

Bob Krone's Visions: Space for Earth

By Salena Gregory, Kepler Space Institute Research Assistant to the President

Introduction by Gordon Arthur. Salena Gregory summarizes Bob Krone's visions for the future benefits of space exploration for the Earth and its people. Dr. Krone has published, taught and presented these ideas since 1980. She draws on his writings and on her forty years of professional association with him, as well as on personal interviews between January and April 2015. Much of her article is presented in a question and answer format. This is the first summary of Dr. Krone's Space visions to be published. Dr. Krone is currently the President of Kepler Space Institute and the Editor-in-Chief of the *Journal of Space Philosophy*, which he founded in 2012.

Keywords: Space visions, Space philosophy.

Introduction

When I was invited to join the Kepler Space Institute (KSI) as a Research Assistant to the President, Bob Krone, I was asked by the Board of Directors to "look around and decide where you would like to begin." That put me in a quandary, since my research background had been in defense and government, not space sciences, exploration, development, or human settlement. Since I thought I knew something about Bob Krone's professional career, having begun working with him in 1974, his visions seemed a logical place to begin. My initial review of his publications and the *Journal of Space Philosophy* revealed many of his beliefs and visions. But I did not find them neatly assembled in one place. So I asked him if he would like me to start there. He said, "Thank you, Mrs. Gregory; no one has ever done that."

He suggested I be brief and document the visions *that I thought* most important. My research, then, focused on his normative writings and conference presentations. That is, the ones where he recommends to space leaders, decision makers, planners, scientists and managers actions and missions that potentially have far reaching positive impacts for Earth and its people. When I had drafted those, I had several interviews with him in which he amplified, edited, or accepted my findings. He also asked me not to bore my readers with lengthy justifications for any vision I selected.

What follows is a brief outline of Dr. Bob Krone's fundamental beliefs and visions. This first published set focuses on those visions that he believes have the greatest potential for helping people on Earth and helping our home planet. He requested I stay within those boundaries for this article.

Reverence for Life within Ethical Civilizations

In the first issue of the *Journal of Space Philosophy*, Fall 2012, Bob Krone proposed to readers a Space Philosophy which he designed, and which was endorsed by the KSI Board of Directors. His summary statement was titled "Why Reverence for Life within Ethical Civilization?"

- 1) Reverence for life is the foundational purpose that will sustain humankind in perpetuity.
- 2) Ethical civilization will be the environment facilitating that end.
- 3) The Policy Sciences hold the solutions for creating ethical and successful civilizations.

These are the three essential foundation blocks of *The Philosophy for the Space Age*. Building these three basics will produce the highest probability for successful Space exploration, development, and human settlements, plus the capture of Space resources for humankind's needs on Earth and in Space within *The Law of Space Abundance*. Failure to build any one of these building blocks will destine humankind to permitting mistakes and catastrophes similar to or worse than those that have plagued Earth's societies throughout history. This is global leadership's major challenge for the 21st Century.¹

In that one paragraph Bob Krone captures his macro vision for benefits that can flow to Earth, and its people, from space. His Fall 2012 article defines terms, cites historical relevance, and elaborates on those three basic building blocks. As I talked to him about it, he lamented the continuing tragedies of history that have occurred when ethical and moral thinking and the reverence for life was replaced by motives of power, control, manipulation, greed, and genocide. He noted that the 21st Century has begun without the eradication of human actions that can cause catastrophic events. Science and technology have brought humankind to a place where human extinction has an increasing probability. He fears a future in which an ethical foundation is lacking may result in civilization collapse. He added that "The essential characteristic of positive progress and survival for humankind will be the universal acceptance of ethical civilization as its vision."

I asked him why he thought that space has the possibility of creating such an acceptance when it has never been achieved on Earth. His answer was:

Achieving universal reverence for life within ethical civilization on Earth has been impossible and will continue to be so without major changes in human learning and behavior. However, the absence of humans permanently in space until now creates a possibility that future human settlement in space could occur in entirely different modes than it has on Earth. And that is why I identified the policy sciences as an essential third component of our space philosophy.

Readers will find Dr. Krone's amplification of that point in his article, "Policy Sciences for the Next Space Age," in this issue of the *Journal of Space Philosophy*.²

¹ Bob Krone, "Philosophy for Space: Learning from the Past – Visions for the Future", *Journal of Space Philosophy* 1, no. 1 (Fall 2012): 17-18. Emphasis original.

² *Journal of Space Philosophy* 4, no. 1 (Spring 2015): 66-75.

The Law of Space Abundance

I believe the next most significant point in Bob Krone's works is the *Law of Space Abundance*, which states:

Space offers abundant resources for human needs.

Formulating this law was the first action of the leadership of the KSI when it became a reality in early 2009. The law simply put an accurate and logical label on findings that had been aggregating for hundreds of years through astronomy, and which increased exponentially when humans began to enter space. It is not a law produced by legislation. It is a law that nature has created within the universe. There is now a huge amount of literature documenting the resources in our Solar System. Dr. Krone has an AdAstra publication on the Law of Space Abundance.³

GREGORY: What is the critically important resource that Space offers?

KRONE: Energy. Throughout history, human need for energy has been the source of monumental efforts and expenditures, of misery, of conflict and wars, and also of building and progress and science and technology. Political and military battles over energy sources have raged throughout history and are raging today; and the villages in the third world without adequate energy are steeped in misery, disease, and depression. Our Sun is the reason life began and flourished on Earth. Capturing the Sun's energy by receptors in Earth orbit and beaming it to every citizen on Earth in need has both sound theory and demonstrated practice. Studies show that without the creation of a system that captures solar power in Earth orbit, and then beams it to every needed place on Earth, the Earth's energy need will exceed availability around the middle of the 21st Century. Many factors will impact that but alternative energy sources are not predicted to meet those needs.

GREGORY: Do you foresee resources becoming available to Earth that are not generally known today?

KRONE Yes, there is a natural resource in the universe that only a small group of scientists understand. It is cosmic intelligence. See the work of Dr. Joel Isaacson in publications in the United States and Israel beginning in 2006. His co-authored work with Dr. Louis Kauffman, to be in the Fall 2015 *Journal of Space Philosophy*, will be his latest.⁴ This article is not the place to delve into details of Dr. Isaacson's discovery and life research. I'll just give you my prediction that Nature's Cosmic Intelligence will equal in importance, to Earth and for its people, to the discovery of gravity by Sir Isaac Newton and Albert Einstein's energy discoveries.

GREGORY: Do you see children being important in the development of space aspirations?

³ Bob Krone, "The Law of Space Abundance and Lunar Cratersville," *AdAstra* 24, no. 1 (Spring 2012): 46-48. KSI has had several articles in AdAstra, beginning in 2012.

⁴ In fact, the referenced article will come in a subsequent issue. Drs. Isaacson and Kauffman have contributed a letter to the editor in this issue (23-27).

KRONE: They are already becoming so. If the world's youth is not excited about space, the visions we seniors have will never become reality. We have the world's leading researcher on our Kepler team: Lonnie Schorer, whose book, *Kids to Space*, documents the views of children and youth. And Janet Ivey has been educating children with her award-winning *Janet's Planet* TV Show from Nashville for years. But global children's education about the visions we are capturing in the *Journal of Space Philosophy* has not reached the critical mass yet.

GREGORY: From your continual international travels and space research, how do you classify the countries of the world today, and the United Nations, in contributions and leadership for Space development?

KRONE: The countries that have made the greatest contributions to space development as of today are the United States, the 18 nations of the European Space Agency, Russia, China, Canada, and India. As of today, 55 nations have space agencies and new ones are being planned. The United Nations sponsored research into space law and created the Outer Space Treaty in 1967, with 103 countries being parties now. There have been astronauts in space from 45 countries. The huge cost of space missions means that the wealthy nations will continue to be the largest contributors, but interest in space has always been worldwide, regardless of national investments.

GREGORY: If you were able, what new actions would you take to achieve an explosion of world actions to the pursuit of space exploration and development?

KRONE: Private space companies have begun the explosion over the past few years by removing space missions from government control into the business realm by their design of tourist flights, asteroid mining, and profit-making capture of resources for Earth's needs. But the answer to your question about creating an explosion of action requires more radical thinking. That thinking will need to come from the world's top leadership. As of 2015, there has been only one head of State who was a space scientist. That was India's former President A. P. J. Abdul Kalam. U.S. President John F. Kennedy did provide the United States and the world leadership that brought the first humans to land on the Moon. I fear that an explosion of actions will come about only after a major Earth catastrophe that could have been avoided if actions had been taken earlier. If the world heads of state wait until that happens, the damage to humans on Earth may be irreversible. The leadership at KSI is planning to create the first U.S.-based university completely dedicated to the future space epoch. It will have a Doctor of Space Sciences degree program, which will be dedicated to accomplishing the research and education needed to create the kind of explosion to which you refer. There are breakthrough thinkers around the world who fervently want to accelerate space exploration, development, and human settlement. It is unknown today whether the trends of international complexities and barriers will facilitate a capacity for world leadership to achieve such advances in space for the benefits of humankind.

GREGORY: Space missions require unprecedented funding. What are your ideas for making those funds more available and sooner?

KRONE: The most important idea is for humankind on Earth to stop spending money on ways to destroy each other and focus people on ways to build positive steps for the advancement and survival of humankind. Space development will be one of those very important positive steps. That idea has been around for hundreds of years, but has never been put into practice. A review of history leaves us with the depressing conclusion that the probability of such a change occurring is almost zero. To do that will take collective action by a new world leadership that is not on the horizon today.

GREGORY: What motivated you to create the *Journal of Space Philosophy* in 2012? And how do you envision its impact?

KRONE: My mentor at two universities, Dr. Paul Cone, included in his teaching his view that “If there is a vacuum, and you care, then act.” Surprisingly the space sciences had progressed until 2012 without such a journal. Our KSI goal for it is to document the beliefs, the visions, the values, the challenges, and the directions that humanity innovates to propel this new space epoch.

GREGORY: Why did you pick Johannes Kepler for your space institute’s name?

KRONE: I didn’t pick it, but thought it was perfect. Dr. Richard Kirby, our first president, who died in September 2009, and our Chief Engineer, Edward Kiker, together selected the name. Kepler’s 1596 *Sacred Mystery of the Cosmos* and his 1609 *Laws of Planetary Motion* established him for all time as a pioneer astronomer and mathematician. Kepler will always be acknowledged as one of the original creators of space knowledge. The KSI team considers it an excellent choice.

GREGORY: Dr. Krone, what is preventing accomplishing your visions? Do some believe you are being naively optimistic? How can *Reverence for Life within Ethical Civilization* be achieved in a world of diverse beliefs, values, conflicts, and visions? Doesn’t the fact that it has never been universally adopted mean it is impossible?

KRONE: Excellent question, Salena. I get it frequently. My personal answer is *No. That is not an inevitable conclusion. Our World is radically changing. Space holds solutions to many problems that have never been solved – through science, through technology and through breakthrough thinking and wise decision making.* One hundred years after Albert Schweitzer’s 1914 to 1917 writings in Africa were published *everything is different.* Today, ideas need not take decades to reach the public. They happen today with the speed of light. Science and technology have begun the Space Age, with humans experiencing space for the last fifty years and now planning life in Earth orbit, on the Moon, and on Mars. Humankind’s view of Planet Earth has been transformed.⁵ The policy sciences have captured intelligence for completely new governance systems. Professor Yehezkel Dror, in the preface to his book *The Capacity to Govern: Report to the Club of Rome*, states, “Radical redesign of governance is, therefore, required; otherwise, increasing social costs, even existence-threatening failures, are

⁵ The best description of the worldview change due to the Space Age is by Frank White with his 1987 book, *The Overview Effect: Space Exploration and Human Evolution* (Boston: Houghton-Mifflin).

unavoidable.”⁶ I invited Professor Dror to write a chapter in *Beyond Earth: The Future of Humans in Space*. His Chapter 5, “Governance for a Human Future in Space,” was his first extrapolation of his life’s research and extensive writings into space. He begins that chapter with the sentence: “New forms of governance are essential for engaging in moving humanity beyond Earth.”⁷ Dror describes humanity moving into a radically novel new epoch in which living in space is only one of its features. He sees that epoch as having a tremendous potential for better or worse.

Readers of this article are urged to study the works of Yehezkel Dror in detail. The position of KSI is that his works are essential components of the philosophy for the Space Age. This is not simply an academic choice from a huge literature source. I believe that Yehezkel Dror was correct when he finished his Chapter 5 with his conviction that:

On all of these levels much attention needs to be given to governance, because without restructuring governance, the movement of humanity into Space will remain a dream or, even worse, may take the form of nightmares becoming a dismal reality.

It is a recognized fact that humanity is entering a radically new epoch in which, for the first time in history, it has the power to destroy itself, by deliberate or unintended action. To prevent grievous harm resulting from this power and to use it for the better, radical improvements in critical future-shaping actors, processes, and institutions are essential, especially in the moral and cognitive qualities of rulers. And that fact is why we have included “*within ethical civilization*” in the Philosophy for the Space Age.

No nation has ever had any enemies in space. The vacuum of any history of human conflict in space is one important difference between the Space Age and all previous history on Earth. The world’s best international cooperative invention, the International Space Station, crosses our heavens every 90 minutes.

Thoughtful people are all aware that this is a critical time for the space movement, and for all of us. Human society around the world is in turmoil, and the prospects for our future are frightening.⁸ But we remain optimistic that we will overcome these challenges, and we see clearly the opportunity presented by our outward expansion into the solar system to design a rewarding and exciting future for human collaboration, and to capitalize on the lessons learned from the venture into space to redirect human history on Earth toward peace and cooperation.

⁶ (Abingdon, UK: Frank Cass, 2001), x.

⁷ Yehezkel Dror, “Governance for a Human Future in Space,” Chapter 5 in *Beyond Earth: The Future of Humans in Space*, ed. Bob Krone (Toronto: Apogee Space Press, 2006), 41-45. Bob Krone and Yehezkel Dror have been professional colleagues since 1969.

⁸ On this point, see Yehezkel Dror’s “Preventing Hell on Earth,” *CADMUS* 2, no. 4 (April 17, 2015): 57-68; “Priming Political Leaders for Fateful Choices,” *ERUDIRO – e-Journal of the World Academy of Art and Science* 1, no. 6 (February 17, 2015): Part 1.

On 21 April 2008 Astrophysicist Stephen Hawking called for an era of Space conquest, stating:

Spreading out into Space will have an even greater effect than Christopher Columbus's discovery of the New World. It will completely change the future of the human race and maybe determine whether we have any future at all.

GREGORY: And finally, Dr. Krone, what does space mean to you personally?

KRONE: Thank you, Salena, for picking this subject of visions for your article.

The universe has been forever the mystery of every person as they looked up at the stars. It will hold secrets for all of our lifetimes. I began to contemplate its meaning seriously when Carl Sagan motivated me to begin space research in 1980. My eloquent friend, Howard Bloom, expressed my feelings in our 2006 book, *Beyond Earth: The future of Humans in Space*, better than I could when he wrote: "The venture into Space is a search for the anti-theory. It is a search for the shocking. A search for the unexpected. A search for what lies beyond all of our theories – a search for the big surprise"⁹

Today's visions are the destiny options for the future. Nothing of value for humanity has occurred without the ideas and visions formulated in the minds of people who observe their environment, and who have an obsession with solving problems and designing improvements for others. That is leadership's mission.

That search of space has been the happy intellectual playground for my senior years. It has given me the opportunity to know and work with the brightest people on this planet.

GREGORY: Dr. Krone ended his edited 2006 book, *Beyond Earth: The Future of Humans in Space*, with the following set of visions:

To explore Outer Space and to inhabit our Solar System. To benefit humanity and Earth through the capture and utilization of the resources of Space. To develop the capability to diminish or eliminate threats to Earth and its humanity. To design human migration to Outer Space that will enhance humanity on Earth and in Space. To seek life and to direct global intelligence to achieve the goals listed in the Vision Statement. To create science and technology to support the vision. To establish an international collaborative entity that will develop, govern and manage the leadership and resources necessary to implement the Vision. To create a new societal paradigm in the vacuum of Space that will enable humans to minimize the catastrophic tragic costs that now plague human life. To do so peacefully for all humankind.¹⁰

⁹ *Beyond Earth*, 271.

¹⁰ *Beyond Earth*, 274.

Salena Gregory's Reflections:

My reflections about Dr. Bob Krone cover the period 1974 to the present. At Norton Air Force Base in San Bernardino, CA in April 1974 I was head of the Equal Employment Opportunity (EEO) Federal Office for the base. Norton AFB was unique in having several distinguished USAF headquarters-level tenants on Base – namely, the Air Force Audit Agency, the Air Force Inspection and Safety Center, and the USAF Ballistic Missile Office.

Colonel Krone was the officer in charge of all personnel, military and civilian, for the base, including these tenants.

I personally remember a special briefing I had been requested to make for the Air Force Inspection and Safety Center on the relatively new EEO Program being initiated by the USAF. Colonel Krone, who attended, who had only been on the base for approximately two weeks as head of my office, and who was responsible for my presentation, spoke to these high ranking officials before and after the briefing as though he was familiar with every aspect of the program, which provided the high-ranking officials present his knowledgeable full understanding and support of the program.

Many new initiatives were implemented during Colonel Krone's tour at Norton AFB, in that he was well respected in his position as being fair and a responsible leader for both military and civilians on the base.

And, I personally believe through his strong and supporting leadership of the EEO program it created a foundation for activities that led to my receiving the highly honored USAF Distinguished EEO Award.

Dr. Bob Krone has had a distinguished Air Force career, followed by impressive higher education academic achievements; and then followed by his KSI leadership and creation of the *Journal of Space Philosophy*. Reflecting on his multiple careers leads me to the conclusion that he is eminently qualified to lead others in pursuit of the visions I have summarized above.

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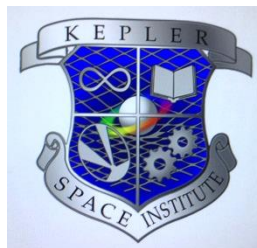
About the Author: Salena Gregory, GS-13 (Ret), had a 30-year career in U.S. federal service, starting with the War Department, which converted to the Department of Defense. She spent the major part of her career with the U.S. Air Force and ended with the Department of Defense. In 1965, she was one of the first Civil Service officers to become proficient in the Univac 1050 computer, which became the advanced computer for managing U.S. global supplies and services. She trained Inspector General Department heads on the capabilities of the Univac 1050. Her computer and training skills mixed with her talents for planning and programming at executive levels advanced her rapidly into leadership positions at DOD and USAF command levels.

She solely developed the first EEO plan for the City of San Bernardino, CA in 1971. That work led to her appointment by the Mayor as Chairperson of the EEO Committee for the City of San Bernardino. Her position as a federal employee then led to her creating, in 1973, the first EEO federal plans, which provided analysis of issues being faced throughout the federal system and guidelines for implementation.

Salena's most exceptional accomplishments were as a pioneer researcher and chief analyst, instructor, and designer of EEO and Affirmative Action programs. She diplomatically and effectively handled these nationally sensitive issues, resulting in the Department of the Air Force presenting her its highest level award for the year 1977. Two years later she was congratulated for her exceptional career service in the December 20, 1979 Congressional Record.

Her international work included the first National League of Cities visits in 1975, with her husband, Norris Gregory, Jr., who was a San Bernardino City official, to Russia, and then in 1979 to China. She also joined the National League of Cities group visiting Japan in 1979.

The KSI Board of Directors unanimously approved her appointment as Research Assistant to the President in March 2015.



Editors' Notes: This article showcases the broad range of Bob Krone's thought and his varied interests. It also gives a good summary of the aims and objectives of KSI. Accordingly, it is a valuable contribution to the *Journal of Space Philosophy*. **Gordon Arthur.**