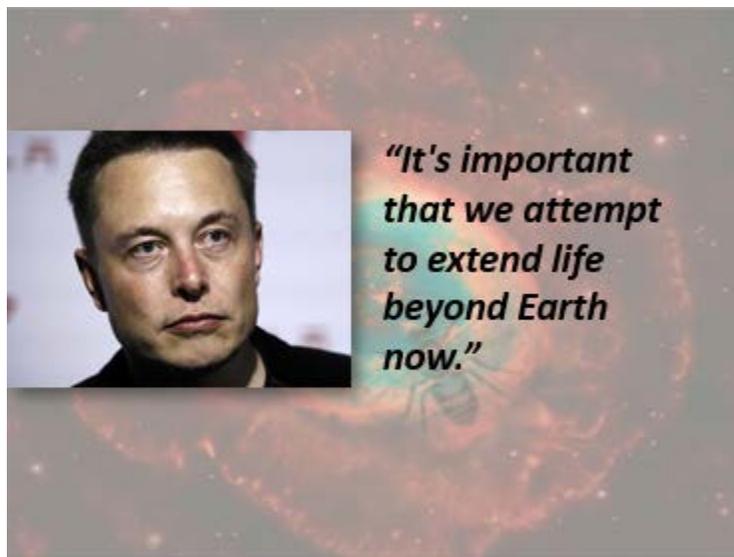
There actually was a brief time in the 1970s when it was OK to talk about space colonies because of the work of Dr. Gerard K. O'Neill. But, while O'Neill's ideas fired up the minds of many young people, including my own, support for space colony research within the U.S. government was fragile. So, when Sen. William Proxmire declared that he would not appropriate "a penny for this nutty fantasy," congressional support and public attention for the idea vanished overnight.



Toward the end of my tenure on the Hill, I wondered if there was something I could do to restore interest and research into space settlement ideas.

I drafted the Space Settlement Act of 1988, a bill that was eventually signed into law by Ronald Reagan as part of the NASA authorization bill for that year. It declared space settlement a positive outcome of all our activities in space, and called on NASA to monitor and report on space settlement-related technologies. I wish I could say that the law changed the conversation space settlements, but I am afraid it really did not. It was just too far ahead of its time.

Now we are in a new exciting period, where, for example, two major space accidents can occur in one week and the industry barely misses a beat. The loss of Orbital's Antares ISS resupply mission is just a temporary inconvenience, because the next resupply missions are already lined up with SpaceX and the Russians. Virgin Galactic has already announced it will immediately start work on a replacement SpaceShipTwo test vehicle.



What is more exciting and encouraging for me is that the language of space settlement is working its way into the conversation, thanks in large part to Elon Musk's popularity and eagerness to discuss the eventuality of Martian settlement, seemingly at every opportunity. NASA Administrator Charles Bolden is also talking the same way. He puts it this way: "We're going to go to Mars with the intention to occupy it."



It is in this new climate of optimism that an effort is underway to introduce new legislation that would make space settlement a clear objective of national space policy. The effort is spearheaded by the Space Frontier Foundation and supported by the National Space Society.

The new bill is currently titled the Space, Exploration, Development, and Settlement Act and will be introduced by Cong. Dana Rohrabacher at the start of the new Congress. This will be a bi-partisan coalition effort involving many stakeholders.

The measure will amend the organic code governing federal space policy with this language.

(d) Exploration, Development and Settlement of Space.—The Congress declares that the extension of human civilization beyond Earth’s atmosphere for the purposes of advancing science, exploration, and development will enhance the general welfare on Earth and requires the Administration to encourage and support the development of technologies and capabilities that will enable the construction of permanent human settlements in space, including the Moon, Mars, and other locations.

I believe that as a nation and an international community, there is no limit to what we can commit ourselves. It should not matter that a goal to establish a permanent self-sustaining community on the Moon may take 50 or even 100 years. Our friends in China have no problem making and fulfilling such long-term goals. And as I argued 26 years ago, establishing a space settlement goal serves to bring that future possibility more quickly into the present.

To be successful, this initiative will require considerable effort on the part of space advocates everywhere. If you would like to find out how to get involved go to spacefrontier.org/space-settlement-project/.

A Closing Thought



Earlier, I discussed the obligation to expand life beyond Earth. Whether you can buy in to the obligation philosophy or not, you have already made a life choice to be part of the process of extending human reach into space. So, the next time you are gazing at the moon, I just want to invite you to ask yourself why it is that you are so committed to this cause. The answer might surprise you.

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About the Author: Steven Wolfe has been a writer, speaker, and advocate for the advancement of the space settlement concepts and related ideas for more than 25 years. He was a legislative aide for the late Cong. George E. Brown, Jr., and served as executive director of Congressional Space Caucus. He served on the board of directors of the National Space Society, president of the New York Space Frontier Society, and Advocate of the Space Frontier Foundation. Steve drafted the Space Settlement Act of 1988 for Cong. Brown. The bill was signed into law by President Ronald Reagan as part of the NASA Authorization bill.



Editors' Notes: Steven Wolfe's exploration and development of the theory concerning the impulses that drive exploration and success of all kinds, and Space exploration in particular, are a welcome addition to the *Journal of Space Philosophy*. **Bob Krone and Gordon Arthur.**