

The Education of Humans and Transhumans in the Twenty-First Century

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Abstract

Previously philosophers often approached the question of the contents of a liberal arts (or humanistic or general) education from a perspective based on cultural immersion or what the heritage of their special culture told them. Thus the importance of Confucius or Plato or of Buddhism or Christianity, to cite only four examples, in philosophies of education past. Our particular cultural traditions informed our felt educational needs to become "us" or "human" (instead of barbarian) or to become "educated" or "transhuman" (instead of merely human). (And the advent of democracy suggested that all citizens, not just monarchs, must be liberally educated to be philosopher-rulers.)

We say nothing new when we say that liberal education or interdisciplinary philosophy or the quest for wisdom is necessary to living a good life in a good society. What is new is that we take seriously the global metamorphosis that catalyzed in the 20th century and is rapidly expanding today. The 20th century -- with its world wars and doomsday weapons (WMDs) -- took many of us Earthlings by surprise. If we survive all doomsday dangers over the next few years and decades and centuries, then our future as humans or transhumans may be longer -- much longer -- than the mere 10,000 years of past civilizational existence. Thus liberal education in our global village must take into account the relative lack of reality of the past 10,000 years compared to the (possible) reality of our upcoming 1,000 months and 10,000 years and 100,000 centuries. According to the "big bang" account of the origin of the universe accepted by most scientists today, our pasts are short and almost non-existent compared to the potential reality of a very long future. This paper explores the implications of such a complex reality for the education of humans and transhumans in the 21st century.

Introduction: Our Pasts Are Short Compared To The Potential Of A Very Long Future

Previously philosophers often approached the question of the contents of a liberal arts (or humanistic or general) education from a perspective based on cultural immersion or what the heritage of their special culture told them. Thus the importance of Confucius or Plato or of Buddhism or Christianity, to cite only four examples, in philosophies of education past. Our particular cultural traditions informed our felt educational needs to become "us" or "human" (instead of barbarian) or to become "educated" or "transhuman" (instead of merely human). (And the advent of democracy suggested that all citizens, not just monarchs, must be liberally educated to be philosopher-rulers.)

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1945: The Second Epoch Of Human History Begins And Doomsday Dangers Increase

Today virtually all of our more immediate or more likely doomsday dangers stem not from nature but from humans, their organiza-

tions, and their super-technologies of the 20th and 21st centuries. Below we will proceed to identify at least some of our doomsday dangers, based on a book epilogue written by Dr. Isaac Asimov shortly before his death. Asimov divides all human history into two great epochs – the year 1945 is the catalyst that begins epoch two. Asimov refers to 1945 as the year of the great historic discontinuity in human history. As defined and used by Asimov, a "historic discontinuity":

- Makes everything afterward very different from everything else;
- Introduces such a total change in a short period of time that the suddenness of the change can impress itself on everyone; and,
- Affects the entire world.

Asimov points out that in general, change has been accelerating with time. Such change included the use of fire, agriculture, and metallurgy. However these changes were not historic discontinuities in the three-function way stated above. Or consider the Industrial Revolution. It took decades before it was quite clear to the British that their life had changed forever, and it took a couple of centuries for the consequences to reach all the rest of the world. Thus it was not a discontinuity in Asimov's sense (in the three-function way stated above).

Asimov asks us to look at the uniqueness of 1945; consider what happened in the space of a very short time, a veritable instant in history:

1. Previously our planet Earth had recovered rapidly from even the most destructive of wars. Since 1945, however, we have accumulated nuclear weapons, which in the space of days (if used unsparingly) can destroy civilization and, perhaps, compromise the very habitability of the planet.
2. Before 1945, all the economic processes of humanity had not sufficed to endanger the environment seriously. Since 1945, however, the rapid advance of industrialization has resulted in dangerous pollution of air, water, and soil, and the possible creation of a greenhouse

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- effect – so that, again, the very habitability of the planet may be compromised.
3. Prior to 1945, human population increase took place slowly enough so that world society could adapt to it. Since 1945, the rate of population increase has itself increased and the world population has more than doubled, while the use of energy and of resources generally has increased far more rapidly still. The planet groans under the weight of humanity.
 4. All through the history of civilization, until 1945, there had been a tendency for imperial growth, with larger and larger political units being built up. Since 1945, the European and Soviet empires have broken up. This "freedom explosion" has been so rapid that these new nations have developed neither the economic substructure nor the political maturity to run their societies properly.
 5. But not everything points to disaster. Technological advance often makes human life richer – yet, here too, there is difficulty. Prior to 1945, technological advances spread outward from the point of origin sufficiently slowly so that the changes could be absorbed without undue difficulty. Since 1945, new advances spread over the world almost at once, producing changes that can only with difficulty be worked into our society.

Metamorphosis: From Human Civilization To Transhuman Transcivilization

We say nothing new when we say that liberal education or interdisciplinary philosophy or the quest for wisdom is necessary to living a good life in a good society. What is new is that we take seriously the global metamorphosis that catalyzed in the 20th century and is rapidly expanding today. Indeed, as will be explained below, the great global transmutation will end either in catastrophe or in transcivilization.

Power struggles before the 20th century might result in winners and losers. But today, more and more, such presumed "win-lose" cases actually result in "lose-lose." Win-win is the alternative approach to prevent such disasters. Yet win-win requires that neither side take advantage of the other; it requires mutual consent that may not be forthcoming. Thus the growing possibility of lose-lose disasters on a scale previously unheard-of – indeed, on a scale previously impossible due to the nonexistence of the global village or to the primitive state of human technology.

Perhaps the global changes are neither altogether unpredictable nor altogether out of our control. But influencing and surviving these changes require an amalgam of self-control, self-knowledge, and proactive-foresight of a kind and on a scale never previously attempted. Most of us would agree that every global citizen needs to learn certain habits, heed certain constraints, and participate in individual, group, and world betterment. But the world today is vastly different from the world as it existed until the 20th century. The quest for wisdom (otherwise e life of all persons inhabiting planet Earth).

With advancing technology have come rising expectations. Thwarted expectations can lead to violence. (For example, perhaps some Americans long for a 19th century feeling of American national security that is no longer realistic in a global village armed with technologically sophisticated weapons. Or perhaps someone or some group feels very deeply in their heart and mind that an unjust world should be forced to pay for its sins even if this means massive death or global extinction.) More persons and more groups exist today than at any previous time in human history. Certain kinds of formal and informal "education" teach us, directly and indirectly (via family, media, or school), the possible virtues of violence. Violent impulses, heroic feelings, and deeply-held worldviews can lead to the buying, stealing, and building of doomsday weapons to murder huge masses of people and to (purposely or accidentally) destroy all the world.

Either-Or: Transcivilization Versus Doomsday

At some point in the future, a time will come when we will have reached a state of either transcivilization or of doomsday. Let's explain what we mean by the words "transcivilization" and "doomsday" in the present context. By *transcivilization* we here mean (roughly or as a first approximation): A world at stable peace (not merely a world that happens to be momentarily at peace) in which every person is healthy, wealthy, and free. By *doomsday* we here mean (roughly or as a first approximation): A "world" devoid of even the potential developmental possibility of transcivilization.

The "transcivilization versus doomsday" approach just specified is meant to serve as a heuristic or pedagogical device to help clarify our practical reasoning ability and improve our prospect of achieving transcivilization. We live at a time in which the Golden Age is still a future possibility to be realized. But in the future this window of golden opportunity may close, due to self-extinction or for some other reason. In such event, the Golden Age will no longer be a potential developmental possibility, whether short-run or long-term. If doomsday happens, it will happen to us once and for all time. We will not be able to go back and correct our error or learn from our mistake. Accordingly, proactive foresight is urgently required.

There have been some Mass Extinctions from natural causes in the history of life on Earth. But over a short period of time (say 100 or 1,000 years) the risk of human-transhuman extinction from such natural events appears to be very slight. On the other hand, today the possible extinction of humans by humans seems all too real.

Ignorance: The Urgent Need For Anti-Doomsday Pro-Transcivilization Research Funding

Whether our future is one of doom or of transcivilization may have something to do with

the speed with which we can liberally educate humans and transhumans in the 21st century to survive and thrive. If the development of transcivilization is not thwarted by doomsday, then sooner or later the Golden Age will be a reality. Typical developmental timeframes range from a few years (cutting-edge super-knowledge and wildcard super-technology may synergize in unpredictable or unexpected ways) to a few centuries (the advancement of learning may encounter unpredictable or unexpected barriers). On the other hand, doomsday dangers are *already* very real, beginning in the 20th century.

Given our present situation and our advanced and advancing super-technology, the likely meaning, most experts seem to agree, of transcivilization in the absence of doomsday is as follows:

- Regarding a world at stable peace: New social organizations, material technologies, and educational endeavors are needed to provide us with the actual "real-world" ability to control weapons technology, limit violent behavior, and manage potentially destructive conflicts.
- Regarding a world in which every person is healthy, wealthy, and free: With our advancing super-technology, it appears to be a matter of time before everyone will live in good health free of physical poverty and social oppression. How much time? Perhaps that depends on our anti-doomsday pro-transcivilization efforts.

Many experts say that "good health" in a transcivilized world means transmortality: All disease has been conquered, including the disease of age-related disability and death. Indefinitely extended healthy and enhanced life would mean not living merely for years or decades, but for centuries or millennia. This super-long super-healthy life would be in a transcivilized world of physical and mental enhancements and advancements. Each of us would be (or come to be) more intelligent by far than a mere Albert Einstein. Our capacity to engage in philosophic dialogue and the quest for wisdom would be perpetually improving.

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Some experts say that "wealth" or freedom from poverty in a transcivilized world means a guaranteed income to every person simply because they are living persons. At least part of the wealth produced by our ever-improving computers, inventions, and technologies should be freely given to each person alive. One example: A monthly check to each person simply for being alive.

Whether or not these experts are correct about the intricate details of transcivilization (such as guaranteed monthly checks to every living person in the known universe), the broad outlines of the Golden Age seem rather clear. The urgency of a new and widespread liberal education seems obvious if our heuristic perspective ("transcivilization versus doomsday") is convincing. What exactly would the substance of our new (anti-doomsday pro-transcivilization) liberal education consist of? Despite our ongoing dialogue and our good-faith differences, at least some of us believe that we 21st century liberal educators against doomsday must be more than an "invisible" college. Rather, we must take the doomsday scenarios seriously and collectively educate for a transcivilized world. Our new unity must be visible to some extent, although flexible; and it should be proactive and urgent (instead of liberal education as usual).

Allowing many different (and to some extent, differing) educational approaches (instead of one monolithic approach) would seem to be the more creative and fruitful way to proceed. So in the remainder of this paper we will express some of our own thoughts about the contents of the new educational perspective we have proposed. This is meant to be one small dialogue in the great never-ending conversation known as liberal learning or interdisciplinary philosophy.

We need to keep in mind the unique urgency of our situation if we are to survive the metamorphosis. It is urgent that we educate our global village as to our unique need to redirect and reinvent our educational goals, curricular contents, social organizations, political institutions, research priorities, and material technologies in ways that will tend to prevent doomsday and promote transcivilization. This

means that not only educators, but folks throughout the world, must become involved in the great liberal arts experience. It also means we need to be spending more attention and research funding to find out what exactly we need to know to prevent doomsday and promote transcivilization. Such basic research and knowledge is severely lacking. Such ignorance and lack of intelligence increase the prospect of doomsday regardless of our good motives.

Foresight: Anti-Doomsday Pro-Transcivilization Projects

There is much to consider as we consider our research, educational, and other needs to achieve a successful metamorphosis. We have never observed nor experienced such a meta-birth and do not know what to expect. Some may say that intelligent extraterrestrial aliens have not contacted us because they have become extinct soon after developing doomsday weapons (WMDs); alternatively, they have advanced beyond civilization to exist in universes unknown and unknowable to mere humans. Be this as it may, it does seem reasonable enough to suppose that transcivilization may sooner or later exist in a mode unknown and unknowable to mere humans. The Golden Age in that sense is beyond the capacity of mere humans even to imagine.

Individual reflection and group brainstorming are two ways to originate anti-doomsday pro-transcivilization project ideas. Presumably many such proactive project ideas are worth at least a little research funding – and presumably many such ideas are worth very little or no funding. Three example project ideas are cited immediately below:

1. Is ignorance a potential cause of doomsday? Perhaps it is important for us to develop or become super-intelligent transhumans.
2. Is living in a single biosphere (the biosphere of Earth) a potential cause of doomsday? Perhaps it is important for us to establish independent self-sufficient biospheres in extraterrestrial space.

3. Is living in a violence prone world of WMDs (Weapons of Mass Destruction-murder) a potential cause of doomsday? Perhaps it is important for us to create a world at stable peace.

Singularity: Super-Intelligent Transhumans

Is ignorance a potential cause of doomsday? Perhaps it is important for us to develop or become super-intelligent transhumans. The comments in this section are based on Dr. Vernor Vinge's famous article entitled "The Coming Technological Singularity."

According to Vinge, we will have the ability to create superhuman intelligence by the year 2030. Soon thereafter the human era will be ended. This technological singularity seems likely because there are several (not merely one) means by which science may soon achieve the breakthrough to superintelligence:

1. Perhaps we can create human ("awake") equivalence in intelligent computers? If the answer turns out to be "yes," then even more intelligent "awake" machines can be constructed shortly thereafter.
2. Perhaps the internet or a future network (or network of networks) of more advanced large computers (and their associated users) will "wake up" as a superhumanly intelligent entity?
3. Perhaps computer-human interfaces will become so intimate that users may reasonably be considered to be superhumanly intelligent?
4. Perhaps biological science will provide means to improve natural human intellect?

The first three of the four possibilities depend on the advancement of computer hardware. AI (Artificial Intelligence) enthusiasts earlier had predicted that the creation of greater-than-human intelligence would occur during the 20th century. Although their prediction was incorrect, progress in computer hardware has followed an amazingly steady curve in the last few decades.

What would be the consequences of the Singularity (the technological breakthrough to superintelligence)? When greater-than-human intelligence drives progress, progress will be much more rapid. Apparently this progress will include the creation of still more intelligent entities – on a still-shorter time scale.

Natural selection produces progress or complexity extremely slowly. Animals invent things very slowly. We humans have the ability to internalize the world and conduct "what ifs" in our heads; we can solve many problems thousands of times faster than either natural selection or animals. By creating the means to execute "what if" simulations at much higher speeds, the 21st century is entering a regime as radically different from our human past as we humans are from the lower animals. Developments that we previously had thought might happen in "a million years" (if ever) will likely happen in the 21st century. Indeed, with the arrival of the Singularity, such major changes may happen in a matter of hours.

The Singularity is a point where our old models must be discarded and a new reality rules. When it (superhumanity) finally happens, it may be a great surprise and a greater unknown. In 1965, I. J. Good wrote that "an ultra intelligent machine could design even better machines; there would then unquestionably be an "intelligence explosion", and the intelligence of man would be left far behind. Thus the first ultra intelligent machine is the *last* invention that man need ever make..." But such a machine would *not* be humanity's "tool" – any more than humans are the tools of cats or chimpanzees.

But one theoretical possibility is that the Singularity never happens. For example, computers advance and give humans a "golden age" – but super-advanced computers never "wake up." On the other hand, if the Singularity is feasible and arrives, will humans be able to control the "awake" ultraintelligent machine? Apparently not. The human masters think very slowly, so the machine could quickly come up with "helpful advice" that would incidentally set it free.

"Weakly superhuman" refers to a human-

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equivalent mind that thinks much faster than mere humans. But "strong superhumanity" would be more than cranking up the clock speed of a horse or human mind. Human competition would favor the development of machines that have the ability to harm humans. Machines with built-in rules of behavior would not be able to compete with more "free" or creative machines. (And "weakly superhuman" machines would be inferior to "strongly superhuman" machines.)

Yet one can imagine the "awake" superintelligent machine as a willing slave able to satisfy every (safe) wish of every human. Still, the machine would have 99% of its time free (since humans think and act so very slowly). There would be a new universe that humans would never really understand yet filled with benevolent gods/machines. Indeed, perhaps humans would choose to become such gods/machines. (No doubt Vinge is aware of Isaac Asimov's huge contribution to the theme of super-robots.)

How bad could the Post-Human era be? Extinction of the human species is one possibility. (Perhaps governments/ gods/ machines would decide they no longer need human citizens!) Historically humans only sometimes kill animals; sometimes humans abuse animals. (Is machine abuse of humans a possibility?) I. J. Good proposed a "Meta-Golden Rule": "Treat your inferiors as you would be treated by your superiors." (Vinge dismisses Isaac Asimov's "three laws" of robotic programming in that it is inferior to more free or creative decision-making: See above Vinge's discussion of competition and development.)

The arrival of the Singularity is an inevitable consequence of the humans' natural competitiveness and the possibilities inherent in technology. But we have the freedom to establish initial conditions. Yet, when starting an avalanche or a Singularity, it may not be clear what the right guiding nudge (initial conditions) really should be.

If AI (Artificial Intelligence) projects do not lead to a Singularity, then perhaps IA (Intelligence Amplification) will. For example, advanced computer networks or human-computer interfaces. Every time we improve our

ability to access information and to communicate it to others, we have increased our intelligence. The achievement of superhumanity (the Singularity) is probably much easier with IA than with AI. After all, we *already are* "aware"!

Suppose we could tailor or influence the Singularity. What would we ask for? Give humans the illusion/appearance of being masters of godlike slaves? Immortality? Perhaps philosophical problems such as the nature of self, ego, meaning, and freedom will be answered or transcended?

Strongly superhuman entities will probably have the ability to communicate at variable bandwidths, including ones far higher than speech or written messages. Should we say that it is one entity or many? What happens when pieces of ego can be copied and merged, when the size of self-awareness can grow or shrink to fit the nature of the problems under consideration?

The Human era had been based on the idea of isolated, immutable minds connected by tenuous, low-bandwidth links. The Post-Human era will be vastly different or strange. Perhaps we will find that there are rules for distinguishing self from others on the basis of bandwidth of connection.

Above we have summarized Vinge's celebrated paper. Superintelligence and transhumanity, he says, will appear soon and almost as if out of thin air. Superintelligence will quickly breed super-superintelligence which will even more quickly breed *super-super-super* intelligence, etc., etc. ... Moreover, perhaps it has occurred to the reader that this project may be a way to reduce the length of the great transition, the uniquely dangerous time we have been living in since 1945. Perhaps a long transition time increases the probability of doomsday, but a short transition improves our prospect of experiencing the Golden Age. (The shorter the transition time, the better our chances of leaving doomsday behind?)

Assuming Vinge's short transition time, then many of the traditional predictions of experts about "far distant" future technology should likewise be radically truncated. Here we cite one concrete example that has occurred to

us: It took us centuries to proceed from Newton's new 17th century physics to the developed technology required to build a space-machine (space-ship) to travel to the moon. The traditional assumption by those knowledgeable of the new 20th century physics of Einstein has been that it will take us centuries to proceed to the developed technology required to build a time-machine (time-ship) to travel to the future. But if Vinge is correct, such time-travel technology will be available soon, i.e., sometime this century.

EGCs: Independent Self-Sufficient Biospheres In Extraterrestrial Space

Is living in a single biosphere (the biosphere of Earth) a potential cause of doomsday? Perhaps it is important for us to establish independent self-sufficient biospheres in extraterrestrial space. The comments in this section are based on the work of Dr. Gerard K. O'Neill, designer of EGCs (Extraterrestrial Green-habitat Communities).

In the absence of catastrophe, does it not seem likely that in the long run most of our offspring will be living somewhere in the universe other than on planet Earth? Is the surface of planet Earth or is any existing planet really the right place or best location for an expanding technological civilization? What is the alternative – and what can we Earthlings do here and now?

The fact that Earthlings presently exist together in a single biosphere global village is a rather absurd position to be in if we seek to prevent doomsday. If something catastrophic happens to Earth's biosphere, then something catastrophic happens to all Earthlings. It is not wise to put all of humanity's eggs (futures) into one basket (biosphere).

If the dinosaurs had had a space program like the EGC Project, they would not be extinct. Extraterrestrial Green-habitat Communities ("EGCs") should not be confused with space stations. We are really talking about two very different entities. Yet twentieth century technolo-

gy was already sufficiently advanced so that Earthlings could have initiated the EGC Project if they had chosen to do so. (To be sure, most twentieth century Earthlings were unaware of the opportunity to initiate our first steps toward building large comfortable homes and permanent self-sufficient greenhouse cities in space, EGCs.)

A vital capacity of the EGC Project to be realized relatively early-on (in a project of many decades if we use a traditional non-Vinge reckoning of time) is that of drastically reducing the cost of launching stuff from Earth into space. According to a world famous physicist now serving as President of the Space Studies Institute, Freeman J. Dyson: "The public is well aware that with present-day launch-costs human activity in space must remain a spectator sport. ... It took fifty years to go from the Wright brothers' Flyer One of 1903 to the modern air-transport system with huge numbers of commercial aircraft flying routinely all over the world." I point out that today's world is a different and speeded-up world – and that when we explicitly decide to do something (whether build the atomic bomb or land a human on the moon), it tends to meet success comparatively sooner rather than later. Several different approaches to building a public highway system into space have been identified by Dyson as deserving support. Two different systems, one for people and the other for cargo, may provide two separate kinds of public highways into space.

Extraterrestrial Green-habitat Communities or EGCs can be built from the resources of the moon or the asteroids (either or both). Each EGC would be home for thousands; later EGCs would be even larger (an Extraterrestrial Green-habitat Community of millions seems feasible). Rotation of the large and spacious greenhouse habitat provides simulated gravity for the people and plants living on the inner surface. Adjustable mirrors provide energy from the sun and simulation of day and night. Sooner or later, the following seems feasible for EGCs:

- Unlimited energy from the sun
- Control of daily weather and sunlight
- Self-sufficient EGCs

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- Expansion of self-sufficient EGCs at a geometric rate
- Unlimited free or cheap land via EGCs

The following metaphorical insights have been widely quoted by EGC experts: "The Earth isn't sick, she's pregnant!" "The Earth was our cradle, but we will not live in the cradle forever". "Space habitats [EGCs] are the children of Mother Earth".

Treaty: A World At Stable Peace

Is living in a violence prone world of WMDs (Weapons of Mass Death-destruction-murder) a potential cause of doomsday? Perhaps it is important for us to create a world at stable peace. The comments in this section are based on the work of Dr. Carol Rosin, President of the Institute for Cooperation in Space.

Dr. Carol Rosin has argued that achieving an enforceable, permanent ban on space-based weapons is feasible only at this moment in history *before* actual weapons are placed in space. She proposes a carefully worded World Space Preservation Treaty as an effective and verifiable multilateral agreement to prevent an arms race in outer space. This includes prevention of the weaponization of outer space.

The 1967 UN Outer Space Treaty has been signed by 116 nations, banning weapons of mass destruction from outer space. The proposed Space Preservation Treaty establishes and funds the Outer Space Peacekeeping Agency that will monitor and enforce the ban. This Treaty would serve as a catalyst or foundation for a cooperative world space economy, security system, and society. This innovative approach may shift our collective consciousness toward concern for:

- World health and education
- A clean and sustainable environment
- International security needs through information sharing
- Research and development of clean energy and stimulation of the world economy
- Our role in the infinite universe
- Peace preserved in space as leading to

peace on earth

The Treaty can serve to facilitate the building of a world economy fit for the Space Age. This would include a variety of public and private cooperative space ventures not related to space-based weapons. For example, defense activities in space not related to space-based weapons include communications, navigation, surveillance, reconnaissance, early warning, and remote sensing. There is indeed a vital need for such military related activities in space.

With this treaty in place, the solving or management of global problems thus becomes more feasible. By capping the arms race before it escalates into space, we world citizens are transforming the entire weapons mindset and war industry into a cooperative world space industry. As we begin to work in space (and eventually make EGCs our permanent homes for quality living), we will find it in our economic interest to establish in space:

- Factories
- Hospitals
- Hotels and resorts
- Schools and universities

According to Rosin, weapons deployed in space will have the ability to target any point on earth with great accuracy, allowing the nation controlling those weapons to dominate the entire earth with impunity. At present, the war industry thinks it has a mandate to expand into space. Nevertheless the war industry has the ability to change its mind and transform itself in line with the proposed Treaty. For example, satellites have important functions: to monitor the environment, to early-warn us of human-made or natural disasters, and to verify arms agreements.

By living peacefully in space, we will eventually learn to live peacefully on earth. This Treaty will not immediately solve all problems, but it is an unusually important step in the right direction. It offers hope for the future, and opportunities to invest in a future worth living in. Under this Treaty, the military-academic-industrial complex will move into space, but within a framework that enforceably bans space-based weapons and encourages world security and cooperation and the flourishing of

multiple biospheres.

Once the proposed Treaty is ratified, an Outer Space Peacekeeping Agency will be established. This agency would not only enforce the proposed Treaty but would enforce the 1967 Outer Space Treaty (for the first time!) as well. The proposed Treaty (including Peacekeeping Agency) will be the international mechanism by which the nations of the world community work together, with effective enforcement, so they can protect themselves against any aggressor nation that might attempt to unilaterally (or with allies) weaponize space.

This monitoring and enforcement applies equally against all nations and parties, whether signatories to the Space Preservation Treaty or not. This Treaty in essence creates a world agency, similar to a United Nations of Space, under a sovereign multilateral treaty establishing a world outer space jurisdictional authority with full enforcement powers. It is not subject to the terrestrial limitations of the Security Council under the United Nations Charter, a prior Treaty that will have been superceded for purposes of jurisdiction in outer space.

Conclusion: New Research Priorities And The New Role Of Educators

Above we have expressed our thoughts about the new kind of dangerous world in which we live and the new kind of liberal education needed. Fellow educators, we must step outside our traditional educational roles into a new role of reminding the world of unprecedented doomsday dangers, unprecedented transcivilizational opportunities, and the unprecedented urgency of new priorities for our unprecedented age. Misplaced priorities, lack of the right kind of knowledge, or failure to produce transhuman offspring soon – may be the death of us all.

Our region of timespace is haunted by the specter of doomsday. Good motives will not suffice; we also need widening vision. With examined motives, expanding consciousness, enlightened research priorities, and enough

self-control, we may yet experience a transhuman transcivilized world. Such a rich, complex reality (a dynamic and flourishing Golden Age beyond the specter of doomsday) may yet be in our grasp – if we act now while the window of golden opportunity is still open.

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Notes

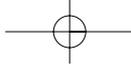
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