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Facing the 21st Century's Civilization Challenges by the Tools of Astronautic Humanism

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The space philosophy foundation task is getting more feasible

Just a couple of years ago, when we (the SRI founders) started discussing the possibility of a *space renaissance* spreading around the world, many criticized our philosophical approach. They said: *"philosophy is just talking. To expand into space, humanity needs action, science and technology."* We went ahead, at our pace, developing the discussion about *astronautic humanism*, sure that a new Copernican revolution was, and is, very much needed. In fact, the dominating philosophy, even in the 21st Century, is still fully pre-Copernican, and the general metaphysics (perception of the world) is limited to the boundaries of our mother planet. We thought, in fact, that scientific and technological means for human expansion into space are fully within our range. What is missing is the political orientation to space, and the general public awareness of the absolute urgency of expanding into space. Such a situation can be reversed only by a complete re-foundation of the philosophy[1], a giant task, but fortunately we are no more alone.

Nowadays several significant signs show that the situation is changing. Besides the few founders of the modern astronautic humanist current, e.g. Stephen Ashworth, working on this matter for many years, an important institute such as the Kepler Space Institute[2] (an entity affiliated with the Space Renaissance International[3], btw) decided to give birth to a *Journal of Space Philosophy*, and kindly proposed to me to enter the Board of Editors. During 2010 I wrote an article, reviewing the James Cameron's movie Avatar[4], from an astronautic humanist point of view; Stephen wrote an article[5] on his side, and both articles raised a good discussion.

A wide discussion has been raised as well, since 2006, around the interviews released by the famous astrophysicist Stephen Hawking, stating that humanity is condemned if it will not expand into space[6]. And, a few days ago, a rather famous character, Bob Zubrin, founder of the Mars Society, published a long essay against the coercive birth control policies going on in the world[7]. In his article, Bob clearly refers to new humanism, as a lay philosophy. Nowadays, when we say that SRI is a *philosophical society*, everybody seems to think that it is a good thing, and that we are contributing to fill a void that needed since long time to be filled.

Defining Astronautic Humanism

To define astronautic humanism in a short paper is not that difficult as one could think. The Space Renaissance Manifesto[8], written in 2010, states clearly: *"Today, in the 21st century, a quite new vision of the world is needed, thus we call for a new renaissance, a Space Renaissance! The world is not finite; it is not bound to Planet Earth. During the 20th Century space flight took its first hesitant steps thanks to some enlightened scientists and philosophers such as Konstantin Tsiolkovsky, Krafft Ehricke, Gerard O'Neill, and others. These men were the fathers of the philosophical current that we call Astronautic Humanism; thanks to them and the ideas they have given us, we live in a season of great progress in science and technology... one that lacks only resources and a unifying vision before it will transform the modern world as the Renaissance and the Enlightenment transformed the old. We want to focus on humans and their needs and aims again. Our concern is for all of the almost 7 billion humans living on Earth today. We care for their*

aims and for their rights to a better future and living conditions, we want to give them a hope that their children will have better living conditions and, most of all, will have a future – this is our humanism. We think that each human person, wherever born, is precious, since anyone could have the idea or make the discovery that solves some critical problem. Real wealth is not found in money, but in new technologies, new solutions and the potential for work: with 7 billion intelligences, humanity has never been so rich!"

Already in the above short definition we can see the main tracks of our astronautic humanist basic concepts: astro-humanism is fully inclusive, for all humans, without neglecting other sentient species. In this respect astro-humanism is definitely non sectarian, and rejects any elitist concept of salvage or redeem, proper of almost all religions and more or less secret societies of the past (*"only the ones who believe will be saved"*, *"only few elected ones"*, etc...). People can keep on believing their religions, following their political parties, having their ethics. The space renaissance, and its founding philosophy – astronautic humanism – are for all and each one of the seven billions and more Earthlings: ***salvation is for everybody, or it will not be!*** The only thing we are asking all Earthlings for is to think about how to warrant the continuation of a seven billion civilization: this planet is no more enough, therefore the only way is to expand into the Solar System, giving birth to a Solar Civilization. Astronautic humanism doesn't claim to be a *universal* philosophy, we don't claim to have concepts for every philosophic, religious, political or ethical topics. We are just asking people of any orientation to *add some concepts* to their ideological heritage, and maybe actively propose such concepts into their communities.

Human being is our focus. First of all astronautic humanism refers to classic humanism, and puts the human beings, their interests, their material and spiritual needs at first place and at the philosophic focus of attention. But it also goes over: while the classic humanists couldn't have knowledge of the physical limits of our mother planet, we do. Therefore we move from the awareness that our mother planet cannot be enough forever, for a growing civilization.

Growth is a must

Second, human civilization cannot stop growing up, in all directions: culture, ethics, democracy, freedom, economy, size and number (demography). All of these vectors are mutually necessary, one for each other: only a growing economy and growing markets can assure new business and employment opportunities for young people, and only a continuously growing economy can give a chance to reduce and eliminate starvation, underdevelopment, fear, mafia, new feudalism, wars and conflicts[9]. In order for economy to keep growing up, a sufficient material and energy sources platform is necessary. The Solar System can provide a platform of thousand-folds greater than the one needed by seven billion people[10]. This is the material foundation of astronautic humanism: use the intelligence and awareness of our species, and our great scientific and technological knowledge, for expanding into space, and to assure the material platform for our civilization to grow up beyond its infancy, the time spent in our Earth cradle.

Civilization needs each new baby, each new potentially thinking head, conceived in love and awareness, which can contribute to solve the scientific, technological and philosophical problems that humanity will face, should we finally decide to win the challenges posed by the space age[11]. Of course we are not against the people's freedom to decide whether or not to have children, and the availability of birth control means. We are strongly against any coercive policy, like the ones pursued in China and India, and the ones spread by UNO (in collaboration with WWF), some years ago, encouraging Third World countries to adopt coercive birth control measures, such as forced women's sterilization[12].

People are not problems, but resources. As the SRI Manifesto says, and Julian Simon said before us, people are not problems, but resources[13]. While Thomas Malthus[14] was so greedy and thought that people are just mouths to be fed, Simon added human intelligence to the social process equation, and clearly

demonstrated that resource crises give birth to civilian progress, due to intelligent enterprises: they find new technological means, to overcome the crisis. According to *our* astronautic humanism, real richness is not money, that can be burned at billions in one day, by our crazy stock exchange system. Real richness is technological and scientific know-how, and the man power. Holding seven billion people, humanity was never so rich. This crisis is due to a lack of confidence in the human possibilities, caused by a lack of philosophical maturity. Like a child, who doesn't dare to exit their home courtyard, we run the risk to die of starvation and thirst, while just beyond the road there are any good things!

This is a peculiar concept, worth of a more detailed discussion, of astronautic humanism. Or, i could say, of *our* further elaboration of astronautic humanism, from the 1990's to nowadays. It is related to the concept of growth, as a necessary condition of the civilian progress. The main false metaphysics existing in our decadent philosophical environment is that civilian progress could be an independent variable, with respect to the economic growth and the demographic growth itself. In my opinion this is the core concept of astronautic humanism: Growth is a must, since civilian progress could not continue, in a context of economic de-growth and demographic decay. Please also note that neither Krafft Ehricke was clear on this point, let alone Isaac Asimov, nor any other space philosopher of the past. Asimov, in his essay "The march of the millennia"[15], wrote that, should the (Earthling!) human population keep on growing up at the current pace in year 3000 Earth would have 75.000 billion inhabitants. Even a visionary genius like Isaac Asimov couldn't escape the pre-Copernican philosophical paradigm: how could in year 3000 the human development be concentrated only on Earth? And, if human development will be mainly outside Earth, how will it be conditioned by the space environment? For sure it will not continue at the same pace, it will know stops, adaptation, restarts, it will be a complex social and physiological process. However, even simply referring to the nature that we know (a bit), the Earthling one, a steady demographic status is not a possible status, nor it is desirable.

In nature, only growing, declining or extinct species exist. To become a declining species (and it will happen if the world remains closed) would be a catastrophe, from the cultural and civilian point of view: decreasing markets, continuous and worsening economic crisis, and a society composed 80% by old people, missing any hope and personal energy for the future.

If we are not humanist, we don't need space

Our only reference so far is Julian Simon, who clearly gave its right value to humans' number (I could of course be ignorant about other authors, and I'd be very grateful to anyone who will notice any to me). Should we think that humanity can decrease in number, industry and economy, while keeping on progressing in ethics, democracy and freedom, than we wouldn't need to expand into space. What it is most urgent, is a kind of *moral discussion* about astronautic humanism. There is a dramatic lack of elaboration, on this point, and only astronautic humanism holds the arguments, the correct risk assessment, and the theoretical means for mitigating the risk.

Astronautic humanism defends each single human life. As Robert Pirsig says "Just as it is more moral for a doctor to kill a germ than a patient, so it is more moral for an idea to kill a society than it is for a society to kill an idea"[16] (i.e. better that a whole nation, intended as a political delimited territory, dies, than a single person die). Because any person, even the worst criminal, could always change their mind, and give a fundamental contribution to the survival of the species. Humans represent the highest (known) case of intelligent life. As we wrote in our book "Three Theses for the Space Renaissance"[17], intelligence is not an on-off property, as demonstrated by several cases in the animal realm (dolphins, monkeys, etc...). And awareness is maybe a more advanced parameter, when we try to classify capabilities and maturity of different species. However humans hold the primacy on both the grounds, intelligence and awareness (though we are still far from being complete humans). Therefore we strongly support the development of a

humanist ethics, giving priority to human rights, vs. other kinds of ethical models (be they religious, ecologist, animalist, socialist, libertarian, etc...). Such an ethics should of course encompass responsibility toward other sentient species, endowed with less intelligence and self-awareness, which are however necessary for our life, but they deserve however not to suffer, and we are not obliged to make them suffer. Not superfluous to say, we are against the death penalty, where still applied, and we are strongly in favor of non lethal weapon systems, allowing to catch the terrorists and criminals without destroying whole economies and thousands of people's lives. Murder, at all levels, from individual killing to wars, is the true social poison that causes revenge and ethnic hate for generations to come.

We are all in favor of the concept of compassion, toward a fully human status. Our further cultural and social growth, and civilization development, can be traced to lower the suffering of all the sentient beings[18] (Buddhist concept) and to pursue their happiness[19] both as individuals and as communities (US Constitution), and such goals are achievable only accessing a larger material platform. Only by expanding into space, humanity has a chance to complete its journey and *become fully human*, giving birth to a Solar Civilization, fully inclusive, where the behaviors of murder and exploitation will progressively reduce and fade out.

Astronautic humanism is strongly against any form of murder, genocide, suppression of human life, torture, rape and violence on women and children. As an extension, we are also against the inhibition of the right to genetic continuation. Each Earthling has the right to generate children and grow them up for better life conditions, giving their contribution to the civilization pool of thought and innovation. We are strongly against any claim of ethnic superiority, implicit in any coercive birth control policies. Countries like Brazil and India are demonstrating, just in the fire of this awful crisis, that their huge populations, when definitely and finally oriented to progress, are great resources, as new industrial markets, against the crisis itself! If the world remains closed, the precious thrust of these countries will not be enough to reverse the crisis, but if the high frontier is opened, these countries will be in the first ranks of the new development engine for sure.

An *open world* philosophy

Astronautic humanism is an *open world* philosophy. Talking about ecology, we don't consider only the ecology of this planet, but a cosmic ecology, in which our planet is embedded.

Not only Earth – Gaia – is a living organism, but the whole Solar System, closed into the giant "snow ball" of the Oort Cloud, is a living organism, having in its center — the region closed by the Mars orbit — a nucleus where intelligent life is growing up[20]. Such a nucleus was protected by the external giant planets, Jupiter first, which caught by their big gravity many big objects that could cause damages, should they reach the inner nucleus[21]. Many people still don't see such a wonder, and the great task that humanity is bearing: to reproduce intelligent life outside our mother planet, helping Mother Earth to give birth!

Anti-human philosophic currents, such as radical ecologists, consider humans as a parasite of our planet, in the name of a claimed primacy of nature, and assigns to humans a supposed duty to conserve nature as it is: a definitely crazy goal, since in nature the only persisting thing is the change! Species have birth and die, continuously, and we don't escape such a mechanism. If we can expand in a greater ecologic niche, we'll keep on developing, otherwise our species will be terminated, by any cosmic or earthly accident.

Going over the Twentieth Century's ideologies (left vs. right, capitalism vs. socialism, etc...), sadly still ruling the world, it is our duty to run a true philosophic discussion, pointing out the true discriminating points: development vs. de-growth, high value and enhancement of human life vs. disregard of human life, civilian democratic progress vs. authoritarian involution.

Expanding into space: we are here to save the civilization, not to "save the planet"

Astronautic humanism doesn't predict a quick massive migration into space, but a progressive expansion of civilization beyond the boundaries of its mother planet. Doing so, the industrial production and the golabl economy will restart growing up, nomore limited by the finiteness of Earth's resources[22]. Besides, industrial actvities will progressively move outside, and the weight of development will not rest mainly on Earth any more. That will relieve the planet from human development, and the goal of environmentalists will be achieved without stopping nor reverting the civilization development. The Earthling economy will keep on benefiting from the huge development ongoing in space, even because time will pass, before the space colonies can be self-sustaining, allowing them to cut their umbilical cord with the Mother planet. We perfectly know that the opening of the space frontier will not solve all of our problems in few years. Of course we are not talking about a migration of billions of people to space colonies in few decades, though this kind of argument was the favorite of the opponents of space expansion. The difference is quite another one, and will work at deep philosophic level, quickly changing all of our ideological paradigms. The huge difference between an open world and a closed world is only one: an open world means hope in the future, while a closed world means desperation and specific suicide. An open world – even if just some thousands of space inhabitants, and maybe some million occasional space travelers, will exist during this century — means the awareness that we will be working hard for a real goal. Problems will increase however, but we will work hard to overcome, and the burgeoning star of the space economy will drive us out of crisis.

We are space expansionists, not environmentalists! It is very much important to point out a big, critical, difference: we, astronautic humanists, are not part of the environmental movement, though we share some environmentalist cares. We are not devoted to *"save the planet"*, but to save the civilization[23]. We are not "enlightened environmentalists", having in our conceptual baggage the concept of space expansion *as one of the means for saving the planet*. We are aware that, if humanity will not expand into space, any possible culture will end, because the civilization will be condemned. Therefore we are against any palliative measures, such as green economies or de-growth strategies: they cannot *save the planet* for sure (save it for what, and from what?), and, since they divert resources from a serious space program, they will accelerate the collapse of civilization. All of our arguments and concepts are in favor of the space settlement and industrialization, as the most urgent challenge humanity has to face[24]. We only accept the discussion with environmentalists who share a humanist ethics, and the primacy of our species and its rights, in the context of a cosmic ecology.

For living and working in space we need to substantially resolve two main problems: shielding from space hard radiation and artificial gravity. They appear to be contradictory conditions, since to resolve the first problem it could be convenient to settle some meters under the surface of the Moon (e.g. using some natural caves to create habitats), while to solve the second problem we should create an O'Neill artificial orbiting, and spinning, colony. But other solutions can be explored: capturing an asteroid, for instance, we could get both the conditions, to dig a wide habitat inside it, well protected against space hard radiation, and get it spinning, to create a centrifugal gravity on its internal spherical walls. For sure, using Moon and Asteroidal materials, we could build thick enough protection walls for O'Neill Lagrange structures as well.

The delta V necessary to reach some near Earth asteroids is very low[25], and therefore not that critical, even by our actual space technology, therefore asteroids mining is definitely to be listed among the possible development lines that can drive us outside of the current crisis.

Our philosophic adversary: de-growth

But who are the ideological adversaries of the astronautical humanist philosophical current? They are the supporters of the so-called de-growth philosophy, such as Tom Murphy[26] in the US and Serge Latouche[27] in

Europe. While Murphy tries to convince us that space is not convenient as a human development ground, Latouche dismisses the discussion about the finiteness of the Earth's resources in very short. Unlike the theoreticians of the so called *sustainable development*, the de-growthers dare to state that the only sustainable development is a negative one (i.e.= de-growth), of course refusing to consider that their argument is quite pre-Copernican and hiding their head in the (Earth's) sand! Latouche is aware of the extreme social danger implied by his social model, and his solution is (not joking)... *a de-growth model that can be socially tolerated*! Not a word to explain how! These guys are so sure that their ideology will find a wide fertile ground – the orphans of the class war – that they even don't care to build a serious scientific theory, to back their postulates!

Stephen Ashworth generously issued a criticism of the Murphy's article[28], where the poor scientific substance of the Murphy's discussion is well explained. It is quite interesting to see that Murphy always discusses the possible use of space just for feeding the Earthling economy. Therefore, philosophically speaking (why am I not surprised?), he doesn't escape the pre-Copernican paradigm. Should all of our opponents be like this one, we should not have difficulties promoting human expansion into space. But, since *we do have problems*, indeed, my idea is that we still have to work a lot, especially to develop a new fully positive language, finally free from any defensive argument, vs. terra-centric, pseudo-scientific positions and backward philosophic ones.

Finally, human expansion into space is a *moral matter*. Being it the only solution to avoid a huge holocaust of billions people and likely the end of civilization, a serious discourse about the moral of astronautic humanism is quite in order and very urgent to be developed.

Cosmic evolution

While all of the old philosophies locate humans in the (Earth) planetary dimension, astronautic humanism locates humans in a cosmic one. As Pirsig wrote, humanity is a kind of agent, provided by nature, in order to oppose some of its own laws (entropy, first of all). Several philosophers clearly pointed out human expansion into space as the next evolutionary step. I just recall here, besides the already mentioned Stephen Ashworth[29]: prof. Paul Ziolo[30], Luigi De Marchi[31], Steve Wolf[32]. Through their evolution, humans learned selection methods different from continuous killing and violence, prevalent in nature.

Though we are not yet able to fully apply such an advanced ethics, however we were able to conceive it, and – though people could think that morality is continuously going worse – the percentage of people dedicated to murder, in our seven billion world, is for sure nowadays very much lower than the one of, say, two centuries ago, when world population was less than one billion, and wars were universally celebrated as source of honor and glory. By the way, this is another rationale of the demographic growth: increasing the number of people, the percentage of deviant and criminal behaviors decreases, and this generates a cultural feedback. The philosophical decay of war as a value was due to the industrial age, that gave an earning to the majority of the people, lowered the fear, raised the social rights, allowed the spread of the mass instruction system. The current crisis is questioning all of this, and we run the risk of losing the social platform built on by big sacrifice, by our parents and grandparents. But, if this crisis is overcome, by the launch of the space industrial revolution, the path will be retaken, stronger than before, and with very much less alienation. In fact, the electronic revolution already swept away the Fordist production chain and its dehumanizing model, and robotics allows people to do the pleasant and creative part of the work, saving the terrible fatigue of the past century factories. And — this is not only a philosophical concept, but a political one too — we cannot wait too long, to develop the space industrial revolution, since this crisis could quickly hack the heritage of excellent entrepreneurs and technical knowledge, and our time-window to step to the stars could close, earlier than what we imagine, and irreversibly. If we are not too late, all the conditions for a formidable jump ahead in evolution will be in order.

It is not useless to recall, here, the evolutionary definition given by Marco C. Bernasconi in the Greater Earth Manifesto[33] (1998): *"Astronautical Humanism is based on a scientific view of the Universe, and naturally arrives to a system-oriented, evolutionary approach."*

In fact, during the last 50 years we had:

a) a great increase of the number of intellectual workers, with capabilities of system analysts
b) a great increase of automation, robotics and automated industrial processes.

What is the result of the above combined conditions? Automata can do the work of thousands, in a shorter time. The cowards see in that a big danger for the employment. But the visionaries know that this is the necessary condition for a formidable age of human expansion: millions of skilled minds, who wouldn't find enough jobs on Earth, will can, supported by automata, spread into the Solar System, founding a new civilization, a Solar Civilization![34]

Beyond the age of the metabolism of information: *write, debug, improve*. We have nowadays a tool (the global network), allowing us to better use the world's intelligence. And this means encouraging more collaboration than fighting, allowing people to understand that good willing people exist everywhere. Krafft Ehricke — dead in 1984, before the advent of the internet — in his "Extraterrestrial Imperative" papers wrote about the "age of the metabolism of information," in evolutionary terms[35]. The needed change of paradigm will contribute to give the political leadership to the most intelligent people, instead of leaving it in the hands of the greediest and the most violent ones. The selection process will move its index from the most powerful to the most intelligent and aware ones, since these are the properties most required by the current age. Furthermore, Mankind will take evolution in our hands, becoming aware of the very needed steps. Great cultural and physiologic changes will be in order, following the gradual space settlement.

Man will build synthetic intelligences comparable to the human one. Studying such systems we will learn to understand even the functioning of our biological brain, and to use its functions in a more and more conscious way. Using cybernetic implants more and more similar to our bio-spiritual-emotional mind, we will gradually integrate their methods and routines in our biological mind. That could not be possible at the bottom of the gravity well, but only in a full 3D environment, where human thought will be challenged by the infinite directions of the vacuum, the total sphere of knowledge and spirit. Denying the cowardice of those who fear artificial intelligence to overcome the human one, man will draw full biological advantage from the accomplished cybernetic path, by incorporating its cybernetic techniques in the human biological environment, enhancing and guiding the evolution along paths previously tested through cybernetic technologies. The full awareness of mind will finally lead to pass the final frontier, unifying mind and spirit. The above concepts nowadays could appear as a pure dream, but the road-map is already tracked. The method, of which all the scientific research branches already benefited since fifty years at least, is the one pointed out by computer science (also called *informatics*): ***write your program, debug it, improve it***. Once again, we just can underline the visionary look of Krafft Ehricke, when he wrote about the age of metabolism of information.

Paradoxically, humans will become more human while the shape of their body will change, with respect to what we acknowledge as human shape today. Men will likely learn to change their own physical capabilities by means of bioengineering, consciously driving evolution, conserving all of our cultural diversities, and achieving new important cultural diversities, according to the different settlements (Moon, O'Neill colonies, Mars, asteroids mining stations, ...) where they will live and grow up their children. It is interesting to note that, developing firstly spinning O'Neill colonies[36], endowed with artificial gravity, humans will profit of a more gradual adaptation to space environment than, for instance, creating Lunar cities, where people would have to suddenly adapt to a 1/6 gravity.

The true important condition, that will set up a social situation never experimented before by humanity, is that the enormous abundance of material and energy resources will cancel the concept of scarcity, and with it *the concept of sacrifice itself*, that informed our religions and philosophic thought, and finally our ethics. Humanity doesn't have yet an ethic, nor an economics science, *based on abundance of resources*, and we can foresee the development of such a culture during the development of the Solar Civilization. In this respect, *astronautic humanism is maybe the sole evolutionary philosophy*, in this age, since it doesn't require the sacrifice of anyone, and provides the widest possible platform to evolution.

A humanist model of evolution will not be based on life for winners and death for losers. Nobody will be left alone. The main mistake made by any eugenic program is that high IQ people will generate higher IQ ones. It can happen, but more frequently the process is quite random, and a genius can have birth in any house of the planet, and tomorrow outside the planet. Nature is stochastic, and not deterministic, in this respect, and provides a formidable set of unpredictable solutions, in order to refute the advocates of eugenics! Claimed super-children can be endowed of very low sense of morality, or other conditions that make them useless. Conversely, intelligence is an incremental process, and IQ can be improved by any non lazy child or adult individual: exactly like muscles can be trained, to improve their performance, the brain can be trained too, to improve its capabilities. More, intelligence can be improved, deepening awareness as well. Therefore nobody is excluded; everything depends upon personal good will, and improved education systems.

Our task, as an intelligent species, is to spread a humanist revolution in the universe, bringing life on dead worlds and building artificial settlements in the Solar System, using the enormous reserve of materials of the asteroids belt, just to talk about the goals in our range, the first steps of which are reachable during the current century. Pushing our look to the current millennium, provided that the ignition of the process will occur before 2020, we can see expansion to the outer regions of our Solar System, accessing the incredible resources of the Oort Cloud, a true "freezer", ready with trillions of comets, made by ice and basic components of life. As Robert Heinlein wrote, "*once you are in Earth Orbit, you're mid way to everywhere*". And the philosophic horizon of astronautic humanism is wide enough to encompass human expansion to other solar systems in our galaxy and outside!

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