

Looking Beyond the Overview Effect

By Frank White and Kim Peart

Editors' Note: This is intended as a discussion document. We welcome responses to these ideas.



An early 1900s view of the Earth from space by W. T. Benda.

What may the Overview Effect lead to?

We suggest it leads to the next phase in human evolution. This is explored in the 2006 document, "Creating a Solar Civilization."¹ We suggest that war in space will be a threat to human survival, so we need to build peace on Earth, which will then improve security in space. The best way to build peace on Earth is to end poverty on this planet, which can happen by ensuring that all citizens on Earth can have a career, be able to work, receive a proper income, and be assured of a home. We call this a basic universal life expectation.

Ending poverty can be achieved by using the wealth generated in space to ensure that there is no poverty in human society. At the same time, we suggest that there need to be creative incentives to encourage citizens to engage in society. Building peace with creative engagement will also help to improve the human-machine relationship. Rather than fearing machines displacing humans from work, there will be ongoing collaboration between human and machine. This approach to space, where creativity displaces conflict,

¹ Kim Peart, "Creating a Solar Civilization," spacepioneers.com.au/articles/casc.html.

can only be achieved if a strong campaign for space is mobilised on Earth, which may need to be supported by ten million or more people who see the reason for space.

Clearly identifying the evolutionary step from Earth into space as essential for many reasons, will help to build the case for space. The evolutionary step to space became possible in the 1970s, but it has been delayed by half a century. The consequence of this delay is to restrict human progress to Earth alone. This needs energy to do work, which is turning the Earth into a pressure cooker planet. Considering how 20 million people marched in the first Earth Day in 1970, and 200 million people marched in Earth Day when it went global in 1990, it is quite clear that environmentalism is a political force to be considered.

Beyond the COVID-19 pandemic, environmentalists and climate crisis campaigners will be multiplying their efforts to save the Earth. By clearly demonstrating that space is essential to winning back a safe Earth, the fight for space can be presented to the global environment movement. At present environmentalists are at best disinterested in space, and at worst, actively hostile to space development. There will be political pressure upon nations to direct all their funding to the welfare of the Earth. This campaign will impact politicians, and impact space funding. As a consequence, the very area of activity with space that can save the Earth, may be crippled by Earth campaigners. This will especially be the case should our world dive into a depression, and any funding become barebones.

Environmentalists do not mention this, but for half a century, they have totally failed to keep this Earth safe. The blame is always directed toward others. If we can show the evolutionary necessity of space development, environmentalists will be invited to engaged with natural law.

Dr Jennifer Bolton presented a joint paper at the International Astronautical Congress in Washington, DC in October 2019, pointing out how space development is the way to win back a safe Earth.² Our paper suggests that space-based solar power can be used to deal with the carbon crisis on Earth, and that a space sunshade can be deployed to cool the planet.

China is now looking to build solar power stations in space.³ Anyone interested in a future in space, could support a campaign to convince national governments to cooperate on a global space power program. An international space power program can become the first step toward peace on Earth, and avoiding war in space, which could lead to a space junk cascade that harms progress with space development, if not make space options near

² Jennifer A. Bolton and Kim Peart, "Fixing the Global Carbon Crisis with Space Development," stargategrid.forumchitchat.com/post/presentation-fixing-the-global-carbon-crisis-with-space-development-oct-2019-10357881?pid=1310145993.

³ www.thestar.com.my/news/regional/2019/12/02/china-to-build-space-based-solar-power-station-by-2035.

impossible⁴ Another fear of nations will be the prospect of an opponent dominating space and deploying kinetic weapons, which could be made in space from space resources.⁵

A kinetic weapon the size of a telegraph pole made of metal cannot be stopped, and upon impact, it would have the power of a nuclear bomb, and without radiation fallout. The fear of kinetic weapons may well trigger conflict among leading space nations, to ensure that they will not be threatened from space. International cooperation with space solar power to save the Earth would also have the knock-on effect of opening space for the benefit of all nations, and also deliver peace in space.

Where there is now a clear understanding of ecology on Earth, in space the relationship between life and machine takes on a whole new meaning, and it may be referred to as a cosmic ecology. Developing the concept of a cosmic ecology may help to communicate the difficult concepts involved in surviving in space. Cosmic ecology can be presented as the way we achieve a mature phase in our evolutionary progress, whereas at present on Earth, we are trapped in a perpetual growth phase that harms the environment. We can demonstrate how machines can be built in space factories that can be used to clean plastic trash from the oceans or built in factories on Earth that are powered by space-based solar power. With very little imagination, it is possible to demonstrate how space development can be put to work to solve every problem on Earth. Space development can therefore be presented as an essential green activity in a society practicing cosmic ecology.

Within the past five years we have seen three super catastrophes on Earth, with the loss of half the Great Barrier Reef in two marine heatwaves, and now more coral being killed in a third and worse marine heatwave, extraordinary fires that raged through Australia for half a year, and now the COVID-19 pandemic. Look forward five years, and consider what super catastrophes may lie ahead, with other pandemics, further loss of ocean coral, more fires raging across continents, the prospect of sudden sea level rise from the collapse of polar ice, heat spikes that increase in intensity and kill more people, animal and crop deaths, more severe floods, and more severe ocean storms.

We need the tools provided by space development to win back a safe Earth.

We need to sell the necessity for space to the people of Earth.

If the global space community will not sell space to the people of Earth, space options may be lost to the finer arts of campaigning by environmentalists.

The Overview Effect springs out of campaigns by nations to conquer space. It can also be seen as an essential inspiration for a campaign for space. Space campaigners can directly connect with a future in space, even while on Earth. They can do this through learning to use remote control systems with robots, as this is how much space work will proceed, even from Earth. A space campaign can seek to launch a satellite where mini robots can be operated by users on Earth, and to see the Earth from space through the

⁴ en.wikipedia.org/wiki/Kessler_syndrome.

⁵ en.wikipedia.org/wiki/Kinetic_bombardment.

cameras of the robots, which users are able to move around by remote control. In this way, space campaigners will be able to access a direct overview experience from Earth, and they can decide for themselves what they make of it. Some of this may find inclusion in a fourth edition of *The Overview Effect*.

While the world is in pandemic lock-down, a space campaign can be prepared to hit the streets of cities around the World, a space day to celebrate space. Many people joined the first Earth Day in 1970, inspired by the 1968 Earthrise photo, but the global environment movement has maintained a total focus on the Earth. This total focus on the Earth has failed to keep this planet safe. Only with a strong campaign for space can we hope to build an irreversible momentum for space. We need to demonstrate how space can be put to work to fix all strife on Earth. As we secure our future in space, we can also work toward a safe Earth. These are two hands that must work together, or both may fail, putting human survival at risk. They are the two wings of the same bird. We do not know what kind of world we will get after the pandemic, or if space will be put aside in the face of more pressing needs on Earth. For space to be seen as relevant by the people of Earth, by politicians, by governments, we need to sell space as essential, and to win strong support for this. In the spirit of the Overview Effect, we need to be able to see where we must go, and to connect with this future. As we define a cosmic ecology, we can also map out a management plan for the Solar System as a whole. With a sustainable industrial presence in space, we will then be able to design for an ecologically sustainable human presence on Earth.

We are half a century late in rising to the challenge of our evolutionary survival in space. Do we have to lose another half century, only to find we have left our run way too late? Our cosmic survival may now hinge on individuals seeing the need to act on space.

Beyond the Overview Effect lies our evolutionary survival in space.

Earth is in space.

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Related Ideas and Quotations for Discussion

“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change” (often attributed to Charles Darwin).

“Earth is the cradle of humanity, but one cannot remain in the cradle forever” (Konstantin Tsiolkovsky, in a 1911 letter).

“It is our duty to survive” (James Lovelock, *The Vanishing Face of Gaia: A Final Warning*, New York: Basic Books, 2009, 86).

“We can no longer expect Mother Earth to take care of us—the planet is ours to run, and we can’t retreat from the responsibility to run it wisely. It would be good if our descendants looked back on this challenge we face now as the one that allowed us, as a species, to grow up” (Wally Broecker, *Fixing Climate*, New York: Hill and Wang, 2008, 223).

“A unique day in American history is ending,” Walter Cronkite intoned on the CBS Evening News on April 22, 1970. The inaugural celebration of Earth Day had drawn some 20 million people to the streets—one of every 10 Americans and a way bigger crowd than the man who had dreamed up the occasion, US senator Gaylord Nelson, had anticipated.

“Why We Won’t Avoid a Climate Catastrophe,” article by Elizabeth Kolbert, *National Geographic*, April 2020, www.nationalgeographic.com/magazine/2020/04/why-we-wont-avoid-a-climate-catastrophe-feature/. This issue of *National Geographic* presents both an optimistic and a pessimistic guide to life in 2070.

“The important thing to understand about Earth Day is that it was not the celebration of the birth or maturation of the environmental movement in the United States, in the sense that the first Fourth of July was the celebration of the birth of a nation. It wasn’t the environmental movement that created Earth Day, but vice versa. The old conservation movement had historical roots that went back more than a hundred years. The groups and organizations that would be identified with the environmental movement after Earth Day—the Sierra Club, Friends of the Earth, ZPG, and so forth—all existed before. Yet there was no environmental movement in the United States before Earth Day or even on Earth Day. It was only after Earth Day that the movement began” (Lewis J. Perelman, “The First Earth Day: 1970”, *Krytic L*, April 20, 2015, medium.com/krytic-l/the-first-earth-day-1970-13a5493df5a2). The quote is from Perelman’s book, *The Global Mind: Beyond the Limits to Growth* (New York: Mason/Charter, 1976).

Apollo 9 astronaut Russell L. Schweickart shared with White, “My interest is in elevating the vision of the community of people on the surface to the importance of this [space] environment, and the way it’s going to affect the future of humanity. We have the opportunity to wipe out life on this planet, and we can also see it as a whole. The technology available allows both” (Frank White, *The Overview Effect*, Boston: Houghton Mifflin, 1987, 201).

“It is the hope of those who work toward the breakout from planet Earth, that the establishment of permanent, self-sustaining colonies of humans off-Earth will have three vital consequences. First, it will make human life forever unkillable, removing it from the endangered species list, where it now stands on a fragile Earth over-armed with nuclear weapons. Second, the opening of virtually unlimited new land area in space will reduce territorial pressures and therefore diminish warfare on Earth itself. Third, the small-scale space colonies, the largest some tens of thousands of people, will lead to local governments, that are simple in form, responsive to the desires of their people, and as reachable and intimate as were the New England town meetings of America’s heritage” (Gerard K. O’Neill, “Foreword,” in Frank White, *The Overview Effect*, Boston: Houghton Mifflin, 1987).

O’Neill later wrote on space-based solar power, “If this development comes to pass, we will find ourselves here on Earth with a clean energy source, and we will further improve our environment by saving, each year, over a billion tons of fossil fuels” (Gerard K. O’Neill, *The High Frontier*, New York: William Morrow, 1977, 162).

Gerard K. O'Neill, "The Colonization of Space," *Physics Today*, September 1974. space.nss.org/the-colonization-of-space-gerard-k-o-neill-physics-today-1974/.

O'Neill once declared, "Almost anything can be done in a ten-year period, when we set our minds to it" (*The High Frontier* interview with Gerard K. O'Neill, youtu.be/Kyt5W812hCQ).

"Environmentalists and space explorers actually share the same overarching goal—the sustainable use of the environment around us; they just differ in the location they focus on. If we look at each community through the eyes of the other, we can think of environmentalists as people who believe in the successful colonization of planet Earth, a laudable and grandiose vision of space exploration. Space explorers, on the other hand, are an ambitious set of environmentalists who would like to extend human living to the surface of other worlds. In the process of pursuing these common ambitions, both groups reflect very practical and deep connections between them" (Charles S. Cockell, *Space on Earth*, New York: Macmillan, 2007, 6).

"There are two types in this world—voyeurs and players. And who wants to be a voyeur?" (Paul Keating, Prime Minister of Australia, 1991-1996, in a speech in 1990).

"Nothing inspires people like space does" (Karen Andrews, Federal Minister for Industry, Science and Technology, at the launch of the Australian Space Agency office in Adelaide in December 2018, www.abc.net.au/news/2018-12-11/australian-space-agency-to-be-based-in-adelaide/10608202).

"'I think the challenge for people now is the same challenge astronauts face, and that's how to be resourceful when you have limited opportunities and limited options available to you,' Mr. Thomas said" (Sarah Moss, "Australian Astronaut Andy Thomas Has Some Advice For Surviving Self Isolation," *ABC News Online*, March 30, 2020, www.abc.net.au/news/2020-03-30/coronavirus-prompts-astronaut-tips-for-living-in-confined-spaces/12099534).

"Earth's next mass extinction is avoidable—if carbon dioxide emissions are dramatically curbed and we develop and deploy technologies to remove carbon dioxide from the atmosphere. But on the current trajectory, human activity threatens to make large parts of the Earth uninhabitable—a planetary tragedy of our own making" (Andrew Glickson, "While We Fixate on Coronavirus, Earth is Hurling Towards a Catastrophe Worse than the Dinosaur Extinction," *The Conversation*, April 3, 2020, theconversation.com/while-we-fixate-on-coronavirus-earth-is-hurling-towards-a-catastrophe-worse-than-the-dinosaur-extinction-130869).

"According to Mr. Shvets, there are only three possible outcomes. One is that central banks win; that an economic recovery allows them to withdraw their stimulus without collapsing asset prices like stocks and housing. Not much chance of that, he reckons. The second is that governments take over, pick up the slack in jobs and cooperate with each other to solve global poverty and inequality. Slim chance. The third is war. This, he argues, is the most likely and the least pleasant outcome. Let's hope this time he's wrong"

(“Is capitalism dying or just in isolation during the coronavirus pandemic?” (Ian Verrender, *ABC News Online*, April 6, 2020, www.abc.net.au/news/2020-04-06/is-capitalism-dying-or-just-in-isolation-coronavirus/12123874).

“The planet is not used to being provoked like this, and climate systems designed to give feedback over centuries or millennia prevent us—even those who may be watching closely—from fully imagining the damage done already to the planet. But when we do truly see the world we’ve made, they say, we will also find a way to make it livable. For them, the alternative is simply unimaginable ... and however sanguine you might be about the proposition that we have already ravaged the natural world, which we surely have, it is another thing entirely to consider the possibility that we have only provoked it, engineering first in ignorance and then in denial a climate system that will now go to war with us for many centuries, perhaps until it destroys us. That is what Wallace Smith Broecker, the avuncular oceanographer who coined the term ‘global warming’ means when he calls the planet an ‘angry beast.’ You could also go with ‘war machine.’ Each day we arm it more” (David Wallace-Wells, “The Uninhabitable Earth,” *New York Magazine*, July 9, 2017, nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html).

Editors’ Notes: The global impact of the COVID-19. virus epidemic has accelerated attention to the fact that biological viruses are one of many phenomena for which national borders are irrelevant. Both Frank White and Kim Peart have been making that point in different ways for decades. Here we have them merging their thinking. We remind readers here that Policy Scientist Yehezkel Dror has been prescribing policies focusing on humanity for decades. See the Summer 2018. Special Issue of the *Journal of Space Philosophy* dedicated to the legacy of Yehezkel Dror. ***Bob Krone and Gordon Arthur.***