

The Space Option: Our Cosmic Choice

By Arthur Woods

If one believes that other technological civilizations have appeared throughout the cosmos, then one can speculate that they must have faced a similar choice to the one that confronts humanity at this particular moment in its history. Did these distant civilizations decide to use their technology and knowledge to extend their civilization beyond their home planet in order to perpetuate their species or did they misuse their technology and knowledge and let their civilization decline and their future be destroyed? This situation is called the *cosmic choice* – a decision that any technological species must make about its future at a critical point in its evolution – most specifically when Space technology has appeared.

Here on Earth, human civilization has reached such a point in its development where it has evolved the means to leave its home planet and to begin operating in the environment beyond its atmosphere. Optimistically, this development may enable humanity to utilize this technological capability to harness the infinite resources located off Earth in order to improve the well-being of the population as well as improving the chances that its current civilization can continue to prosper in the decades and centuries ahead – both on Earth and eventually in other places in the solar system. On the other hand, this same capability could also be used in a negative manner in order to exert tyrannical control over a majority of the population, thereby limiting prosperity to a select few or, in the ultimate worst case, it could be used to destroy civilization and humanity's only chance of expansion into the cosmos.

Gerard K. O'Neill once posed the following question:

Is a planetary surface the right place for an expanding technological civilization?¹

This question concisely encapsulates the idea of a *cosmic choice*. An evolving technological species existing on a planet with finite resources is faced with the ultimate challenge of maintaining its development and the viability of its civilization before it reaches the threshold of unsustainability and/or the possibility of collapse. In order to meet this challenge, it will need additional resources beyond those that are available to it on its home planet as well as an expanded environment that will stimulate the further development of its technological capabilities.

¹ Stewart Brand, "Is the surface of a planet really the right place for an expanding technological civilization?" interview with Gerard O'Neill, in *Space Colonies*, ed. Stewart Brand (Harmondsworth, UK: Penguin, 1977), 22-30.

Of all the options available to humanity at this moment, the Space option presents our species with a cosmic opportunity to meet the basic and anticipated needs of human civilization through the utilization of extraterrestrial resources and to apply these resources for use on Earth so that humanity may survive and thrive in an eventual era of peace and prosperity. The process of accessing and harnessing these resources will in turn create an infrastructure beyond the atmosphere upon which further expansion of the human civilization can be anticipated. Consequently, if human civilization can be established beyond Earth, then the chances for its ultimate survival will correspondingly increase. However, by not embracing the Space option, the possibility that humanity will be overrun by one or more of the many threats to its survival will increase and, likewise, its chances of ever becoming a spacefaring species will diminish. Therefore, today, we find ourselves in precisely this a critical situation – one that constitutes our *cosmic choice*.

Most people intuitively assume and fundamentally believe that terrestrial problems must have terrestrial solutions. This is obviously due to a lack of understanding about our interconnectedness and interdependence with the rest of the cosmos. As a terrestrially evolved organism, it is in our genes to adapt to our immediate environment as we have over millions of years. Only recently have we begun to become aware of how celestial events affect our lives. We now know that such events have been critically important to the evolution of life on Earth. Impacts of comets most likely provided a young Earth with the necessary water and perhaps even the necessary genetic materials for life to appear. Subsequent impacts by large asteroids are believed to have resulted in mass extinctions of life at various times in the history of our planet. The cycles of the sun have resulted in a number of cold periods or ice ages where life had to struggle to survive and numerous warm periods where life has blossomed and spread. And now, in recent times, human civilization has become increasingly dependent on technological assets located in Space. Removing these Space assets would pose dire consequences for the functioning of our complex technological society. Thus, in all aspects, humanity's future on Earth is irrevocably linked to its future in Space. So choosing the Space option as an optimistic pathway to securing our future would appear to be a logical choice to make.

Table 1 lists a number of problems, issues, and challenges currently confronting human civilization that are paired with possible solutions that can be found through the utilization of Space resources and technologies.

Table 1. Earth Problems and Space Solutions

EARTH PROBLEMS	SPACE SOLUTIONS
Increase of CO ₂ in the atmosphere.	Space-based solar power replaces hydrocarbon fuels
Meeting future energy needs	Space-based solar power and lunar Helium-3 fusion supplies unlimited energy
Global warming	Solettas and sun shields could block sunlight and permit cooling

Global cooling	Solar power satellites and Space mirrors to raise the temperature
Cosmic threats from asteroids and comets	Space infrastructure for planetary defense
Population pressures	Population stabilized through higher standard of living
Industrial pollution of the biosphere	Moving polluting industries into Space
Ground transportation	Space-based solar power supplies necessary energy
Desalination of water	Electric and hydrogen-fueled vehicles powered by energy from Space
Economic crisis	Millions of new jobs in the Space tourism, Space mining, and Space power industries
Declining prosperity	Importing wealth from Space instead of depleting the remaining resource wealth of Earth
Government planned and regulated economies	New free and open markets and entrepreneurship opportunities
Increasing creation of debt	Wealth creation through expanding economies in Space
Worthless fiat money	An extraterrestrial commodity-backed currency
Lack of habitable room	Creation of new habitats and colonies throughout solar system
Political repression and control	Individual freedoms and creativity
Resource wars on Earth	Harnessing infinite extraterrestrial resources for use on Earth
Empire-oriented governments	International cooperation to develop Space
A small and elite ruling class	Educated, prosperous, and democratic self-determining societies
Geopolitical conflicts	Aggressive human tendencies redirected to conquering the Space frontier
Development of the technologies of death and destruction	Development of the technologies for promoting peace and life
Increasing sense of despair about the future	Increasing a sense of human purpose and hope about the future

Loss of bio-diversity	Renewed reverence for all life
Vulnerability of life on Earth	Resilience of life on and beyond Earth
Ultimate extinction of life on Earth	Survival and perpetuation of humanity and all terrestrial life throughout the cosmos

Each of these issues and the accompanying Space solution could and should be addressed in much more detail. It would surely be an interesting study to take each issue and compare the terrestrial and extraterrestrial options that are proposed as solutions. This list shows us that by considering the solutions imbedded in the Space option concept, humanity may be able solve some – if not most – of its many pressing issues simply by thinking beyond the limits of a finite planet. If it applies these solutions responsibly, then its future chances of survival will increase.

Most of these problems can be traced to the ever-expanding activities of the human species that has resulted in it occupying every available niche and exploiting every available earthly resource for living, working, and maintaining society. This process has led not only to the development of our technological society and its many advantages, but also to the disadvantages of having such powerful technologies available to be used in an irresponsible and dangerous manner.

It could be argued that the most critical issue facing humanity, the one that will most likely determine its ultimate success or failure as a species, is its propensity to wage war. Since the beginning of human history, war has been the method most often chosen to resolve conflicts of interests among nation-states or communities through the use of violence. Mostly, such conflicts and the resulting wars were about gaining control over populations and resources accompanied by the lust for power over others. The concept of *right* expressed through *might* is still widely practiced by societies of the 21st century. With the invention of nuclear weapons, the development of missile delivery systems, and the willingness of governments to use such technologies for solving terrestrial problems or exerting their power, humanity has lived on the brink of making its *cosmic choice* for more than a half a century.

In 1932, Albert Einstein was contacted by the League of Nations and was asked to invite someone (the choice was up to him) to reflect on a pressing problem or question in a series of public letters. Einstein question was “Is there any way of delivering humankind from the menace of war?” and he selected Sigmund Freud as his interlocutor.

Einstein’s views were mostly practical and political and he spoke of power and right or violence and law. He called for a world in which law would supersede violence and urged the international community to create a legislative and judicial body to which all nations would ascribe to and unreservedly accept its judgments that would settle every conflict without violence.

In a subsequent letter dated April 26, 1932 to Arnold Kalisch, editor of the magazine *Die Friedensfront*, Albert Einstein wrote:

As long as all international conflicts are not subject to arbitration and the enforcement of decisions arrived at by arbitration is not guaranteed, and as long as war production is not prohibited we may be sure that war will follow upon war. Unless our civilization achieves the moral strength to overcome this evil, it is bound to share the fate of former civilizations: decline and decay.²

Freud's reply to Einstein explained that humans are torn between a drive for *eros* or connection, and a drive toward *thanatos*, death or aggression. The eagerness to engage in war is a product of the drive toward aggression, which itself is always embedded in political, social, and economic contexts. Freud argued that one can bring *eros* into play against *thanatos* in that whatever leads us to share important values also produces a sense of community: "Anything that encourages the growth of emotional ties will operate against war."³

In his book, *The Overview Effect*, Frank White's reflections on war and Space exploration appear to echo Freud's insights closely:

War and space exploration are alternative uses of the assertive, exploratory energies that are so characteristic of human beings. They may also be mutually exclusive because if one occurs on a massive scale, the other probably will not.⁴

Whatever the justifications for war – the victor in most such conflicts is usually the one with the superior technological advantage and Space technology is deeply embedded in today's military arsenals.

Carl Sagan wrote in *Cosmos*:

The choice is stark and ironic. The same rocket boosters used to launch probes to the planets are poised to send nuclear warheads to the nations. The radioactive power sources on Viking and Voyager derive from the same technology that makes nuclear weapons. The radio and radar techniques employed to track and guide ballistic missiles and defend against attack are also used to monitor and command the spacecraft on the planets and to listen for signals from civilizations near other stars. If we use these technologies to destroy ourselves, we surely will venture no

² "Why War? - Albert Einstein and Sigmund Freud." from *The Einstein-Freud Correspondence* (1931-1932).

³ Diane Jonte-Pace, "Freud, Einstein, and Upaya: Contemporary Reflections on the Question 'Why War?'" chabrieres.pagesperso-orange.fr/texts/whywar.html; see also "Why War?" www.public.asu.edu/~jmlynch/273/documents/FreudEinstein.pdf.

⁴ Frank White, *The Overview Effect: Space Exploration and Human Evolution* (Boston: Houghton Mifflin, 1987), 126.

more to the planets and the stars. But the converse is also true. If we continue to the planets and the stars, our chauvinisms will be shaken further. We will gain a cosmic perspective. We will recognize that our explorations can be carried out only on behalf of all the people of the planet Earth. We will invest our energies in an enterprise devoted not to death but to life: the expansion of our understanding of the Earth and its inhabitants and the search for life elsewhere. Space exploration—unmanned and manned—uses many of the same technological and organizational skills and demands the same commitment to valor and daring as does the enterprise of war. Should a time of real disarmament arrive before nuclear war, such exploration would enable the military-industrial establishments of the major powers to engage at long last in an untainted enterprise. Interests vested in preparations for war can relatively easily be reinvested in the exploration of the Cosmos.⁵

Thus, the first and most important *cosmic choice* a technological civilization must consider making is choosing between *more war* or *more Space*.

In his book *Collapse – How Societies Choose to Fail or Succeed*, Jared Diamond, a geologist, examines a number of ancient societies that have collapsed, including Easter Island, the Mayan culture, and the Norse settlements in Greenland. He then turns his focus towards the present and future by examining societal catastrophes such as what happened in Rwanda and then he looks at modern societies like China and Australia, whose futures may be mortgaged by environmental degradation and/or overpopulation.⁶

Extrapolating from Diamond's subtitle, *how societies choose to fail or succeed*, by putting it into a contemporary global context we may consider *how civilizations choose to fail or succeed*. Here, Diamond's description of the mysterious story of Easter Island has particular significance for the Space option.

Easter Island, an isolated island in the South Pacific, once had abundant natural resources. It had dozens of species of trees which created and protected an ecosystem fertile enough to support a thriving culture of over 30,000 inhabitants and one that produced enormous stone statues. This society was not murdered or wiped out by invasion; it was not decimated by a pest or by another natural catastrophe. Its collapse appears to have been caused primarily by deforestation attributed to political and social causes such as competition among the chiefs to erect larger statues, which required a large number of trees to move the statues from the building site to the erection place. Larger statues gave them a higher rank and over time the Easter Islanders cut down each and all of their trees one by one. This did not happen overnight. Any Easter Islander who tried to warn about the dangers of progressive deforestation would have been overridden by the vested interests of the stone carvers, the bureaucrats, and the chiefs, whose jobs depended on continued deforestation. In the end, they committed

⁵ Carl Sagan, *Cosmos* (New York: Random House, 1980), 339-42.

⁶ Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking Penguin, 2005).

suicide. They no longer had the one resource – trees – necessary for building fishing boats and for their only means of escape.

When Diamond gives this lecture his students ask the obvious question: “How on Earth could such a society make the disastrous decision to cut down all of the trees on which it depended?” Diamond, too, asks himself: “What was the person thinking when he cut down the last tree?” as he points out that the destruction of the trees was made by rational people who must have been aware of the importance of trees to their survival.⁷

The fact that Easter Island was also quite isolated in the South Pacific made the possibility of emigration to another locality very difficult. Easter Island is located 2,000 km from the coast of Chile and 1,400 km from the nearest inhabited island to the west. Thus, Easter Island is as alone in the Pacific Ocean much as our planet Earth is alone in Space. If we compare the geographical situation of Easter Island to the cosmological situation of planet Earth, then an insight emerges that may have relevance to the survival of our own civilization.

Today, our modern societies have developed quite a complex infrastructure to deal with changes in the global system in order to regulate the economy, manage resources, respond to threats to national security, etc. Yet there is also the inherent problem that group dynamics that characterize our decision-making processes are not always effective and often fail because of competing interest groups and competing priorities. The systemic failures of the world community to manage major problems are numerous; how our governments responded to Hurricane Katrina both before and after the storm, the Gulf oil spill, Fukushima, the financial crises, and the rising tensions first in the Middle East and now in the Ukraine⁸ are clear examples of how such modern systems can and do fail.

Like the natives of Easter Island when they cut down the last tree, we must therefore ask ourselves the following: *Why do our governments continue to invest vast resources into the technologies of destruction rather in the technologies that promote survival, peace and prosperity?*

It is a moral and philosophical dilemma. Either we are more afraid of each other than we are of the real threats to our existence or is it embedded in our character to live in a state of denial and to project our aggressions onto others. The obvious solution would be simply to ban any war of aggression in any form and for whatever purpose.

⁷ Jared Diamond, “Easter Island’s End,” *Discover Magazine*, August 1995, www.hartford-hwp.com/archives/24/042.html; Malcom Gladwell, “The Vanishing,” *New Yorker Magazine*, January 1, 2005, www.newyorker.com/critics/books/articles/050103crbo_books?050103crbo_books: “in *Collapse*, Jared Diamond shows how societies destroy themselves”.

⁸ Editor’s note: This article was written before the Russian invasion of Crimea.

As Robert A. Heinlein succinctly stated in 1970:

It may take endless wars and unbearable population pressure to force-feed a technology to the point where it can cope with space. In the universe, space travel may be the normal birth pangs of an otherwise dying race. A test. Some races pass, some fail.⁹

As our technological civilization continues to develop on an isolated planet with finite room and finite resources our species is indeed rapidly approaching that moment of ultimate decision – *humanity's cosmic choice*. If one believes that economic and technological development are necessary preconditions for peace, then one has to arrive at the conclusion that significant resources are necessary (a) to fuel development and (b) to reduce tension. By embracing the Space option, humanity could provide the necessary new and sufficiently abundant resources for this purpose. This tension-reducing potential is perhaps the greatest contribution of the Space option to peace and security on Earth.¹⁰ As such, it offers a plausible solution to Einstein's question: "Is there any way of delivering humankind from the menace of war?" The answer is "Yes, it must choose the Space option!"

By accepting this realization, any military activities in Space including the use of conventional weapons and/or Space-based military systems and technologies would have to be banned as such activities are a detriment to achieving peace on Earth. If this can be accomplished, then the reduction in military expenditures and eventual worldwide disarmament on Earth could begin in earnest. In this context, the primary contribution of the Space option to end our species' propensity to engage in war resides in the fact that it carries with it an authentic hope, a challenge, and a potential that may be able to compensate for the confusion, despair, and misery of the philosophy of the finite world expressed in the practice of war, which is our main obstacle to becoming a spacefaring species. Apparently, the cosmos does not welcome self-destructive and irresponsible behavior.

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About the Author: Arthur Woods is a Swiss/American artist. He studied psychology, art and literature at Mercer University in Macon, Georgia. After graduation in 1970 and completing U.S. military service he began his art career in California in 1972 before moving to Switzerland in 1974 where he now lives and works.

Arthur Woods's involvement with space activities began over fifty years ago when he personally witnessed the beginnings of the U.S. space program while living in the immediate vicinity of Cape Canaveral and the Kennedy Space Center (1959-1970).

⁹ Robert A. Heinlein, *I Will Fear No Evil* (New York: Putnam, 1970).

¹⁰ Marco C. Bernasconi and Arthur Woods, *The Space Option – A Précis*, www.thespaceoption.com/the_space_option_a_precis.php

During the summers of 1967-1968 he worked at the space center during the Apollo program. In the mid-1980s he initiated a number of art-in-space projects including the spaceflight of his Cosmic Dancer sculpture (1993) and Ars ad Astra – the 1st Art Exhibition in Earth Orbit (1995) – both projects realized on the Mir space station. In 1990 he founded the OURS Foundation, a cultural and astronautical organization dedicated to introducing, nurturing, and expanding a cultural dimension to humanity's astronautical endeavors.

He has been a member of the International Academy of Astronautics (IAA) since 1995 and served as co-chair of the IAA sub-committee on the arts and literature from 1996-2003, where he was involved in the planning of the IAA sessions related to the arts and humanities held at the annual International Astronautical Congress. He has co-organized and managed several European Space Agency (ESA) and IAA studies including the design and maintenance of the related websites. Presently, he is actively promoting the concept of “The Space Option” via a website he launched in 2013 including the development of the *Space Option Star* and *Send Our Seeds* projects.

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List of publications: http://www.arsastronautica.com/arthur_woods_publications.php



Editors' Notes: We are delighted to add Arthur reflections from his fifty years of involvement in the Space Community to the *Journal of Space Philosophy*. **Bob Krone and Gordon Arthur.**