KRAFFT EHRICKE AND LYNDON LAROUCHE

'Lifting the Human Species Out of Its Ordinary Existence'

by Megan Beets

March 20—Today we are in the midst of a pivotal moment in history, which will decide much about the fate of mankind for the coming century, and beyond. Despite the chaos being fomented in the United States against the Trump administration, this moment is an incredibly optimistic one. The system that has controlled the world for centuries, the system of geopolitics, has collapsed. Along with it have collapsed (unless we are foolish enough to cling to them) the failed ideas and axioms that have governed how people think—what they value, what they believe to be true, or powerful, and what policies they will accept.

Krafft Ehricke (right) with a colleague.

For example: the notion that money is equivalent to wealth. There is more money in the financial system than ever before in mankind's history, yet look at how far the standard of living for the average American has fallen compared to 50 years ago, or even 10 years ago! Add to that the spike in the death rate in the United States due to drug overdoses and suicides. Take the idea that one nation's rise is a threat to every other nation—a central tenet of geopolitics. This lie is being completely overturned by China's "One Belt One Road" policy of win-win cooperation, which is based on the *common* aims and *common* good of all nations, and has already begun to revolutionize the economies of Eurasia and Africa.

Perhaps the biggest, most all-encompassing axiom which has polluted people's ability to think straight for half a century now is that there are "limits to growth," an upper limit to the increase of the human population—meaning that ultimately there is a ceiling to man's ability to progress. There are many manifestations of this fallacy: the belief that population growth is inherently bad; that we should strive to reduce our impact on the planet; that human activity loots the Earth's resources and our development destroys the environment; or that we are in competition with other people for a fixed amount of resources. The common effect of these variations on a theme is to make us *small*; we think small, we act small, and we dismiss the kinds of methods that change history as "impossible." Often, people are not conscious about how their thinking has been affected by being part of a society which has operated this way for fifty years—but it *has*, and for most people there is the subconscious belief that we can not actually progress forever—that at some point, mankind will run into a limit which we cannot surpass.

That limitation happens to be true for all animals, but it's *not* true for humans. Not only is there no limit to our power to grow, but we are *supposed* to grow; we are *supposed* to expand and increase our population, and to consume more than our ancestors. That consumption is not for its own sake, but rather reflects a unique power of the human mind. Think about what kinds of things we today consume more of than those who came before us, or more interestingly, what kinds of things we consume that our ancestors *could not* have, because they did not yet exist!

To take one example, in the United States we consume much more water per capita today than people did 200 years ago. Why? Because people are wasteful, or take longer showers? No! Domestic water use today is

EIRNS/Stuart Lewis

Lyndon LaRouche addressing the Schiller Institute Memorial Conference in Reston, Va, June 16, 1985.

less than 10% of total water consumption. Much more, almost 80%, is used in power generation and agriculture. The amount of land under cultivation and the amount of irrigated farmland is *many* times more per capita now than several of centuries ago, which means more food production, including in places where it could not exist apart from man's intervention. The amount of water used in electricity generation is *infinitely* more than in 1800!

Now take a more interesting example: how much uranium was consumed per capita in 1800? Almost none. Why? Because it had virtually no use before the discovery of the powers of the nucleus at the end of the nineteenth century. Today, uranium generates power for millions of people and industries.

We *create* new things that our ancestors could not consume, as a byproduct of new discoveries. In that way, we evolve as a species as no animal can. The biosphere *as a whole* evolves to higher levels of complexity and energy, but it does so through a process of turnover of species—some go extinct while new ones emerge. However, human beings do not evolve biologically; we evolve *voluntarily and creatively*, through a process of discovery of new universal principles.

That is the purpose of economic policy: to shape the activity within and among nations to optimize the potential for new discoveries, and their application to develop mankind. That is what the space program is about.

Krafft Ehricke: A Creative Identity

Krafft Ehricke, the great space visionary and one of the key founders of the space program, is someone who took on the voluntary evolution of the human species as a personal responsibility, and as the meaning of his identity.

He stood firmly against the "limits to growth" ideology, and asserted that man has a higher nature than the beasts:

> We are cosmic creatures by substance, by the energy on which we operate and by the restless mind that ceaselessly metabolizes information from the infinitesimal to the infinite and, on the infrastructure of knowledge, pursues its moral and social aspirations for a larger and better world against many odds. Through intelligences like ourselves, the universe, and we in it, move into the focus of self-recognition; metal ore is turned into information processing computers, satellites and deep-space probes; and atoms are fused as in stars. I cannot imagine a more foreboding, apocalyptic vision of the future than a mankind endowed with cosmic powers but condemned to solitary confinement on one small planet.[1]

Ehricke was born in Berlin on March 24, 1917, and from a very early age was fascinated with the notion of man traveling into space. In 1929, he saw the Fritz Lang movie *Frau im Mond* (*The Woman in the Moon*), and was so fascinated that he went back to see it many more times. "It impressed me enormously. I was at that time twelve years old, and it shocked me into the awareness, all of a sudden: You might be able to leave this planet, to open a new world! And since my interest already at that time was in history and astronomy and the evolu-

1. All Krafft Ehricke citations are from Marsha Freeman, *Krafft Ehricke's Extraterrestrial Imperative*, Apogee Books, 2008.

tion of man, in a very simple way, it kind of gave me a tremendous impulse to interest myself in space. And after two or three years in reading books, and so forth, I became firmly determined that this is an area of technology I wanted to devote my life to."

During World War II he was drafted into the army, and in 1941 was sent to the eastern front as commander of a tank unit. Luckily, some patents he had filed on rocket technology came to the attention of General Walter Dornberger, who was then assembling a group of rocket scientists at Peenemünde, the Army Experimental Station on the Baltic coast, and Ehricke was redeployed. It was here that the space age began.[2]

Krafft remembered very vividly Oct. 3, 1942, the day the first rocket was successfully sent into space:

> Those were the "wild west" days of rocketry and space flight. You didn't have to be miles away. You could almost stand beside the rocket, and I was on the roof of one of those high-rise buildings, actually looking down to the launch complex, just a few hundred meters distance. And then came the countdown and ignition. The system lifted off with a roar, it lifted up straight, and, of course, we all screamed with delight. It hadn't exploded on the launch complex. The guidance seemed to work… it looked like a fiery sword going into the sky. Then came the enormous roar—the whole sky seemed to vibrate. This kind of unearthly roaring sound was something human ears had never heard [before].
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> You know, it's very hard to describe what you feel when you stand on the threshold of a whole new era, of a whole new age that you know will be coming. It's like those people must have felt—Columbus or Magellan—that for the first time, saw entire new worlds, and knew the world would never be the same after this… This is the feeling many of us had.
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> For me, it was absolutely overwhelming. I almost fell off the roof, I was so excited.
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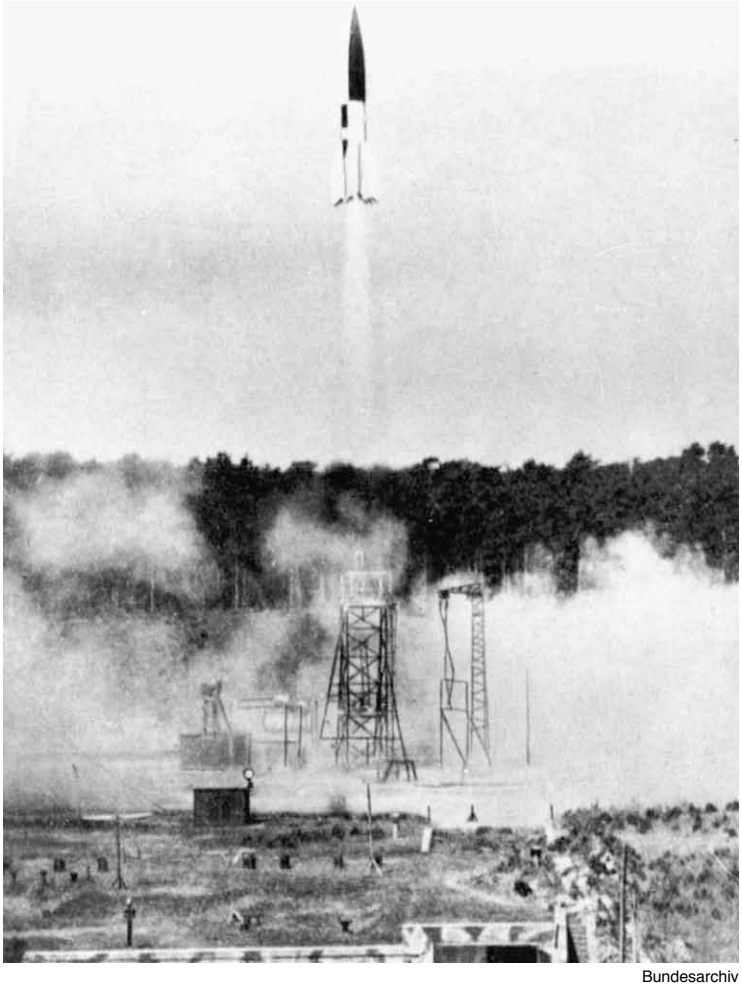
> When we came down together, we congratulated ourselves. We knew the Space Age had begun and Dr. Dornberger made a very moving speech at the time, and said, "Well, this is the key to the universe. This is the first day of the Space Age."



Bundesarchiv

A V-2 rocket launched in Summer 1943.

At the end of the war, Ehricke along with many of his colleagues, such as Wernher von Braun, worked very hard to make sure they could surrender to the Americans, rather than the Soviets, and in 1946 Krafft came to the United States under a contract with the U.S. Army to bring the rocket technology developed in Germany to the United States.

Inventing Mankind's Future

Krafft Ehricke was a brilliant engineer. For example, he was the person who figured out, on assignment from Wernher von Braun, that the use of liquid hydro-

2. Ehricke learned later that after his departure, his entire tank unit was wiped out.

gen, a much higher-thrust fuel than safer-to-handle alternatives, could be feasible, thus allowing much heavier payloads to be taken into orbit. The hydrogen-fueled Centaur upper-stage—which has carried everything from the unmanned Surveyor crafts to the manned Apollo missions to the Moon, from the Mariner missions to Mars to the Voyager spacecraft—has opened up the entire Solar system to man.

However, what makes Ehricke unique is that, much like the great Classical composers,[3] he was at the same time a great visionary.

For example, in a 1966 paper on the subject of "Solar Transportation," he begins,

> Let us leapfrog to the fall of the year 2000… By doing so, we will be able to describe the status of solar transportation in our time as well as to look back at the events of the past three and one-half decades which produced the advanced state of interplanetary travel which we enjoy at the turn of the millennium.… We have rendezvoused with, and planted an automatic scientific station on, the asteroid Icarus, which approaches the Sun as close as 0.169 AU, or about 47 percent of the distance of Mercury, and which swings out beyond the orbit of Mars to an aphelion distance of 1.68 AU. Our helionauts, as these men who fly our large interplanetary vehicles call themselves in this era of continuing specialization, have covered the solar system from the sun-scorched shores of Mercury to the icy cliffs of the Saturn moon Titan. They have crossed, and some have died doing so, the vast asteroid belt between Mars and Jupiter and have passed through the heads of comets. Owing to the pioneer spirit, the courage and the knowledge of our helionauts and of those engineers, scientists and technicians behind them, astrophysicists today work in a solar physics station on Mercury; biologists experiment on Mars, backed by a well supplied research and supply station on the Mars moon Phobos; planetologists have landed on Venus; and teams of scientists right now study what has turned out to be the two most fascinating planets of our solar system, Jupiter and Saturn, from research stations on Callisto and Titan.
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> As you know, we also have begun to utilize some of the discoveries. Our metal ore mining and processing facilities on Mercury are just three years old. On Mars, a long-range program has just been started to induce in the circumpolar regions of the northern and southern hemisphere, large scale cultures of special Mars-hardened plants, the result of twenty years of biological and agricultural research on Earth, on the Moon and on Mars proper. These plants are suitable for human consumption. While initially they will support the growing research base on Mars, it is expected that, within the next 50 years, Mars will export foodstuffs to Earth.
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> The traffic between Earth and Mercury, Earth and Mars, and Earth to Jupiter has become heavy enough to warrant the establishment of an orbital supply and rescue station at Venus. This station has worked successfully and has saved lives during the past eight years. Venus is a particularly useful place for a helionautical "coast guard" station, because this planet's orbital elements complement those of Earth for missions to Mercury as well as to Mars, Jupiter, and beyond.

In this rigorous play of the imagination, Ehricke invented a very real future for mankind.

A Collaboration of Visionary Geniuses

In 1981, Krafft Ehricke came into collaboration with Lyndon and Helga LaRouche, writing for *Fusion* magazine, speaking at conferences, and joining the advisory board of the Schiller Institute. It should be no surprise that LaRouche and Ehricke would find such an affinity of purpose, as both have spent the majority of their lives thinking about the progress of the human species *as a whole*, and both actively organized to make an upshift of the human species within the universe. LaRouche has done that with his life's work in economics, as a presidential candidate and statesman, and continues to do it to this day; Ehricke in his work outlining man's future in the Solar system.

Krafft Ehricke expressed the outlook which drove him very precisely in a 1957 work called "The Anthropology of Astronautics" in which he defined three fun-

3. In whom freedom of imagination and rigor of implementation were united. Johannes Brahms said, "Without craftsmanship, inspiration is a mere reed shaken in the wind." And Ludwig von Beethoven wrote at the top of his famous "Grosse Fuge," "As rigorous as it is free."

damental laws governing man's nature as a space-faring species:

> *First Law:* Nobody and nothing under the natural laws of this universe impose any limitations on man except man himself.
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> *Second Law:* Not only the Earth, but the entire Solar System, and as much of the universe as he can reach under the laws of nature, are man's rightful field of activity.
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> *Third Law:* By expanding through the universe, man fulfills his destiny as an element of life, endowed with the power of reason and the wisdom of the moral law within himself.

Painting by Chris Sloan

Krafft Ehricke invented the Lunar Slide Lander as an alternative to powered descent to the lunar surface, which would use 90% less propellant by taking advantage of the Moon's sandy and glassy soil to slow the vehicle.

These laws are philosophical laws, but they're not *only* philosophical; they correspond absolutely with Lyndon LaRouche's discoveries in the science of physical economy.

Developing the 'Seventh Continent'

For the last decade of his life, Ehricke focused his efforts on the development of the Moon, which he saw as the first crucial step in the *extraterrestrialization* of mankind. The primary question to be explored was (and is still today): How will man change and develop the Moon as an environment with unique characteristics, and *how will the Moon change and develop mankind?*

One illustrative example that Krafft himself brings up: On Earth, the biosphere came into existence first, and following that, mankind came along. On the Moon, however, it will be the reverse: man will arrive first, and only then it will be possible for life to exist there. How will this change our value judgments and our view of "nature"?

Krafft thought through rigorously and extensively how to establish the first permanent colony and industry on the Moon. Contemplate that for a moment: Not a short-term mission to land and leave again, or a temporary habitat; but a permanent, self-sustaining colony, where people's identity will be that of residents of the Moon, rather than Earth.

Krafft said of the Moon, in a 1984 paper called "Lunar Industrialization and Settlement—Birth of Polyglobal Civilization": "It is a seventh continent, almost as large as the Americas. It is large enough to support a civilization. It alone offers the opportunity to create a strong exo-industrial economy based on highly advanced nuclear, cybernetic, and material processing technologies, ultimately turning large parts of the once-barren lunar surface into a lush oasis of life, capable eventually of exporting even foodstuffs to orbiting installations, if not to Earth."

Of the first lunar city, he said:

> Selenopolis, city-state of lunar civilization and the lunar biosphere… [is a] network of enclosures, gradually expanding to cover many square miles of surface and subsurface…. It embodies urban, rural, agricultural, industrial and resort areas… each with a different Earth-like climate. Agricultural sections can be completely controlled to maximize productivity…
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> [Selenopolis and the selenosphere will be] a fully developed lunar world with a large population underwritten by industry. This stage is contingent upon a strong economic foundation, a very high degree of self-sufficiency, particularly in food production, and a powerful fusion energy base.

> Lunar civilization must not be in a "receiver" position, vis-a-vis Earth. It must be economically self-determined, to a large extent. Much will depend on lunar political status and prospects by the end of Development Stage 4: will this be a colony of Earth, part of the common heritage of terrestrial mankind? Or will it be an independent political entity with Selenians in control of their own world? On a foundation of fusion power, the vast potential of the lunar economy renders the latter alternative possible and hence likely.

In order for man to accomplish this, Ehricke addressed several necessary categories of development:

1. Transportation
2. Energy
3. Resources and industry
4. Man's identity

He conceived of five stages of development, each of which depends upon the accomplishments of the previous stage. Early stages include prospecting for lunar resources; a complete and detailed lunar mapping; base site selection; experimentation with lunar materials (including automated labs on the lunar surface for oxygen extraction); and the establishment of a Circumlunar Space Station, with a Moon Ferry to transport workers between lunar orbit and the surface.

Later stages include a full-fledged mining and industrial operation, with a Central Lunar Processing Complex, supplied by automated feeder stations which mine at remote locations. Ehricke imagined the extensive potentials of lunar products:

> Products will include sheet metal and trusses of aluminum, magnesium, titanium, iron, or alloys; castings, bars, wires, powders of pure or alloyed materials; glasses; glass wool; ceramics; refractories; fibrous and powdered ceramics; insulation; conductors; anodized metals; coatings, including almost perfectly reflective sodium coating (since sodium can be freely used on the Moon and in orbits, whereas on Earth it reacts with water and is dulled by oxidation); thin film materials; silicon chips; solar cells; entire structures of various metals and alloys for lunar and orbital installations (they do not have to be made weather resistant); compound and fibrous materials; heat shields and insulation materials, as well as radiation shielding materials for space stations; propellant containers; entire orbiting facilities, such as space station and factory modules and liquid lunar oxygen depots; large portions of cislunar and interplanetary spacecraft; and so on.

These later stages would also include advanced transportation options to and from orbit; advanced habitats for longer-duration stays on the surface; and fusion power plants to support the growing lunar civilization. The expansion of lunar industry to intermediate and finished products leads to a positive balance of trade, which sets up the possibility of a self-sustaining and growing Selenopolis.

The Adulthood of Mankind

The primary product of this kind of development, however, is the transformation of humanity itself to a higher level. As Krafft Ehricke recognized, fulfilling our extraterrestrial imperative as a species will necessitate leaving behind the infancy of man—wars, xenophobia, anti-technology outlooks, and geopolitics. Instead, mankind must mature into adulthood. This is what motivated him to join the Schiller Institute and its fight to create a new renaissance—he recognized that technological advancement was not enough. It is the soul and emotions which must be uplifted in order for our species to develop.

That is precisely the potential we have today, with the emerging new paradigm—the end of the "limits to growth" and the beginning of man's infinite progress.

Lyndon LaRouche expressed the mission before us in this way:

> All mankind has a commitment, an innate commitment, to create knowledge of the future. . . All mankind must subdue their passions to conform to what the future of mankind represents. The point is the understanding of the individual to reach and achieve the ability of insight into what the future species must do: the improvement of the human species! Lifting the human species out of its ordinary existence, taking it out of its mediocrities.[4]

4. Sept. 13, 2016, in a private discussion with associates.