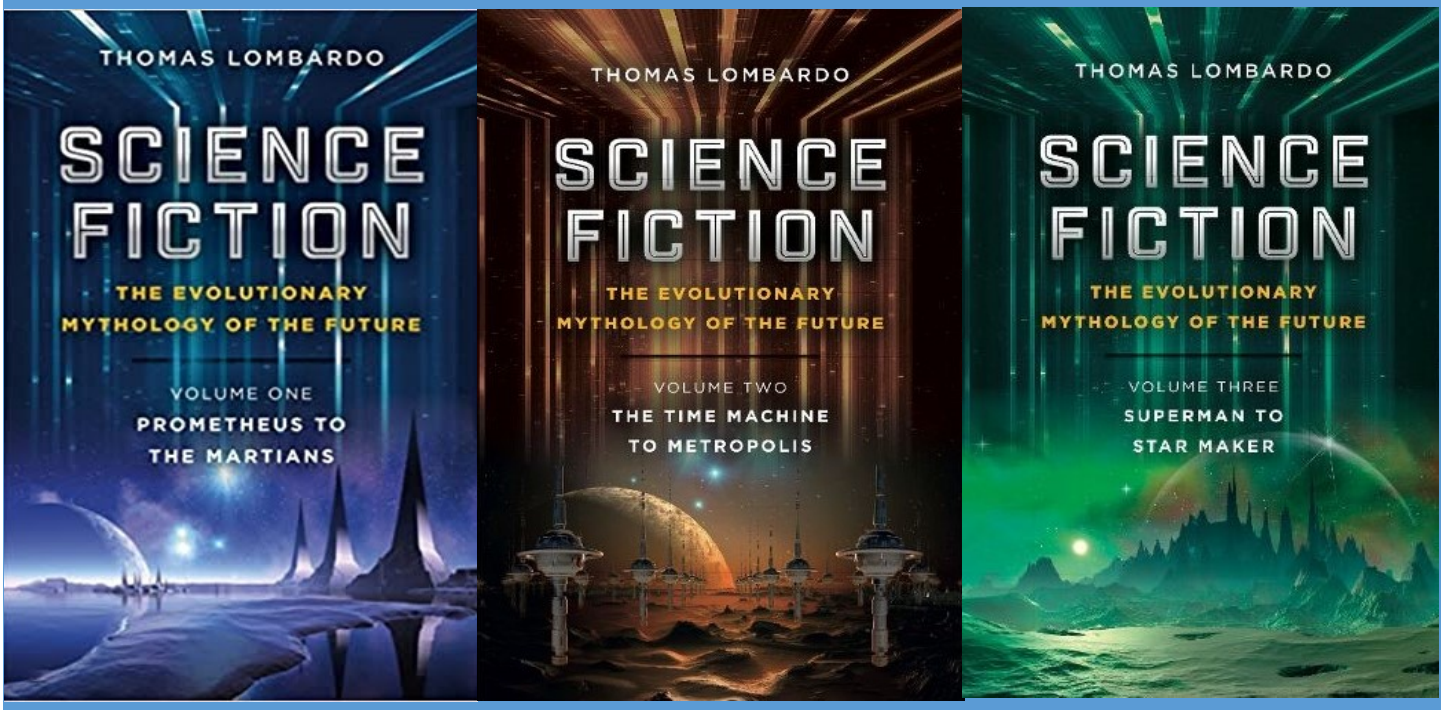
ALTERNATIVE PLANETARY FUTURES INSTITUTE

A Dialogue on Science Fiction:

How to Achieve Planetary Wisdom Through Future Consciousness



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https://www.apfi.us

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Executive Summary

Olaf Stapledon in his book *Last and First Men* had imagined, 90 years ago, the current US-China conflict and even said who will conquer and how. But the majority of the international relations experts and ordinary citizens might have not heard of it.

This should make us wonder what kind of *intuitive logics of scenario building* or mental processes were behind such a prescient speculation when there was nothing like data analytics, or even AI –enabled strategic intelligence toolbox available? Was the basis of such a conjecture simply conventional or even unconventional wisdom given the world condition in 1930? Because in the 1930s, the USA and China were not, compared to British, Japanese, and German empires, among the world powers.

Many of international relations graduates and scholars who work in think tanks are often trained in university programs and by standard textbooks that are largely silent on this vast, open and rich resource of imagination.

Reading science fiction literature, in addition to watching popular movies, should be a key component of enhancing the futures literacy in all levels of the educational system. It will help both ordinary people and expert scholars not only embrace novelty, uncertainty, complexity and emergence but also raise the quality of creative decision making and integrative innovative domestic and foreign policy analysis.

Following the three research and educational programs of the Alternative Planetary Futures Institute (ApFi) which are a) Culture of Hope Through Planetary Consciousness, b) Planetary Benefits and Risks of Technological Revolutions, and c) Integral Development of Scientific Worldview in Art and Literature, this series of dialogues between Victor Motti and Thomas Lombardo begins with the intent to discuss Lombardo's book series Science Fiction: The Evolutionary Mythology of the Future, which provides a comprehensive, fast, and deep access to the science fiction literature.

Since science fiction is integrative and deals with the "future of everything"—a key idea introduced in the first dialogue—the series as it progresses covers an immense and diverse array of topics regarding the future. Looking at science fiction literature as a source of inspiration and speculation, the dialogues examine the future of education, artificial intelligence, love and sex, human society, utopias and dystopias, consciousness and the human mind, biotechnology and space travel, ecology, and our planetary civilization.

But also, on an even broader scale—since nothing is beyond the boundaries of science fiction—the dialogues also consider the nature of God, the importance of history, the value of wisdom, the

theory of evolution, alien minds and alien contact, the nature of mythology and religion, and even Creation.

In this series of conversations both Motti and Lombardo highlight their theoretical views regarding futurist thinking and the diverse topics covered in the dialogues. Motti advocates for a “planetary” perspective on possible and preferable futures, as he has outlined in his book A Transformation Journey to Creative and Alternative Planetary Futures. Lombardo, advocating for the value of science fiction, highlights the themes of mythology, future consciousness, and wisdom, which are all covered in depth in his books Future Consciousness and Science Fiction: The Evolutionary Mythology of the Future.

Although Motti takes the role of interviewer and at times critical interrogator of Lombardo and his views on science fiction, what becomes increasingly apparent through the dialogues is a mutual and focused interest on the issue of consciousness. Both ponder the question regarding whether computers or robots will achieve consciousness. Both consider and debate whether the universe is permeated with consciousness. Of particular importance, they explore the future and desirable possibility of expanding and heightening human consciousness. Motti advocates for a rising of planetary consciousness in the future; Lombardo argues for the evolution of future consciousness through science fiction.

In a time of numerous dystopian narratives and depressing images and of both short term and long term futures spread through the media, pop culture, and the news, what emerges out of these dialogues between Lombardo and Motti is a counter-vision of the possibilities of the future that is expansive, intellectually uplifting, and realistically optimistic.

The Future of Everything

Victor Motti: We're going to have a dialogue about future consciousness. Dr. Thomas Lombardo, a member of the Scientific Council at the *Alternative Planetary Futures Institute (ApFi)* and Director of the *Center for Future Consciousness*[1], has been involved in the artistic, philosophical, and scientific dimensions of futures studies for several decades. In this dialogue we focus on his recent book series titled *Science Fiction: The Evolutionary Mythology of the Future*[2].

So, Thomas, can you please share your story with us. How did you end up writing such a great piece of work for futurists and other people who are interested in future consciousness?

Thomas Lombardo: I've always been interested in science fiction since I was a child, watching *The War of the Worlds* movie and later on reading H.G. Wells 'book *The Time Machine*. As a young person I was fascinated with the future of technology and space exploration. I was always interested in astronomy and had this sense very early on that we were eventually going to explore the solar system and beyond. I was also fascinated with the idea of traveling through time, both into the past and into the future.

One thing I should mention about becoming a futurist, at least in my case, is that I've also always been interested in history and in the general topic of time, and I think that any good futurist needs to have a sense of the evolution of reality and the evolution of humanity and nature, in order to

[1] https://www.centerforfutureconsciousness.com/
[2] https://www.centerforfutureconsciousness.com/book_info.htm

get a sense of the principles of change and history to more intelligently extrapolate and think out into the future.

So early on I had an interest in science fiction. As I got into college and graduate school there were many different topics that fit into my interest in the future and in science fiction. I started teaching courses on futures studies about 20 or 25 years ago and started teaching courses and workshops on science fiction 10 or 15 years ago.

Victor Motti: So basically, you have a very long background, since the time you were a teenager, and you were fascinated by science fiction and later was involved in teaching science fiction and writing books about it. Now, I realize that sometimes it's very hard to summarize a multi-volume book series, and I know that it could be difficult for an author to squeeze all the content of such a great volume into just a simple message, but what is the simple and yet unexpected message that we could get from reading your book series? I mean, what is the key element in your book series that is not expected from science fiction fans or futurists or other people?

Thomas Lombardo: Actually, there are several unexpected things in reading the books. One of them would be that humans have been inspired and lived by myths since the beginning of recorded history, and science fiction has turned into the most influential contemporary from of myth making. So, science fiction is mythology but *scientifically informed mythology* and that's a very positive and important thing in the ongoing development of human society.

Victor Motti: So, basically you are claiming something which is quite new for some people. That is, that science fiction is a form of *modern mythology*, and you are making a comparison between what is already known in Greek mythology, Roman mythology, and Indian, Chinese or Persian

mythology. You're claiming that science fiction is a transformed version of these ancient mythologies.

Thomas Lombardo: Science fiction evolved out of ancient mythology. In fact, one can trace science fiction back to almost 2000 years ago at least. So, science fiction is not something that emerged in the last couple of hundred years. We can find stories about traveling into outer space and new technologies and robots going back over millennia in various tales by different ancient people. This has been a long process, an evolutionary process that has been going on for many centuries.

Victor Motti: You could also make the title of your book *the history of science fiction*, but you deliberately decided to use another title, *the evolutionary mythology of the future*. You have an emphasis on *evolutionary* because you are perhaps referring to the fact that after the publication of the book *The Origin of the Species* by Darwin, science fiction actually took off in the literature. I mean it found huge momentum after the theory of evolution was suggested or discovered by Darwin. Are you specifically dealing with Darwinism in your book?

Thomas Lombardo: Definitely. There is a huge section in volume one on the emergence of the theory of evolution, which includes Darwin but also includes other scientists and philosophers back in the nineteenth and into the twentieth centuries. I intentionally emphasize the significance of the concept of evolution in thinking about science fiction. Because as you were pointing out, science fiction was informed and inspired by the scientific theory of evolution in the late nineteenth century and later by additional developments of the theory of evolution when it was applied to the universe and the cosmos as a whole.

Evolution provides a basic framework for modern science. If science fiction is inspired by modern science, then science fiction is inspired by the theory of evolution. But that's only one of the different meanings connected with the theme of evolution. Science fiction has been evolving as a genre of literature, as a mode of consciousness, over the last couple of thousand years. It's not static. It evolves. It builds on itself. Science fiction writers are inspired by the writers and science fiction of the past. Also, science fiction contributes significantly to the further evolution of human society, of human consciousness and in particular future consciousness. It stimulates evolution on top of being inspired by it.

Victor Motti: I was born and raised in the Middle East before migrating to the USA. In this region religion is very important, as it is in the USA. It has a big impact on people's lives and plays a key role in shaping the futures of societies. In the USA, we have the same situation, and religion has played a great role in shaping American society and culture.

But from a secular point of view, I cannot agree with you. Because when talking about the evolution of mythology, we could say that religions are the result of the evolution of mythology. For many people who are not believers in a particular religion, say Abrahamic religions or Hinduism or other kinds of religions, when they study the stories or narratives of those religions, they would say that they are clearly an evolution of the ancient mythologies. But in your book series, you are claiming a totally different idea, that is, that the evolution of ancient mythology is actually science fiction, not religion.

Thomas Lombardo: The classical ancient religions and their associated myths or stories have evolved over centuries. Religions are not totally static and cemented into a particular point of view.

On the other hand, traditional religions have a basic framework of ideas and of deities that remain relatively stable. They were all, in their original forms, created in pre-scientific times. I see them as constrained and limited in their imagination and their ability to transform compared to science fiction. Science fiction does have constraints on it, but is a much more liberated, modern, and inspired mythology than traditional religions.

We could have all kinds of stories in science fiction, informed by all different kinds of myths or frameworks. So, it's almost as if the sky becomes the limit with science fiction whereas traditional religions are much more constrained and anchored to the past.

Victor Motti: So, in a sense, science fiction is more progressive and should be thought of as an open system as opposed to a religious set of narrative or stories. Is that right?

Thomas Lombardo: Yes, I would agree. Science fiction is inspired by science, and insofar as science has a specific worldview then there are certain constrains on the imagination of science fiction writers if they want to sound scientifically plausible. But those constraints continuously get broken. In science fiction, writers are notorious for asking the *what if* questions: what if this set of circumstances were different or what if this particular law that we believe in today didn't apply in the future.

For example, we believe today that no object with mass can travel faster than the speed of light. But science fiction writers repeatedly get into hypothetical conditions in which one can exceed the speed of light multiple times over. So, even science, at least the scientific view of a particular era, doesn't totally constrain the imagination of science fiction. Science fiction writers will go beyond it.

Victor Motti: You are aware of my interest in creative and *alternative planetary futures,* which is my key area of interest. When I say alternative planetary or alternative futures, I am talking about very large scale transformations. Do you think that science fiction, either in the literature or in more entertaining formats like movies, has played any role in personal, community, national, international, or planetary transformation?

I'm asking this because it is often said that people who were working in NASA, when they were working on the moon project, most of them were under the influence of science fiction literature and writers like Jules Verne.

Do you think that science fiction is simply a source of entertainment or a source of something beyond entertainment? Something that can play a big role in our decision making or an important role in a collective identity or our national or planetary transformation?

Also, as you know, mythology in either its ancient form or its modern form of religions, has a big role in shaping our conception about the world, about our own identity, or about what could be possible transformations in the future. But what about science fiction? Is it a key player or a key element in making either micro scale transformations on the level of a specific individual or does it have a big role in transforming a whole society on the macro scale?

Thomas Lombardo: There are a couple of pieces to answering your question. First off, because we have so many diverse writers in science fiction, we can find multiple different scenarios or narratives of different possible futures. So, in terms of coming up with alternative ways of thinking about the future, science fiction provides a great deal of diverse stimulation on different possible scenarios.

Secondly, science fiction, as you noted, has had a powerful influence on quite a few scientists and engineers and technologists who worked in areas dealing with technological and scientific development, whether it's space exploration or robotics or biotechnology. So, scientists and engineers and their teachers and professors were inspired quite frequently by science fiction writers.

But number three, broadening the scope or the influence of science fiction, as you probably know, we should note that most popular movies of the last 30 to 40 years—the biggest money making movies—have been science fiction movies. So, in terms of visualized narratives having a direct emotional, cognitive impact on the general population who go to the movies or watch videos, they have been inundated with an incredible amount of extremely popular and powerful science fiction movies, which has entered into their consciousness. Even if they are a Mormon, a Hindu, a Buddhist, a fundamentalist Christian or Muslim, they have been saturated with all of this for 40 years. Now everybody knows *Star Wars*.

Victor Motti: So basically, it has a very deep and wide impact, but people might not be completely aware of such an influence. I mean people are not consciously aware of the impact of science fiction in their perception of the world, their worldview, or their education. This brings me to another question that might be interesting.

You are telling us that many engineers, technologists, many world leaders, many politicians, and many transformation agents have already read or watched a work of science fiction in art and literature. But the question is why they should become familiar with these stories beyond school or formal education. I mean, why aren't there many schools around the world or even colleges or

universities who include teaching science fiction or require people to study science fiction as a part of their educational program? Why are they not interested in integrating the development of science fiction literacy as a key component of futures literacy?

Thomas Lombardo: That's a complex question. There are different pieces to the answer. As you know, there are not a great number of either elementary or higher educational institutions that emphasize incorporating into the curriculum anything about the future, let alone science fiction. So, futurists often point out the fact that there isn't enough education on futures literacy to begin with. Second, in basic education in the United States, we do have a few science fiction works that repeatedly do get into the curriculum.

For example, when I was in high school, I was required at some point to read the books *Brave New World* and *1984*. At least, those two were required. Some other schools may require other books. Maybe you read one of Jules Verne's great novels, *Twenty Thousand Leagues Under the Sea* or *Journey to the Center of Center of the Earth*.

But also science fiction mistakenly has been seen by both the educated population as well as the general population as often juvenile, when actually science fiction is very intellectually challenging and is often great literature as well. Yet, I think if you went around the United States, for example—and I don't know what would happen if you went into other areas of the world—you would find a great number of colleges having courses in science fiction and you can get degrees in science fiction.

The well-known science fiction writer, David Brin, for example, has a daughter who is studying in Scotland to get a PhD in science fiction literature. As you know there's not very many PhD

programs in futures studies, but there are at least some. I know of some different places in the United States that have graduate programs in science fiction. I think we're seeing more of it too. So, as educators come to realize that there's a lot of good literature in science fiction, that's worth studying at a university level, they will include more science fiction courses. But I always tell people that perhaps they have a bad stereotype, a bad image of what science fiction because they just see the movies and don't read the books and there are lots of really great books.

Victor Motti: All right. I hope that after a couple of years, when people read your book series, they become fascinated and become more motivated to include such great resources in their standard curriculum. I mean both for elementary school and high school and up to the college and university levels.

Thomas Lombardo: Over the last five or ten years I have actually created a two-semester length course on the evolution or history of science fiction beginning with ancient mythology and coming up to the present.

Victor Motti: Is it an online course or is physical presence required?

Thomas Lombardo: I've only done it in person. Perhaps in the future it could become online.[3] It takes 30 to 60 hours to go through the whole course.

Victor Motti: Let me close this first dialogue today with a final question. As you well know and even mentioned in one of your articles for the *World Futures Studies Federation* (*WFSF*) *Human Futures Magazine*, the term "science" in science fiction is often associated with *natural sciences*

[3] Most of the course is now online at: https://cfc-school.thinkific.com/

like physics, chemistry, and biology. A major part of the content of this literature is inspired by these specific disciplines.

But I believe that you are highlighting the contribution of social sciences in your review of science fiction history, or as you prefer to call it, the evolutionary mythology of the future. A second question which could be relevant to the structure of your book or your approach to the history of science fiction is this: I wonder if you are looking for similarities or differences between different authors or different works in the literature or, just narrating a historical timeline without doing much comparison among them?

Thomas Lombardo: On the first question, a quick response is that science fiction is not simply about the future of physical technology and physical science. Science fiction is about *the future of everything*. That includes the future of society, the future of humanity, the future of psychology, the future of sex, and the future of religion; all of these find their way into science fiction too.

So, science fiction covers the future of everything. It has been inspired to some degree obviously by developments in the physical sciences and physical technology, but it's also been inspired by ideas that have come out of social theory and psychology. The various dystopias and utopias that have been written were often informed and inspired by theorists and writers in the social sciences. So, science fiction is an integrative vision of the future of everything.

If you're going to create an integrative scenario about the future, you have to include the gadgets, the people, the society, the culture, and all the various dimensions of a human society. Because science fiction covers the future of everything, the word “science” is a little misleading because it goes beyond science and will often get even into art.

Victor Motti: Let me just emphasize the integrative power of science fiction. One of the key traditions in futures studies is the *integral school.* There is some ongoing controversy among leading scholars about what could be the best or most effective integral futures framework. I would say that science fiction provides us with a good integral framework. Science fiction is actually about the whole range of life from the inside to the outside, from the community to the individual, everything about the future, even worldviews, is covered by a science fiction author, and it could actually be one of the most popular methods of doing futures studies.

Thomas Lombardo: I would agree. I have two comments. First, what will constitute an integrative approach to the future is an evolutionary question that will never be completely answered, so even if I think I have an integrative way of understanding reality or the future, I am probably missing something of significance. So, it's important to keep the door open to different possible ways to integrate the different dimensions of reality.

Different people integrate things together differently. I think of Stapledon, who was a philosopher and integrated into his visions of the future in a very important factor, which is the evolution of consciousness—not just technology but consciousness. Ken Wilber's integral theories also bring consciousness in. It is very significant. But we have to keep in mind that as a general principle, throughout history there have been many different ways to integrate these many dimensions.

We see some people doing that in futures studies, but there are obviously other ones, and science fiction definitely is integrative in the sense of trying to create integrated narratives: a narrative that incorporates into it all the fundamental dimensions of humanity, intelligence, and existence. But that's always an open question. There's a very good book written by a scientist who says that

we will finally have some idea as to what would constitutes a *theory of everything* once we figure out what everything in fact is.[4]

We don't even know what everything is yet, and we have different perspectives that people take on the nature of existence and what it consists of and we may be missing something very fundamental both in our futures theories and in our scientific theories. So, we've got to keep that open. We got to keep the question of what's a complete integrative view open.

Victor Motti: Just a side note to your point about a theory of everything, which is also related to my first question. I was asking about the relationship between mythology and religion. Religious people actually believe that their religions are providing the answers for a theory of everything.

Thomas Lombardo: Of course they believe that. That was the promise from way back. In fact, you don't even have to talk about religions, you can talk about the great philosophers who were perhaps more secular, like Spinoza. They came up with theories of everything too. There are tons of theories of everything, and there are a lot of these people who came up with them who say, "this is it." This is the theory of everything, this is the truth, and so yes, this has been a common human aspiration and a common human belief for thousands of years.

Victor Motti: About your approach to the history of science fiction. When I asked if you were just reviewing the stories or the timeline narrative of the whole science fiction literature genre—I mean from the beginning in ancient times to the rise of modernity, to the *Age of Enlightenment*,

[4] Maddox, John What Remains to be Discovered. New York: The Free Press, 1998.

to romanticism and arriving at utopias, robots and cosmic journeys—I would like to know what your approach to the history of science fiction is.

Are you telling us the similarities or the common themes among different authors? Or do you focus only on western science fiction as opposed to the non-English sources of science fiction, if there are any? I would like to know what the logic of the structure of your book series is.

Thomas Lombardo: There is comparison across time, so when I come to each particular author, when I come to each particular work, I often compare things within that work with other works from previous points in time. Or when we come to early social utopias, I look at where there are differences and where there are similarities. I'm constantly doing that integration both in space and in time as I move along. So, there is a narrative moving all along the way. I'm looking backwards and I'm also looking sideways.

I'm also not just looking at other science fiction books of that time or previous times. I'm also looking at cultural, social, and intellectual developments and how science fiction both reflects and influences those cultural, social, and intellectual developments going on. There is a lot of comparison and integration when I come to volume three.[5] I do an in-depth comparison of H. G. Wells and Olaf Stapledon on utopian thinking on the future of humanity and do comparisons on different writers of horror.

Victor Motti: I imagine that people who want to buy your book series are wondering if there are any other books in the market that deal exactly with the same themes or have the same aim of

[5] *Science Fiction: The Evolutionary Mythology of the Future — Volume Three: Superman to Star Maker* —https://www.centerforfutureconsciousness.com/book_sciencefiction2-3.htm

covering the whole history of science fiction. Do any other books provide an analysis from the perspective of futures studies? Are there any similar titles on the market, and if there are how do you compare your work to them?

Thomas Lombardo: Well, there are other books that have similarities in that they emphasize, as my books do, that science fiction is mythology or contemporary mythology.[6] There are histories of science fiction that are comprehensive but not written by a futurist.[7] You can get a very detailed description of all of science fiction with the *Encyclopedia of Science Fiction*, which is online.[8] The *Encyclopedia* is not a narrative, but it's a great resource. If you want an encyclopedia there it is, but as far as the kind of series that I'm writing, mine has more depth than single-volume books do for sure. It's informed by a futurist, philosopher, and psychologist. None of these other writers approach it in the same way.

So, you get a much richer perspective by the time you're through reading the whole series. It's intended to be both interesting, entertaining, and a great resource. There isn't anything else around that is really like it, and even regarding the mythology theme, I go into a lot more depth as to what mythology means than other authors have, tracing it back further and deeper. It's unique in several ways, and the emphasis on evolution is unique too.

[6] Panshin, A. and Panshin, C. (1989) *The World Beyond the Hill: Science Fiction and the Quest for Transcendence*, Los Angeles: Jeremy Tarcher, Inc.
[7] Roberts, A. (2016) *The History of Science Fiction*, 2nd Edition. New York: Palgrave Macmillan.
[8] Clute, J. and Nicholls, P. *Encyclopedia of Science Fiction* [Online]. Available at http://www.sf-encyclopedia.com/about-us

The Power of Narrative

Victor Motti: The lessons that I actually learned from our dialogue might be summarized in two points. On the one hand I believe that I'm not in total agreement with you on the connection between mythology, science, and science fiction. I will explain it a little further. I am sure that you are going to defend your position anyway because you have decided to put mythology in the title of your book series which I am not well convinced that it is an appropriate thing to do. Another point is about the integrative power of science fiction. There are a few integral futures schools or camps within futures studies literature who claim that they have a theory of everything. I am now well convinced that science fiction could also provide an alternative. But I have some questions about how we could actually use science fiction as a key component in a project on the future for a government or for a corporation or for any community.

So let me begin to clarify my position about mythology. When we talk about *myth,* in particular among people who are religious or are very involved in science, they will both treat myth either as a derogatory term or an offensive term. If religious, for them the term "myth" has a connotation or implication that we are questioning the truth in their religion or are suggesting that they are followers of falsehoods or made-up stories. My point is that when talking to a fundamentalist subgroup of a faith community they will take a huge offense if we tell them that their faith is based on myth or is related to mythology. Also, when we are talking to scientists, they will treat myth as a pre-science conception of reality, because science is about studying reality by using experiments for growing a body of tested theories. Science aims to provide a transition away from prescience ideas about the origin of the cosmos, the origin of the humans and the fate of the universe. You

must remember my book which you kindly wrote a preface for it *A Transformation Journey to Creative and Alternative Planetary Future*. On page 20 of this book, I use a table to compare science, religion, philosophy, and mysticism, but there are boundaries between these several domains of knowledge. If we like to find the place of mythology here, I should say that I say that theology and mythology are essentially the same. Because if you are a non-believer in a particular religion, you will treat that set of stories or tales as simply mythology. If we borrow the terminology used by professional mathematicians, we could say that these two spaces (of theology and mythology) are isomorphic in the sense that they can be mapped to each other in a one-to-one correspondence in such a way that the structure between the elements of each set is also preserved. So religion is a somewhat mutated version of mythology.

But science is totally different. You know that even some of the very well-known scientists not only reject religion and also mythology. They consider such conceptions of reality as falsehoods. They are not very much in favor of philosophy also. This was just a brief overview of the boundaries among different domains of knowledge. But when in your book series you decide to put mythology in connection with science fiction I think you are trying to make it more credible. I mean instead of saying that let's forget mythology, you say that myth making was a good attempt and let's build upon it. Let's evolve it. But the majority scientific communities would not agree with this claim because they see mythology as pre-science, superstitions, hallucinations, and made-up stories it. It has nothing to do with reality, it has nothing to do with the origin of the universe or humans or life, or the future of humans or the cosmos. A few days ago I was watching the very famous lecture by the physicist Lawrence Krauss who has written the book *The Universe From Nothing.* He has delivered this very popular lecture at the Richard Dawkins foundation and in that lecture he says

forget mythology, forget religion. What is actually true and tested and related to reality is science and he has a famous quotation in that video when he says forget about Jesus. Stars had to die so that we could become alive.

Actually you are well familiar with this and because you are very much focused on the topic of *resonance* in your books I mean finding resonance between people, between ideas, between consciousness, when you are going to put the word *mythology* in the title of your book, at least scientists would not find it interesting but would find it very misleading because they would say forget mythology. Mythology it's not a good way to understand the world. You could have perhaps used a better term in my view because I am also interested in science and my background is in mathematics, physics, and engineering. I would say you could have used instead *the evolutionary narrative of the future*. But when you use the term mythology it might suggest that science fiction is aiming to replace religions and provide a new set of mythology. I know that science in itself is objective, it's soulless, it's very dry, and it does not have drama, as it does not concern our emotions, and science fiction provides that. But why do you insist to use the word mythology?

Thomas Lombardo: That was a very intricate and extensive comment on the use of mythology and it will take a while for me to respond to it. First point concerns the term “mythology.” If you were to look up in a dictionary or look at what people in general mean by mythology, you'll find two distinctive meanings. One meaning that's often used is when I say something is a myth I mean that it's made up and it's not true. It’s just a wishful thinking, there's no foundation in fact for it. That’s the derogatory meaning. But also if you look up the term myth you'll find that it will be defined as stories or narratives that have developed in the history of humanity that express basic beliefs and values of a culture and are put into a narrative form. That kind of a definition is not

derogatory, and also it doesn't in any way indicate that a myth is correct or incorrect. It's simply saying that a myth is a narrative that is expressing something fundamental about a culture and their belief system.

Also, if you were to examine various scholarly works on the nature of mythology, you'll find an extensive set of categories or qualities that myths in general have. Mythic narratives are dramatic, they express values; they express beliefs; they have an emotional impact; they're often associated with rituals, and there are icons connected with them. For example, I would reference Joseph Campbell's book the *Power of Myth*, or Carl Jung's work on myth. In their point of view myth is not derogatory. Myth is a certain way of expressing beliefs in narrative form and it has certain qualities to it. When I use the word myth I'm not implying in any sense whatsoever that it is made up or false. I'm saying a myth is a narrative and all cultures have myths and these myths have certain qualities to them. One is that they often refer to things that are transcendent, or that they are big cosmic visions of some kind or another.

We also should distinguish between science and science fiction. Science is generally not expressed in the form of narratives. It's expressed in the form of theories and experimental reports and observations. It's a different mode of consciousness than a narrative is. I'm not saying that science is mythology. I'm saying that science fiction is mythology.

But when we look at myths of ancient times we will find in those myths various beliefs either implicit or explicit regarding the nature of reality. Myths contain in them assumptions about the nature of reality. One of the points I make early in my book is that what distinguishes ancient myths from modern myths in science fiction is that science fiction has an alternative view of reality

that's informed by science rather than ancient myths. Ancient myths were assuming a theory of reality that generally speaking has been rejected by modern science. But keep in mind that modern science is being expressed in a different mode of consciousness. Science is expressed in an abstract non-narrative mode, but mythology is a narrative concrete dramatic mode. Science fiction brings in the content of science and it is informed by science but is being expressed in a narrative form.

Now let's turn to the term theology which you also bring up in your comments. Theology would pertain to philosophical study, philosophical thinking, and the nature of gods, goddesses, deities. Science fiction does not necessarily deal with ideas about deities. Usually there are no deities in science fiction. A religion usually contains within it a theological component. On that I would say that our traditional classical religions, which often have in them mythological narratives and theologies, not always but frequently identify gods and deities as the ultimate foundation of reality. Personhood or person-like gods and goddesses are the ultimate reality and that's a particular theory of reality. Science has done away with all of this as far as trying to make sense out of the universe in terms of deities or person-like entities. Instead in science we have laws and principles and abstract concepts such as space-time and matter-energy. There's no longer any personalities in their theories of reality.

Victor Motti: You're actually referring to anthropomorphic God, right?

Thomas Lombardo: Of course I am. Religions in general anthropomorphize the universe because classical religions evolved out of animistic thinking where the whole universe was seen as alive and filled with personalities. The trees, the wind, the river, the mountains, and everything had a personality. There were angels and devils.

But another thing you had in your comment: One of the beliefs that's presented by the scientific establishment is that there is a difference between scientific understanding, philosophical understanding, religious understanding, and mystical understanding. Your four categories have very clear-cut boundaries, but it isn't like that. There is an element of subjectivity in science, science often presents its ideas in philosophical fashion like abstract logical deductions. There will be cultural influences on science as well. We would like to say that science is very different from religion, very different from mythological narratives, or from mystical thinking but the boundaries are fuzzy. You will find philosophical and metaphysical elements in science. The fundamental approach in science is to attempt to provide a non-narrative theoretically integrated, objective, factually supported mode of consciousness. It is a way to understand reality but in practice and reality that's not the way it actually is; it gets the other elements mixed in to different degrees.

I want to use the word mythology as opposed to narrative because the term narrative simply means a story. When I say mythology I'm bringing in all of the elements of mythology that are significant. It's big-picture thinking, it's about values, it has icons, it has rituals, and it deals with the fantastical, transcendent. All those qualities also apply to science fiction.

Victor Motti: What about explaining the origin of universe or origin of humans? Are you suggesting that most science fiction literature works are dealing with the question of creation, or the question of the evolving of life forms, or the fate of the cosmos? Because in ancient mythologies like Greek, Persian or Roman or Chinese or Hindu mythologies there is always an element related to the creation myth as they call it. Also, in Abrahamic religions, in the core of their stories or the mythology part of it, they have creation stories.

Thomas Lombardo: Not all science fiction stories have within them ideas about creation. But in the big picture of science fiction when you put all of its novels and stories together you will find stories that deal with the fundamental nature of reality; the evolution and trajectory of reality; and the origin of the physical universe. Science fiction is not an escape from reality but rather it's a way to deeply and fundamentally look at reality. I see science fiction as very profound, philosophical, and of course I should also mention on the traditional religion side that a lot of religious stories are not about creation, but are about moral principles and about particular characters. You find all that too in science fiction as well. Also, I should just mention that it's not as if science fiction is providing only one theory of the origin or the destiny, or the transformation of reality, only one theory of the fantastical and transcendent. It's actually providing multiple ones; science fiction has multiple writers and stories. Science fiction has that flexibility that traditional religion and traditional myths do not have. You can sample among different science fiction writers. You will have different views of the credible, fantastical and transcendent, and what the meaning of life is depending on who you read.

Victor Motti: Another aspect of the importance of mythology I would say is that it often relates to an ethical code or a morality, as you mentioned, and some people would say that if we stick to the boundaries of science and disregard either religion or philosophy or mysticism or everything else then science in itself cannot provide any solid base for ethics. What I understand from your framing of science fiction is that perhaps it could be a form or a way to express or suggest a couple of ideas about ethical or moral decision-making. In that case if you are taking elements from the power of narrative, of mythology, and add to it the ethical dimension you are making a theory or a framework that is going to be an alternative to the current religions?

Thomas Lombardo: Yes, exactly. That's a big topic and I think it's a very interesting topic and maybe we could take that up next time—I mean how mythology has an ethical dimension to it and why. But we're going to end up with a multiplicity. Every ethical theory that humans have ever developed either in religion or philosophical secular theory has in it assumptions about the nature of reality. Humans are part of reality. We're a part of reality. So the notion that the nature of reality and our views of ethics and values are distinct domains is misleading. Because every ethical theory assumes some theory of reality and it depends on the theory of reality. If you believe in deities then it makes sense to say I should obey God, that's the right way to live, but if you don't believe in deities then ethics and the good are not necessarily obeying some higher power.

Victor Motti: I will summarize my understanding of your very good explanation. You contrasted two different understandings of the term mythology. One is for the layperson, and another is for the scholars. For scholars who understand what you mean by mythology it includes the power of the narrative and the power of capturing the big picture.

Thomas Lombardo: Right and in fact when you read chapter one in book one of my series I explain that. So if your initial idea in starting to read my books is that I'm talking about myths in the first sense, as soon as you start reading you realize that I'm talking about myths in the second sense.

Your comment reminded me that quite a few years ago a top thinker and writer of the World Future Society said to me that I should not include the word *consciousness* in my books because using the word consciousness sounds like new age fuzzy thinking. When I was going to use the expression *future consciousness* in one of my early books I said I have to use the word

consciousness—that's exactly what I mean when I start talking in the book about the future orientation of the human mind and he thought it was not a good idea. I said no! I'm going to use the word consciousness. I had another futurist friend who said don't use the word *evolution* because you'll turn off lots of people who are not into evolution. So I came to the conclusion a long time ago on this that I'm going to use the expression that clearly is applicable to the topic I'm discussing, and if somebody gets insulted or if somebody misunderstands it, well they should read what I'm saying.

About Lawrence Krauss and his talking on how the universe came from nothing I should say his nothing isn't really nothing. His title is a little misleading because when you start reading the book it turns out that he doesn't have nothing to start with. He has something in the sense of a vacuum space out of which everything arises. He's been criticized on that point.

Victor Motti: Yes, it could be right. Because when a scientist or a physicist in particular is going to use a common language like English, as opposed to use the technical language involving mathematics, and instead of using equations is forced to use words, it will cause many confusions and misunderstandings.

Thomas Lombardo: Nothing is a very challenging concept philosophically and scientifically. What the heck does that term mean? When I say there's nothing there, or I have nothing to work with, it has a general meaning to it. But when we want to talk about *absolute nothing,* that really is a conceptual challenge. I would also recommend reading *Why Does the World Exist?* which is a really great book on summarizing different views of how you could possibly get something out of

nothing, and what the heck that would even mean. But Lawrence Krauss doesn't start with nothing.

Openness of Futures and Holistic Consciousness

Thomas Lombardo: We received an email from a fellow futurist in France, Thierry Gaudin, about our previous conversation. It would be good to discuss people's comments about our ongoing dialogues. He thought to some degree that science was already replacing religion. But one point to make in response to that is that people have been saying science is going to replace religion for the last hundred to 200 years and it hasn't quite happened.

Victor Motti: Do you mean by the two hundred years, the beginning of the Industrial Age?

Thomas Lombardo: Yes, since the earliest secular thinkers going back to David Hume and the materialists, such as Auguste Comte. Then there was Sigmund Freud and other people as well later on. One of the reasons for why science hasn't replaced religion is that even though science has provided a relatively new picture of reality and a different way of looking at the universe than traditional religions did, science has often been accused of being emotionless and too objective and doesn't connect with meaning and with a person's inner feelings and subjectivity. So science can't replace religion because religion speaks to the heart and speaks to the person. I could see some validity in that. But science fiction in fact does speak to those aspects of human consciousness because science fiction combines the scientific element with narratives and with personal characters and with drama and with meaning and ethics. All that addresses holistic consciousness; all the dimensions of the human mind which is what traditional religions had done. People say that science hasn't quite worked as a total replacement but when you take science and you combine it together with narrative in science fiction you do get what I refer to as a total immersive holistic consciousness that provides a personal connection; meaning and drama that

speaks to the heart, to feelings, and you get that in science fiction. So science fiction is actually a better alternative for addressing purpose and meaning in life than science in and of itself. I'm not saying there's anything wrong with science but rather that science fiction has those additional elements.

Victor Motti: Well of course I think that Thierry Gaudin, as a French futurist, is aware of the history of France—I mean the great tension between the secular and the religious during the French Revolution. But I think that when we discussed the relationship between science, science fiction and religion, I tried to push you to accept that a better title for your book could be *science fiction; the evolutionary religion of the future,* because at the end of the previous discussion you almost accepted that in a sense we could say that the evolutionary religion of the future could be science fiction. This is a very tricky understanding because there is a big controversy between secular scientists and religious people. You also mentioned in the previous discussion the idea of the anthropomorphic gods. But there are some other schools of thought, in particular in theology. For example, we have what is called scientific pantheism. Pantheism treats the whole nature, the totality of the reality as the manifestation of a complex and creative power. So, what other faithful people might perceive as a god is the same as the scientific laws of nature governing the evolution of the cosmos. Pantheism is popular even among some scientists like Einstein and among some philosophers like Spinoza. They do not see any essential difference between the idea of a god and the idea of the nature—I mean the totality of existence. But they do not have the idea of a personhood or a human-like god who sees us or listens to our prayers or judges our deeds or punishes the sinners.

Thomas Lombardo: Spinoza is a good example of a pantheist because he in fact identifies the totality of all existence, of all nature with God. There is no separate personhood, no separate personality that created the universe. God is the universe. But Spinoza's God is not the same kind of God that we find in religions, including Christianity, Islam, or Zoroastrianism, because those religions did have a personhood, a personality in a sense who created the universe and so was separate from the universe too. We do have scientists indeed who will identify God with the universe, it is not an anthropomorphic God at all. I could be sympathetic with that. What I should mention though is that in science fiction we often find stories which bring in deities or gods that are very similar or connected with traditional religions. So science fiction isn't necessarily anti-religious or even anti-anthropomorphic or personified deities. One of the great science fiction stories novels of the 1970s was *Lord of Light* and in that novel we have the Buddha, Shiva, and Brahman. We have several other Hindu deities. But they are technologically empowered deities. They have a lot of the qualities of the traditional Hindu deities but they are supported through advanced technology. So we can mix religious characters and theological figures into science fiction stories. I said that one dimension of science fiction is that it talks about not only the future or religion, but science fiction writers also talk about the future of God. Olaf Stapledon's *Star Maker* is God. So, we don't necessarily have to think that science fiction would replace religion because science fiction in a sense assimilates it as part of the great panorama. I would say that its territory is not constrained. We can't say that science fiction is some particular integrative theory of the future because rather it has many different theories of the future expressed through many different narratives. It has that openness—that flexibility. The same thing you could say for futures

studies. Future studies doesn't have to be wedded to one particular theory of reality or one particular integrative view.

Victor Motti: You mentioned the fact that there is a difference between science fiction and futures studies as a discipline for studying the long term future and the big picture, and as a profession to help organizations or corporations to plan or become prepared for the future. I would say that science fiction could also be a candidate or an alternative for integral futures frameworks. But do you think that we can for example run a foresight workshop for a company or a government and use the science fiction literature as the key method, as the key element of triggering strategic conversation? I doubt that we can because a writer of science fiction is a very special person in my view. He or she must be talented, should have an encyclopedic knowledge and be a person who can express their idea in novels through creative writing. But not all people in a foresight workshop can become as skillful as a science fiction writer. What do you suggest as a practical guideline for people who would like to use science fiction as a way or method to express and collect integrally, or in an integrated fashion, ideas about the long-term futures?

Thomas Lombardo: Two steps would be involved. Step number one would be to find a few notable narratives or stories from science fiction that deal with the particular domain of reality that the participants in the workshop are especially interested in. So say for example if you were talking with business organizations find some science fiction stories that have something to do with the future of business and there are plenty. If you're in a scientific domain, you could do stories about biotechnology. I'm not saying that ask participants in the workshop to read them but rather you can at the beginning summarize some narratives. Then ask them if they can come up

with an alternative narrative or narratives that they find both plausible and are worth comparing together?

I remember having an experience back 15 years ago; an eye- opening experience where I was at the *Contact Conference*. *Contact* is an organization that deals with contacting extraterrestrial life, and we also had a number of futurists there like Peter Bishop.

Victor Motti: Contacting extraterrestrials is actually itself a science-fiction topic but not a regular one in futures studies, such as the future of energy or the future of education or the future of public society or civil society or things like this.

Thomas Lombardo: Yes, but there were a number of futurists there and one of the futurists talking was Wendy Schultz. She came to that conference and so did Fabienne Goux-Baudiment from France. Fabienne is a science fiction enthusiast as well as being a futurist. Fabienne and Wendy both gave presentations on the relationship between futures studies and science fiction and by the time each of them were finished it seemed rather fuzzy or unclear if there was any kind of difference because in the end Wendy described futurists as creating alternative scenarios and trying to fill in the details on them and try to turn them into narratives about the future. This is something like science fiction. So, in fact futurists to different degrees already may be using the techniques of analyzing narratives, understanding narratives, giving them flesh-and-blood, and trying to create their own alternative narratives. The other thing you got to keep in mind would be to what degree can you make rich and dramatic enough a story line. One of the things about science fiction is that time is an ongoing process. The narrative describes a sequence of events. So writers like Olaf Stapledon in *Last and First Men* or *Star Maker* don't say here is the future at this

point in time. They say let's carry the story out and keep going. H. G. Wells did the same thing too. We create narratives, this happened, and then this happened, and then this happened. That makes it much more realistic.

Victor Motti: But if there is no professional writer or novelist in the room, I don't think that people can be at the same level of expertise or scale to actually provide a good narrative, because it's a very unique talent among professional writers. You mentioned that there are certain examples of using science fiction in very formal or regular foresight workshops. A few years ago I saw a report by Intel Corporation. It published a report about the last man who is going to work. For that report Intel actually employed the language of a science fiction and I would say that they had to recruit a professional writer to communicate their own content on foresight; about the future of technology and of smart everything, using the format of science fiction. There is also some traces or indications in some of the very well-known reports by the US government or a futures studies project named *Air Force 2025* which was done in 1995 looking into the next thirty years. They also had used professional science fiction writers. But again employing a science fiction writer is different than the case when we say that an ordinary person can rise to the same level of creativity, at the same of competence to write a narrative that is going to touch the heart of the audience.

Thomas Lombardo: You are correct, but then if I have a group of participants come into a workshop and I have a professional futurists running, then given their education and experience, their skill set would do much better than the people in the audience. But I want to mention that part of my argument is that human beings are natural storytellers. They like to tell stories. So how challenging is it going to be if I ask somebody to tell me a story about the year 2050 or 2075? I may not have the artistic and literary finesse of a professional fiction writer but I can tell a story.

People do tell stories and they tell stories about themselves, they tell stories about the world around them, and part of my argument is that the reason why science fiction resonates with people so well is because the way we understand the world is through stories, through narratives. We are cognitive apparatus put together to make sense of things through narratives.

Victor Motti: You said earlier that in science fiction the sky is the limit. When you tell people please write your story or tell us a story they might just repeat the dominant story. I mean the dominant story that is said through all the media channels, movies, or the governments or business-as-usual mindset of companies. But you should try to add a qualification that storytelling should be aiming at becoming totally limitless or unconstrained. You do not need to become so much chained to the reality as it is right now. We need to leave it as high as the sky.

Thomas Lombardo: Yes, and in fact we should be saying that regarding people in general with respect to thinking about the future, because we want to encourage creativity, imagination, and pushing the boundaries and getting out of present mental sets and dominant narratives. Now we have a few dominant narratives that pretty much take up most of human consciousness around the world. So people keep sinking in those same narratives; this is the way it is because it is the dominant narrative. But let's try to imagine some different types of narratives and in fact science itself could be viewed in a narrative fashion because science has a story of how it came about, why it's important, and who are its heroes and where it's going. The whole theory of progress in the West is a narrative as well too. So let's imagine different narratives. In that sense science fiction is good because it's only going to be limited by the imagination of the people who write it or by our own imagination. It's a challenge of course to think out as they say think outside of the box.

Victor Motti: Are you familiar with a renowned French literary critic Roland Barthes? He says that any cultural product, any attempts to make meaning is a sort of myth production. The mythology, or as you like to phrase it modern mythology, is actually present in any and all sorts of things that are surrounding us today because every attempt by humans to provide a signification or a secondary signification for things around us is actually myth production. The aim is to naturalize new ideas or naturalize ideologies or emerging ideas. If we adopt this definition even science itself could be a modern mythology because based on this particular definition by Roland Barthes any scientific attempt to capture the nature of reality is an attempt to provide new meaning. By naturalization he means that we are going to hide or conceal the history of the new ideas so that the ideas become natural to everybody so that they do not question the history of it and they do not question the power structure that actually formed that set of narratives.

Thomas Lombardo: Yes, I read over the definition. It's a very broad and general definition. I thought that the description that I provide of the nature of myth in the science fiction book series is more narrow and specific. I haven't read his whole book and he may get into a lot more detail in there, but I do come up with a set of criteria regarding what constitutes a myth. I could understand why he could see science or the evolution of science as myth making, just like people have said that the theory of progress and or the American dream were modern myths that were created that motivated, informed, and gave meaning to people's lives.

Victor Motti: He also suggests another idea about the death of the author, a poststructuralist idea that says your true intentions as the writer are irrelevant for me as an active person who is reading your book. My interpretation of your text is the key and not your own intention; it's a very postmodern and poststructuralist perspective.

Thomas Lombardo: I can understand why somebody would say that and that's another whole topic: To what degree is the meaning of the text embodied in the text and to what degree does it subjectively vary as a consequence of the reader?

Victor Motti: This was the main motivation for me when we started this conversation about your book series. Because I would say that some people might read your book title quite differently because of their specific background, and their active mind, and they want to impose their own thinking or their own perception about what you are saying. What you originally intended to say could become less relevant for them.

Thomas Lombardo: First, start reading the book before you make a judgement based on the title or the cover. Start digging into it. Secondly in this case here we have the opportunity to discuss what an author meant by what he was talking about. Also you are providing your perspective on what you think I am talking about and then I am responding to it. Part of the process of book writing is going to be engaging in dialogues with people who read a book. I believe that we can realize degrees of mutual understanding on various or all topics. We are not all trapped in our subjective inner consciousness or in extreme post-modernism. I think that when we're talking right now we are getting through with each other. We are achieving mutual understanding. It's not complete and the more we talk the better our understanding becomes, but communication is in fact realizing degrees of inter subjective resonance, which would be a way I would describe it. The author is attempting to convey an idea and when I read a book I do think about what this person trying to say and I often will be drawn to various degrees into their consciousness. That's where our consciousness grows. It expands because we have been able to appreciate other human beings

and connect with them. So I don't think we're all stuck in our little solipsistic consciousness. I think we're open and we exchange. That's another topic in itself; the epistemology of post-modernism.

One final point I wanted to make about science fiction is the expression *holistic future consciousness* that I brought up. Holistic consciousness means all the dimensions of the human mind from the intellect to perception and to emotion, motivation, and personal identity—all the different aspects of consciousness. When we talk about holistic future consciousness or to be conscious of the future as possibilities, we're engaging all the human mind, and that's where science fiction has a strength in that it engages our feelings, motivations, ethics, perceptions, visions, thoughts, and creativity. Science fiction taps into all of the dimensions of human consciousness pertaining to the future and perhaps we could take up next time a bit more on the question of how futures studies connects with science fiction. I see the strength in science fiction in that it taps into holistic future consciousness, all of it.

Possible Futures of Education

Victor Motti: Our discussions were mostly focused on the intellectual dimensions or aspects of the relationships among science fiction, futures studies, mythology, and religion and other related topics. But how science fiction can help an organization or a company which is interested in the futures of a topic of choice? We can try to explore or investigative alternative futures of a selected topic exclusively by science fiction. I am emphasizing the exclusive use of science fiction because there is a range of different methods used by professional futurists. Our discussion until today reached the point that you and I agreed that science fiction could be an appropriate integral futures method. Let's now have a mini strategic foresight workshop. I'm going to take the role of an organization, a university or a school or even a parent who is concerned about the future options for his or her children on how to educate them. There are lots of ideas about the future of education. Many changes are going to happen. You can take the role of a foresight advisor and help me better understand what is going to happen in the future of education.

Thomas Lombardo: Indeed, there is quite a bit in science fiction about the future of education and alternative types of visions of the future of education. All the way back to even before H. G. Wells, who was definitely interested in the future of education. We can find many different books and stories on this topic. Wells' vision was that traditional education was stuck in the past and hat the concepts and the methods used in both primary and secondary education in Europe toward the end of the 19th century were outmoded and that we needed to rethink education. In fact, for Wells, education had to become something that was critical to human society; it was the foundation of a better future society. Look at Wells' extensive discussion of education in the future

in his book *The Shape of Things to Come* and also in *Men Like Gods*. Wells in fact said the future is a race between education and catastrophe, and so he saw traditional education as focused too much on the past and too much on stability, of repeating the same beliefs, ideas, and modes of life as before. But education should put more of a focus on change and the ongoing development of society as opposed to the preservation of present society. It begins with the primary education— and from primary schools up to the colleges and universities.

If I want to explore the different dynamics that are going to change the future of at least universities, there are many different and sometimes divergent alternatives. Whether there will be universities at all in the future or not? Whether some specific programs will have the same appeal or demand for them in the next thirty years for example until 2050.

Victor Motti: What can you say about specifically the changes that are going to happen in universities? If you review the news there are many protests across the different regions of the planet today and a reason for the protests is that a growing number of people have academic degrees but do not have jobs, or job opportunities are not offered to them. What kind of ideas have been shared by science fiction writers about how universities for example can change in their business model? If you review the current practices, you will see that most of universities, and most of higher education schools are governed like a corporation. Many people who cannot afford to pay the tuition cannot have quality education. Also, some of the university programs are under pressure to be eliminated. What can you say about such different and diverging views about the future of higher education in particular?

Thomas Lombardo: We could talk about the future of higher education but I think I'll also bring in at the same time elementary education. When I was thinking over this last week about science fiction resources on the future of education one novel that came to mind is a very old science fiction novel *Vril: The Power of the Coming Race*. It was written back in the 1870s and I want to begin with that because he had an idea in there which is very significant to today. Science fiction has talked over the last hundred years frequently about human beings interacting and becoming actually meshed together with technologies. We see technology becoming an increasingly important factor in contemporary education. Obviously, the development of online education is one of the challenges to the traditional universities. Students had to come to them and now colleges and universities through online education can go out to the students. In science fiction there is the idea of the cyborg and the cyborg is a synthesis of the biological and the technological. The novel *Vril* is a very early example of cyborgs. I discussed it in my volume one of *Science Fiction: The Evolutionary Mythology of the Future*. In *Vril,* which is an imagined advanced human society, the children right from the beginning are given a technological device which they call a wand—like wizards with wands—that is going to be with them through their whole life. It's a technological device through which they become adapted and learn. It provides them with a way to manipulate nature, to communicate with each other. It's like an all-purpose smartphone (with additional powers) so to speak. It's not done haphazardly like now where children are given smartphones or various other technologies. Learning is about how to become one with this device. This device serves all various different functions. One being education. Everybody in a sense gets a personalized all-purpose technological device and their education and development is structured but also personalized through their device. One thing that we could imagine happening in the

future with education is that when humans are very young in fact maybe like within six months to a year of age they get a device that stays with them, that's part of them through their whole life.

Victor Motti: What is the role of a teacher if that person has a personalized device for the whole life?

Thomas Lombardo: Teachers in this future are going to be curriculum developers who input into the devices what the various goals of development, achievements, challenges, and disciplinary domains that are going to be taught. So first of all, education is obviously ongoing right from almost birth as opposed to wait until you go to school when you're five or six years old. When you're five or six years old you've already been developing. Secondly, everybody has a personal relationship with their own personal device that's been adapted to them because it's smart, intelligent, and flexible. It modifies itself as a consequence of interacting with the people. This is only one vision of course about the future of education. But it's a vision where we take seriously the trend that we see around us. We are becoming increasingly more and more dependent on our intelligent technologies. We learn through them. We need them to interact and communicate with the rest of the world. We might as well teach people in a systematic way right from the beginning how to use this fundamental device and this device becomes personalized. It has an overall curriculum structure to it but it becomes personalized to the individual. This vision of the future of education seriously considers technology being an integral part of human life.

Victor Motti: What is the main goal of having this sort of education like a cyborg? What are they going to achieve after they are having any courses that are offered? For example, become prepared for a job or just for learning for the sake of learning?

Thomas Lombardo: No, they're not just learning for the sake of learning, but the primary goals are not vocational either. They're psychological and social. What the developing citizens or individuals of this society acquire is the capacity to harmoniously interact and cooperate with the other members of society. They are socialized through the device so a harmonious functional society is created through the devices. But secondly what's created or facilitated through the devices is a sane, efficient, productive and happy, mentally healthy individual so they are in a sense parented by the device. It focuses on their psychological health, and development, and their social development and incorporation into society. Now our educational systems do that too to some degree but we also focus on vocational development as well. With this philosophy and this approach what will be the vocational or skill capacities are considered secondary. Let's create functional citizens, healthy minds, and then we move from there.

Victor Motti: Are you saying that the novel depicts or illustrates a future in which a specialization or a focus on a particular discipline is not going to be a major task of the education system?

Thomas Lombardo: Only initially, to create a solid foundation. But let's create people who function well in society and who are mentally healthy and then we develop them for vocations or then they pursue vocations. Interestingly in the novel *Vril,* all of the individuals who are encouraged to pursue the intellectual vocations like scholars, writers, and teachers, they're all women. The women have taken the role of being the intellectual leaders in the society and males have taken other vocational roles which are more social service or supportive. The mental center of gravity is the women. Another dimension is that the women and men have been genetically evolved so the women are actually bigger and stronger than the men. So we have a different kind

of gender reality in this society as well too. In that sense there's a kind of reverse sexism and that it's the women who are expected to be the thinkers and the males who are expected to be the servers.

Victor Motti: I saw a few years ago that some universities actually tried to demand from the prospective students a genetic test to determine if they have the smartness gene or not. It could also be a very bizarre future for the education. Imagine that you are not required to submit your scores of standard tests to a university or take part in a national test or anything like that and have recommendation letters or grades from previous schools, but instead you should share your genome map.

Thomas Lombardo: This is a big issue in the future of human evolution, the future of human society, and the future of education because in fact we are definitely approaching the point where through genetic and biological engineering we can purposefully manipulate the directions of our offspring including intelligence. We can select for other traits too as well. We are right on the edge of purposeful technologically based biological evolution and selection. This is going to happen, and people are going to compete over it too. There's a very famous science fiction movie (*Gattaca*) in which the way that you qualify to study to be an astronaut is through your DNA genetic profile. An individual who has this great passion to become an astronaut and fly into space manipulates the system to get himself into the academy even though he doesn't have the genes to become a competent astronaut.

Victor Motti: Back to your point about the novel *Vril* that you were talking about: cyborgs who have devices from the first days of their life and they become lifelong learners. I cannot imagine what the role of a university could be in such a world. Will they be relevant or irrelevant?

Thomas Lombardo: They're definitely relevant because I do believe even if we have technological devices that facilitate and guide our learning, it still is a great value to get together physically with other cyborgs and have ongoing dialogue with more mature cyborgs leading the process of discussion. We have a kind of Plato's Academy but everybody in the Plato's Academy is hooked into their own personal device and then we probably will have a central display or different central spaces to interact in, guided by teachers or by the facilitators; whatever you want to call them but there's something. It maybe centralized to different degrees. You have to achieve a balance between standardization and individualization both on the curriculum versus the teacher and the curriculum versus the student. You can't totally do away with standardization because every discipline has fundamental concepts that people need to learn. You cannot have mathematics courses without students acquiring the capacity for understanding fundamental arithmetic. H. G. Wells was right on standardization as another person who was predicting something that did come to pass. Wells thought that we would develop a world brain and a world mind that in a lot of respects is similar to what we are developing with the Internet or the world wide web. He didn't imagine it as an electronic or computer-based system but he imagined it as being a worldwide repository of all the knowledge we have acquired which would be accessible to everybody, but he saw this as somehow being standardized for everybody across the planet. The problem is going to be then how this gets us into alternative futures and alternative thinking because you want to have a certain amount of diversity of perspectives in your curriculum, your

education, and the development of individuals. Standardization is not going to be a very good thing to achieve the goal of diversity but when you have personalized devices that will compensate for it. Let me just introduce another story which is a great and more contemporary story about education by Neal Stephenson called *The Diamond Age*. We have children who are given an interactive intelligent book. It's a book that asks the student questions, guides the student along through their development, and facilitates the development of wisdom in children.

Victor Motti: But we are assuming that in both scenarios that you are talking about there is no problem about equitable access to such devices or electronic books or any things that could be incorporated in such a platform. I am asking because some people might object to that scenario saying that we have already a big challenge in terms of the access to high quality devices or education because by children we are meaning the children of the elite families, not the children of lower-class families or people who cannot afford to pay to have access to such devices or whatever global brain you are talking about.

Thomas Lombardo: Yes, that's a good question. It's a question that's been addressed both in science fiction and actually in technological philosophy. In the past universities were located in certain parts of the world that you had to go to, get in, and pay money for its services. This helped produce the great separation between the educated and those that didn't have access to it. But our technologies are creating more universal access not less to quality education. You can listen to the best teachers in the world wherever you happen to live and having access to them with smartphones. Interacting with the web is becoming more accessible to a greater percentage of people around the planet. If any technology has spread quickly across the planet to a greater percentage of people, it's the smartphone. So, people and smartphones are everywhere and if you

go into the most backward areas of the world you'll find lots of people with smartphones. Having a technological device hooked into the planetary system allows you access. I think in general we're seeing more of it not less of it through the evolution of technologies of education.

Victor Motti: I was reminded about a document that was released a few years ago by the United Nation Educational Scientific and Cultural Organization (UNESCO). It was saying that until 2030 we have a gap of almost 70 million teachers. On the planet scale the situation is totally different from well developed countries or regions because in less developed countries there are many people or families that their children are left out of school, who cannot have access to education, and there are many reports about the future that is going to be more automated and there is lots of pressure to eliminate many jobs. The UNESCO report showed that actually we have a great demand for quality teachers to cover such a huge number of people across the planet who lack appropriate education. Let me share my screen with you for a moment. United Nations as an international organization has specifically defined *Sustainable Development Goal* number 4, which is also abbreviated as SDG4. It's about the target of planetary education by the year 2030 and they have defined the primary goal for the sustainable development education as ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. They have also broken that goal into several targets like access to primary, secondary education, early childhood, vocational, and tertiary adult education. By equity they mean mostly gender issues—the equity between boys and girls. Other sub-goals include education about the sustainable development itself; global citizenship and providing learning environments and facilities; a scholarships or funds available to people to pursue their dreams of educational achievements; and of course finally teachers. It seems that what you reviewed today provides a narrative of a new environment in

which access to quality education and in particular lifelong learning is ensured by smartphones and other kinds of online platforms and of course teachers or professors are still required for coaching and for meeting up. So basically you are optimistic that such a sustainable development goal is within our reach by 2030?

Thomas Lombardo: I think that there are several things in that goal which are important and in fact we talked about them a bit already. The last expression in the goal was lifelong learning. Fifty years ago people who went to school and got educated to around 18 to 20 years of age, and some went to college to 22, but not that many, and then their education presumably was over. There was no lifelong learning in a sense of formal education. But we've increasingly seen now that given the development of society at a faster pace and the development of disciplines and the extension of human life one has to participate in lifelong learning. Imagine you have your own access, your own teacher, your own instrument by means of which you're guided through lifelong learning from birth to death. That's something we should really envision about lifelong learning. You never stop learning. It has all kinds of ramifications, all kinds of benefits. I totally agree with that as part of their goal that's a critical part of education. A second critical part of education which I've addressed a bit already through the science fiction is that in our present societies and cultures there isn't enough of an emphasis and importance on the economic reward given to education and educators as integral to society. Education is the foundation of everything else. So a way to increase the number of teachers in the world is to show them that we really consider them very important and we're willing to pay them more than they're getting paid right now to have a good livelihood as teachers. Education must become more central in our culture. Just to break the stereotype science fiction isn't about the future of science and technology, it's about the future culture and society

as well. So part of the transformation envisioned in science fiction in the future is going to be a social and cultural transformations too. How do we change our values so that education has more significance? It is more critical right now because we don't do education for mental health and we have mental health problems. We should have more education and mental health; to raise mentally healthy people. I should mention the science fiction novels *Two Planets* and *The Amphibians*, both of which highlight educational philosophies focused on mental health, mental control, and positive emotional states.

Wisdom Narratives

Victor Motti: Let's continue our discussions about the use of science fiction as an integral futures method to explore the alternative futures of education.

Thomas Lombardo: A couple of people emailed me who didn't catch the title of this book that I was discussing. It is *Vril, The Power of the Coming Race* by Edward Bulwer-Lytton who was a very well-known writer, and very influential writer toward the end of the 19th century and the complete text of the book is also online under Gutenberg projects. This is a fascinating book on his envisioned advanced underground human utopia and their views on education.

In fact, to continue with the discussion on using science fiction to identify alternative futures of education last time I also briefly mentioned a more recent novel which is a very stimulating and a compelling piece of work that many readers may in fact be familiar with: *The Diamond Age.* It explores the idea of an intelligent interactive book as the center or foundation for a person's education, a book that is nano-technologically created and that guides a person through their own development with various interactive lessons and requirements for the person to create. It immerses the person in virtual reality and watches the person as they grow through life.

Aside from the technological aspects of *The Diamond Age* the book is very interesting because it chronicles the development of a young girl, who has a copy of the book and is learning from it as she goes through what people in wisdom research would call a *wisdom narrative*. As she develops wisdom, she is guided and stimulated by the book as well as by events in her own life. She acquires the capacity of wisdom through the process of moving from a child into an adult. Something that

we always need to keep in mind, and *The Diamond Age* reminded me of it, is that when we think about the future of education we may have various schools, institutes, and technologies attempting to facilitate the educational development of our students, but they're going to be living their lives outside of the educational institute and interacting with their friends and the challenges of life. Part of the educational growth of the individual like the character in *The Diamond Age* is going to be not when she's just simply interacting with her educational book but where she's attempting to apply and get guidance from the book on how to grow as a person and live her life and be influenced by the culture around her. So the future of education isn't simply going to be about what goes on in the focused educational setting but also what goes on in real life; that's the interactive element, and how real life may change in the future and how that will create wisdom narratives.

Victor Motti: About the reality of life when we discuss the personal device or an interactive book or lifelong learning or anything related to technology, I believe that it's an individual self-motivated and self-disciplined initiative. Some critics might mention what happens to the real work or job condition of a person who has been educated by such technologies or by such platforms? For example, are you going to let either a licensed physician visit you, or someone who claims to have been able to learn the medicine knowledge by self-education? Are we allowing a self-taught lawyer to represent people in the court system or a self-taught engineer to build a bridge or an infrastructure project? I mean there is a big objection to self-education by some of the people who are focused on the role of education in preparing professionals for highly structured and regulated professions like in medicine, law, banking, or engineering. For some sections of the job market, companies that are recruiting coders or people who are professional in programming languages

are accepting people who claim to have a particular expertise in writing codes. They could provide job offers to the experienced self-educated coders or programmers, but I don't believe that we can easily employ a person to practice a regulated profession who claims that he or she has obtained his or her knowledge by self-education by smartphones. Is there any work in the science fiction literature to provide a good answer for such critics?

Thomas Lombardo: I was reminded of a couple points. First of all, education is a social reality. It is of paramount importance that we in our educational development interact by people within the disciplines who are acknowledged as professionals and experts and they provide us with role models too, as well as providing guidance and feedback. I would never see education as becoming entirely self-determined. I would always see the importance of the teacher, the role model, even if we do have enhanced methods of technology to facilitate the educational process.

Another book I should mention that is a superb contemporary novel that gets into education—and they made it into a movie—was *Ender's Game* by Orson Scott Card. *Ender's Game* is a story about a young boy growing up in a military educational school being taught both through virtual reality simulations and teachers on how to become a commander of a space fleet and learns this both through psychological social interactions with his teachers, as well as in virtual reality settings where he plays out big space battles in virtual reality. His teachers emphasize to him that he has to learn how to become totally self-reliant and not depend on anybody else in making his decisions. So they're trying to create this person who has great self-autonomy, but at the same time he has these challenging teachers who are pushing him in that direction and are necessary for him to acquire these skills and psychological capacities, even though of course he's being supported by advanced technology in all of this. He eventually in fact goes on his own wisdom

narrative in the sequel to *Ender's Game,* which is an even better book, called *Speaker for the Dead*. Between *Ender's Game* and *Speaker for the Dead* we can follow first a young boy and then young adult as he acquires the skills of a military leader and then the wisdom that's going to go along with the whole process too. But he's always in a state of interacting with others. So we do need our role models. No question about it. Images from the future in science fiction about education do have the interpersonal social role model teacher dimension in education too. I don't know whether or not we would want to have self-taught individuals, I mean purely self-taught, because knowledge and skill is a social reality with standards and having a skill is more than just simply the knowledge of it. It has a personal dimension. A good doctor is a person and part of becoming a good doctor, part of becoming a good futurist, I think is developing as a person and part of the way in which you develop as a person holistically is through interacting with other people and having good role models to interact with as you grow and develop. That's a big part of the role of the teacher. Any great athlete always has a coach, and the coach is somebody who psychologically charges them and looks at them as a total person and tries to develop all of their qualities as a person. So I don't think we can get rid of that part. What if in the future we develop virtual reality teachers who in fact aren't flesh and blood but embody all of the skills, knowledge and personal qualities of a great teacher and yet they are nothing, but a computer simulation or a robot. We could have my teachers who are robots.

Victor Motti: Is that the same narrative in the science fiction book called *News from Nowhere*? There is not any school in that narrative at all.

Thomas Lombardo: *News from Nowhere* was written by William Morris. He was very critical of the regimentation of modern society—how organized, bureaucratic, structured and unnatural everything was around him. He was critical of the industrial era, of the way human society was constraining and forcing people to have rather meaningless repetitive types of lifestyles and roles. His criticism of school was that the best way to become educated is not to sit in a room rigidly listening to lessons being presented by teachers but to go out into life and learn through living. So his alternative education for the future would be a world in which we never went to school. We just grew up and learned about life by living it and we developed our interests and our goals through interacting with the adults and the people in the towns around us. There is no required curriculum and nobody tells you what you have to do. Rather people develop their own interests as they find what they most enjoyed in the world around them. That's a very different kind of educational philosophy.

I do have a big collection of science fiction books and I have a big collection of various fantasy and science fiction art. Science fiction is a way of life so there is the literature, the movies, there's all the action figures that people buy, there's the art, there's even science fiction movie music; there's video games. So if one wants to immerse oneself in the feeling of science fiction you just go sit in my study and just look around and little by little you'll get this Gestalt sense of the incredible imaginative and colorful reality of science fiction.

Victor Motti: I should mention that many people that I know are familiar with science fiction only through movies, but you made the distinctions between Hollywood movies and several collections of books that are not so much famous as the most famous movies.

Thomas Lombardo: Yes, people definitely encounter science fiction at a mass popular level through the movies, but science fiction originally developed as a form of literature. *The Diamond Age* is an intellectually challenging, intricate and fascinating, philosophically and psychologically, image of the city of Shanghai a couple of hundred years from now. It would be a challenge to ever get this into a movie even approximating the complexity of the novel. So I always will say to people who have watched a lot of big-battle science fiction movies that they should read some of the interesting and intricate novels that have the element of technology but also have the philosophy, the characters, the psychology, the society, and the culture of the future. Imagine trying to envision Shanghai a couple of hundred years from now. In that regard science fiction goes way beyond what people see in the movies. So, it's surprising for them and they would think "oh what has science fiction to do with education?" Well in fact lots of science fiction writers have written about and considered alternative modes of education, alternative modes of schooling. I'm not supporting an extreme technological emphasis on the educational process; technology is part of it, but it's an integral part of it. We have to envision ourselves in the future combining and synthesizing together the best of the human mind, the conscious spirit, and wisdom with the fact that we are cyborgs. We are going to become increasingly so. We have to become wise cyborgs; technologically augmented and sophisticated but psychologically evolved humans. That should be our goal in education into the future.

Victor Motti: When we are trying as professional futurists to involve people in discussions about the longer term on a specific topic, some of them treat the good future as too unrealistic, as wishful thinking. They will be drawing our attention to the corruption that is already in the system, for example in the system of education. A recent report published in the *New York Times* was

saying that almost half of the college students are going hungry to pay their tuition. It is one of the problems in the education system not only in the USA but in several other countries. Another report was about recent college admissions scandal in the USA in which celebrities paid bribes to universities to accept their kids into the top schools. Do you think that in the science fiction literature we have also dystopian visions of the future of education? Another point: What can be done or what can be expected to change in the society so that in the next 20 or 30 years we do not see almost half of the college students having to decide between going to have their meal or paying the price for their education. Or we see on TV that celebrities or super-rich families pay bribes and this is not of course exclusive to the USA. I remember that the son of the previous leader of Libya, Muammar Qaddafi, was given a degree from a very well-known university in the United Kingdom by paying big money to a professor to ghostwrite his thesis. There are many reports about the widespread corruption in the current education system.

Thomas Lombardo: It has to do with the ethics of education, the value of education and how we think of it, how culturally we see it. For example, on the question of many students not being able to afford education and also have food to eat it is because we value money above knowledge, wisdom, and learning. I watched educational institutes increasingly model themselves more on businesses that pull in money and to support themselves not as centers of thinking, learning and research. Students in fact identify almost with that same philosophy. I'm going to learn because this will get me more money in a job in the long run. The learning and the acquisition of knowledge should be a fundamental goal and value in and of itself. One area that I dealt with a lot as a faculty chair was students cheating and student plagiarism. Why would they do that, so they could get a good grade, that they could pass the course, they could get the degree, they can get a better job.

When you cheat you don't learn anything except how to be deceptive, you don't learn the material if you pay somebody else to do your work, it's getting us into not just simply science fiction, it's getting us into a philosophy of education as to what should be the goals, the primary goals of education, the goals for the student, and the goals for the educational institutions. We're debating this in the United States right now where people are talking about tuition free education so people will not get stuck in great debt. At the same time, we don't support our educational system sufficiently, we don't have it as a central value here in the United States. I think that there's cultural, psychological, social, ethical issues involved in transforming this mindset.

Victor Motti: Do you remember any specific novel in science fiction in which the key message about the future of education is dystopian as opposed to a utopian narrative? One element about the dystopian narrative I continue to hear from many people is the anti-intellectual movement. People who simply dislike or hate persons who try to be presenting themselves as knowledgeable.

Thomas Lombardo: There are various novels that are down that direction. In *Brave New World* people do not read books and that's not because they're told not to read books, but because they don't want to read books. People are supported with ongoing pleasurable experiences in life through drugs. So everybody's happy and everybody is shallow and stupid at the same time. So there are definitely dystopian visions of the future of education, of intellectual development in science fiction, and part of what we should imagine when we think about the future of education in dystopian terms. I could say we exist in a dystopian reality of education now. I look at the world around me, whether I'm a futurist or sociologist or psychologist or philosopher, and I see that there are things wrong with the world. It looks like things are screwed up here and there and

everywhere else. So I ask myself how can I change this? How can I have a positive impact to move it in a different direction? One thing at least to begin with is you got to present an image, a theory, an idea that's inspiring, that's something that has value, a preferable future. To get people to change is an age-old issue. How do you change people? How do you change societies? And we've been trying to do this for thousands of years. Lots of different people want change in lots of different directions all at the same time. Science fiction writers can familiarize people with different possibilities and that's a good step forward, but you still have to figure out how are you going to motivate and actually instigate positive change. You want to do it in a way where you're not trying to force people into it; you're trying to inspire them into it. So there's a big psychological question for futures studies because futurists don't just want to think about the future, they want to have an impact on making the future a good reality, a preferable reality as opposed to dystopian.

Victor Motti: On your point about forcing people you must have seen the reports about the situation in China. There is a region of extremist Muslim minorities in the western part of China. They have huge concentration camps or big prisons over there, and guess what, they have called those prisons *re-education centers*. China justified the prisons to combat terrorism or combat fundamentalist Muslims.

Thomas Lombardo: Of course they do. It's the narrative of the novel *1984*. It's the same idea. From their point of view that person needs to be re-educated, they have the wrong philosophy in their head. There's this quality that human beings have to various degrees which is that no matter how awful and stupid the action that we're engaging in, somebody can come up with a good

rationalization for doing it. So, I'm sure you've encountered this too. People who are doing atrocious things to you and give you some explanation as to why they think that they're doing the right thing. Throughout history humans with power, with ideologies and philosophies, have forced other humans to accommodate and to follow their particular way of doing things, and conquerors have done that through the ages. I'm going to come in and I'm going to transform these barbarians and to civilize people. But what defines civilized? What they think is civilized, right? But they force the people. They try to inspire positively but they also try to enforce. In *The Shape of Things to Come* you could follow Well's vision over the next 200 years as to how the world is transformed. H. G. Wells envisions a certain amount of coercion that has to go on to get everybody to get on the bandwagon together. There's going to be people who just don't want to improve or don't want to participate in this advanced society so to some degree they are forced. That sounds very dystopian but in fact it also something that people have done throughout history. Humans have done this to each other, force other ones, to follow their particular creed, their particular ideas for their own betterment. The United States has done that to the Native Americans. When the Europeans came over here and civilized the life of the barbarians, that's how they thought of them.

Victor Motti: Another point that you raised previously in our discussions was about the role of teachers in some of the science fiction novels as course developers or curriculum developers when you compare the key idea or message in those novels to the role of teachers today and then to the future. But again, we have the challenge of the content. If we look at the history, you see there were some empires or there were some civilizations that allowed a diversity of ideas to flourish. But now I believe that there is a monopoly in the content across the world; for example, if you go to the department of economics in a university every attempt to question the standard or the

textbook knowledge will be very difficult. In the standard curriculum about economy you're not reading much about alternative economics, for example *zero growth economy* as some futurists would like to picture it. I'm not insisting on a left wing versus a right-wing political division here. But what do you see in science fiction with respect to the diversity in the content of education, and diversity of ideas, and the importance of exchange between competing camps among different groups of knowledge workers? Do you see a particular narrative to support such a vision for the future of education?

Thomas Lombardo: You present a good argument for the fact that educational institutes do have core ideas and curricula, standard ways of thinking about their domains, and they are resistant to diversity. How do we address the dual goals of having some level of standardization and diversity? In fact, futurists talk about this. A common curriculum, common ideas, and yet at the same time allow for and facilitate diversity of points of view. There will be arguments on either end. It becomes either groupthink or it becomes chaos, you've got to have some degree of uniformity, but you've got to have some degree of flexibility. You can go overboard in either direction; you can end up with every lunatic under the Sun standing on their own particular box and preaching their own particular review of things and you have chaos. That isn't going to work. Or you can have groupthink, and everybody has to think exactly the same way and if you question authority, you get shot or burned at the stake. We've seen that too. So that's a big Issue: human unity and uniformity versus diversity and pluralism in human society.

Victor Motti: Yes, it could be very interesting if we can explore this as a key uncertainty. I would say critical uncertainty in the scenario planning method used by futurists. When you were talking

about the diversity versus uniformity in the content I was also thinking about the other key dimension of a dystopian long term future of education. We talked about the binary opposite of the rich kid versus the poor kid. I mean the hungry college student versus the kids of the celebrities. I easily can remember the story of two great scientists, one of them was a poor kid and other was a rich kid. The poor kid was Michael Faraday, who is credited with the advancement of electromagnetism on a mostly experimental basis. The rich kid was James Clerk Maxwell. He was also a great mathematician who formalized the equations of electromagnetism. The interesting thing is that the poor kids in the previous centuries, if they were aiming to become scientists, were not able to access libraries or best professors or best content. You can see this in the personality or the knowledge base of Michael Faraday. He wasn't much equipped with advanced mathematics to become able to formulate his discoveries. He was an experimentalist. The concept of the field was actually discovered or established as an intuitive idea by Michael Faraday but because he wasn't knowledgeable enough about mathematics, a rich kid came and helped with the advancement of electromagnetism by establishing the equations. This is a story that motivates me to think about collaboration among people from diverse backgrounds. In particular, when it comes to disadvantages or the limitations that we already have in our corrupt and unfair education system.

Thomas Lombardo: I think that we're making an effort in that regard because you and I grew up in entirely different cultures and here we are talking to each other and actually agreeing quite a bit. We are having interesting dialogues. Your background and my cultural background are much different, and we can collaborate, we can dialogue, and we can learn and grow in that regard. That's why the value of diversity is a very important. Thinking in an alternative mode is very

important and having the opportunity to develop such alternate forms of thinking. But we also got to keep in mind that humans have this urge to keep things organized, orderly, and integrated—to find the unity in diversity.

Consciousness, Omniscience, and Omnipotence

Victor Motti: Let's continue our discussions about science fiction. Let's shift away from alternative futures of education to a much broader topic.

Thomas Lombardo: Right, I want to talk about how science fiction addresses the big broad and interesting topic of the future evolution of the conscious mind. It would include the future evolution of the human mind but would also include ideas about consciousness, mind, and intelligence beyond or after humans. So, it's a very big topic and in fact science fiction has had a lot to say about it over the last century or so.

Victor Motti: Today I was checking out my inbox messages and guess what? It was full of reports about different forums, different conferences, and reports on artificial intelligence. There are many conferences here and there about intelligence in a very specific sense that is used by software engineers. They are much focused on what they are planning to accomplish through artificial intelligence. It is a highly controversial topic among futurists and non-futurists because there are some weird scenarios about the day that we can upload our mind or shift or transfer our consciousness. If you follow closely what other professional futurists are saying, some of them would say the *singularity* is near, that machine intelligence is going to overcome or surpass the human capacity for intelligence or consciousness. But the majority of these A.I. researchers are mostly engineers, not very much deeply rooted in psychology or philosophy or humanities. What would you say about the evolutionary path toward a higher level or a next jump in the conscious mind as you put it today?

Thomas Lombardo: We can talk about artificial intelligence and also about machine intelligence and whether or not we will be able to create machines that have conscious awareness or have conscious personalities or identities or become self-conscious. There are people who will argue that a machine could never become conscious because it's not organic; it's not made up out of flesh and blood. But we have this long-standing puzzle in the history of science and in the history of philosophy which is about how does a physical biological body and a physical brain that operates on electrical chemical impulses and signals generate conscious awareness. It seems clear that in some very deep sense we are conscious and aware. We're able to think and feel because of this complex and intricate biological body and in particular this brain that we possess. That much seems to be fairly certain but how it happens is a puzzle and therefore when people say that a machine built out of non-organic material cannot generate consciousness, they are assuming they understand how a physical biological brain does it. Therefore, they claim that a non-organic system couldn't do it. But we don't even understand how a biological system does it, although it seems as if it does it.

I have a rather ecological sense of consciousness. We are conscious, intelligent, self-aware, biological entities that exist in the ecological context of a physical energetic world. So, it seems to me that in order to understand consciousness and mind we have to appreciate how consciousness in mind emerges in a biological body existing in the context of a physical energetic world. It may be that consciousness could not arise except within this kind of ecological context of energy coming at us and a physical ambience around us and as localized biological entities within it. But I'm not a materialist either, because consciousness seems to be a very unique and significant aspect of the universe and simply to say that consciousness is the same as physical activity in the

brain seems to be rather simplistic. So, there are people who will say the conscious mind is nothing but the physical brain and operations of the biological brain. But it seems as if consciousness is a unique phenomenon. Although connected with the physical brain in the physical body in the physical environment, the conscious mind is something that is transcendent at least in some sense of that. I don't mean necessarily supernatural either. I just simply mean consciousness is a natural phenomenon that cannot be totally explained or understood in terms of physical terms, but it's definitely connected with it. How do you describe experience or awareness in physical terms? In fact, I use the word *reciprocal*. Consciousness and the physical world are reciprocal. So when we think about creating a conscious mind in a machine some people would argue that the only way we'll ever get a conscious mind in a machine is if we make machines that move around through physical environments and interact with it and learn in the same way in which biological bodies do as opposed to boxes that sit still. If we understood what consciousness is and how it's connected with the physical brain and the surrounding world, we might be able to download our conscious identities into new physical bodies that would not be made up out of organic material.

Victor Motti: Yes, the philosophy of the mind-body problem is challenging. There are people who favor monism and people who favor dualism. You are saying that there is a reciprocity between mind and body in a very Eastern way of thinking like a Yin-Yang; that kind of dualism.

Thomas Lombardo: Yes, and no. Let's go through the different philosophies. Monism is the view that there's only a single type of reality that exists. You could believe that the fundamental single type of reality is physical. So then for physicalism everything reduces to physics and chemistry. Also, you could believe, as a lot of Eastern thinkers do but also Western thinkers, that the

fundamental reality is consciousness like German idealism. I think certain views in Buddhism and Hinduism imply that everything is consciousness. What appears to be the physical world is simply a creation of consciousness. It's like me looking at you right now. Even though you look like a physical object you're really just a conscious image in my conscious mind, that's idealistic monism. But you could be a dualist; where you could think that there's both consciousness and the physical world and they're very distinct and different. You can't reduce one to the other but then you got the puzzle of how they're connected, how they impact each other. That was Descartes' problem in trying to explain his dualism. How does the conscious mind affect the physical brain and in turn how does the physical brain affect the conscious mind? But reciprocity is not dualism. Reciprocity would say that the very reality of consciousness and the very reality of the physical world can only be understood as interdependent realities and not as totally distinct. Although they are in some fundamental sense distinct, in some other sense they are also connected and integrally codependent like a Yin-Yang concept. I say paradoxically that they are distinct and yet interdependent, or distinct and yet somehow united together. I'm talking like a Taoist. I'm talking as if they are Yin-Yang.

Victor Motti: But there is a problem here. We know that almost 4 billion years ago the planet Earth was formed and later the first instances of life emerged on it. If we accept that natural history then what was the case before the emergence of life in the cosmos? What was there when there was only lifeless material, when there was no trace of any sort of consciousness. Are you suggesting that the concept of reciprocity emerges or explains what has happened since the first life forms emerged on the planet?

Thomas Lombardo: I am not going to have a complete definitive answer to that. I've thought about that question, but this simply points out the puzzle of things. Yes, there is a mystery of things in that if we stop and we ask ourselves when we're talking about the physical world prior to the emergence of life and consciousness what would that be like. Because we should keep in mind that there was no mind to experience the physical world. In fact, let's push it a little bit further. My description and understanding of that reality which I could find in books on what the universe was like before four billion years ago, that description, that understanding has been framed by human minds. So, the vision that we have of the pre-mental, preconscious reality is a vision that's been structured by a conscious reality. So it's not totally without some connection or reciprocity with consciousness and mentality. What would that physical reality be like as a thing in itself without any meaningful framing of it by a mind? That becomes puzzling. We could say there was a big bang but if there's no one there to observe it then in what sense was it a big bang because the Big Bang is a mental concept. So, it seems to me that consciousness and mind arise and evolve within an evolving physical world and as the physical world becomes more complex, in turn consciousness and mind are becoming more complex. But there's also some sense in which it appears like matter is primordial. There's a contemporary philosopher Thomas Nagel who said that any theory of the universe that starts off with the physical world and then at some point consciousness miraculously emerges is missing something fundamental in its conceptualization of reality.[9] Because if you start off with what you define as a physical world and then at some point when it gets complex, boom, there's consciousness, there's this great mystery. Why did it happen?

[9] Nagel, Thomas *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature is Almost Certainly False*. Oxford: Oxford University Press, 2012.

There must be something about the physical world such that it's going to be intimately connected with the evolution of consciousness and that's we're back to our reciprocity again. It's sort of like the universe does not realize what it is until it becomes aware of what it is; until it becomes conscious of itself.

Victor Motti: Well of course there are groups of people who don't want to spend any time to think about such deep issues or puzzles. If they are a little bit religious, they simply say that there is God and that God explains everything. When they think about consciousness, they would prefer to use another term which is soul. Humans with souls. But the majority of scientists or engineers who are talking about machines becoming intelligent or becoming conscious try to avoid the term soul. I would say that what I learned from your perspective is that you are in a sense open-minded about the possibility that someday we could be witness to that a sort of consciousness, a sort of awareness could emerge in non-organic matter.

Thomas Lombardo: Yes, exactly. I do think that consciousness is not only intelligence and is not necessarily tied to the particular biochemical substrate of earthly life forms. It's similar to the question of if we find life on other planets or some physical instantiation in outer space, they don't necessarily have to be tied to a DNA genetics or a carbon-based type of organization. We could have silicon-based life; we could have life that comes in the form of organized gaseous particles that achieve complexity; it doesn't have to be in this physical form that we are in right now that will produce life and also in this physical form that will produce a consciousness. Because again we still don't have a good handle on what is it about this physical form that allows for the emergence of consciousness and intelligence.

Victor Motti: Logically you are completely right because when we do not understand yet what are the properties of consciousness in organic matter or organisms like us, we cannot simply reject the possibility of emergence of a sort of consciousness in non-organic matter.

Thomas Lombardo: Yes, and we can't even necessarily limit the modes or forms that consciousness could take. As soon as contemporary science realized that Jupiter and Saturn were worlds like the Earth, people began to speculate on what kinds of life could exist on those other worlds. If the worlds were physically different, how would the life forms on those planets evolve or emerge? So all the way back in the 16th and 17th century people started to speculate like Christian Huygens who discovered the moon Titan around Saturn. They began to speculate on alien life forms and alien intelligence and things that would be intimately connected with conditions on different planets. So it's very open as far as what will be the physical forms that life or consciousness could take or evolve across the cosmos. Definitely it's open and it's not just simply this kind of physical form or this kind of biochemistry that we are familiar with.

Victor Motti: Your definition about consciousness is to be aware of your surroundings or be sensitive to your surrounding and to experience living in that environment. A few of engineers or people who are enthusiastically following or pursuing their visions in artificial intelligence would say that what we call consciousness could be reduced to, for example, memory. If they can download or record my memory plus my behavior and pattern of choice or pattern of behavior and they can aggregate such data and upload it into a machine or some sort of robot that would produce consciousness in the robot or machine. What could be the difference between a very simple-minded understanding of consciousness by reducing it to memory or a pattern of choice

and what you as a psychologist and philosopher and of course as a professional futurist would define to be consciousness?

Thomas Lombardo: I will use the word consciousness as synonymous with to experience or to be aware. When we talk about the term memory what do we mean? Do we mean that right now I remember what my mother looked like? I can imagine what she looked like but there's something in consciousness and it's a conscious image that I have of her. Or do I mean by memory that if someone were to ask me what is 2+2 and I answer 4. I'm showing you that I have the capacity to provide the correct answer to a question that involves the recording of information. You could say that's a memory too. I could in fact be imagining in my mind two sticks and two sticks and then putting them together and coming up with four sticks. But I'm including consciousness in it so when we use the word memory do we mean just simply being able to repeat information? But I am able to have conscious images and conscious thoughts about things I have learned from the past. So does the computer have the second one or just simply the first one. There's a very famous thought experiment in philosophy called the *Chinese Tea Room*. If I give some machine instructions and it gives me back the correct answer and all it's doing is taking the instruction and looking up on a table what the correct answer is. Maybe there's nobody home inside and all it's doing is responding in a kind of reflexive fashion with no consciousness. So right now I see that you are looking at me and you're coming up with intelligent sentences and questions. Is that all there is going on, or is there Victor Motti, this conscious experience that is personified, that's in a sense orchestrating your behavior and is present with you all the time. There is not just simply behavior but there's you having this personalized experience from your point of view situated in your body, that is an awareness of yourself and of the world around you. You have mental images going

through your conscious mind. I would say that it's conceivable that a physical mechanism could have that but just to say that consciousness is nothing but giving the right responses and having the capacity to generate back information that's been inputted into it, that's not consciousness, that's just very complex interactions going on. It's a sort of rapid data processing. It's not like we don't process data but we process data in the sense of you having images and thoughts about different facts and ideas. I play around with them and I compare them together in my mind and then I give you back my best guess on it.

Victor Motti: Do you know any science fiction writer contributing in a practical or a theoretical manner to the debate on consciousness or mind? Some contribution which is not yet appreciated by philosophers or scientists or scholars or engineers?

Thomas Lombardo: In fact I would start off by saying that although stereotype science fiction is primarily about gadgets or amazing technologies or space travel or even aliens and wondrous new machines in the future, a lot of science fiction over the last century and a half has been concerned with the future evolution of the human mind or of consciousness and including how humanity may evolve into robotic types of beings, or cyber types of beings or through biological engineering of their bodies. A lot of science fiction has been concerned with what higher forms of intelligence or mentality could emerge or have emerged in the universe around us. A first classic image that is a good starting point for the future evolution of conscious mind and humanity is a paper H. G. Wells wrote back in 1893 called *Man of the Year Million*. He imagined what we would be like a million years from now and the image that he came up with was an image that had a lot of influence on people's thinking later on. Because he thought as we become more dependent on technologies, our physical bodies become less important and as we evolve and our intelligence becomes more

important our brains will get progressively even bigger. So he imagined humans in the year 1 million as having tiny frail bodies that supported big heads. A lot of people have been influenced by that idea both in science fiction and even in philosophy and artificial intelligence because they all seem to think like H. G. Wells thought. That the direction that human evolution is taking is toward increasing intelligence, increasing memory capacity and so when they talk about a mechanical mind or consciousness what they're thinking about is something that has sufficient mental powers. But they leave out the whole emotional dimension and personal dimensions of the conscious mind. So when we start to think about how we could evolve into the future we don't want to just focus on how our intelligence could increase but also how all the other aspects of our psychology could transform or increase too. In a second image which is more contemporary but it also says something else about our imagination comes from *Star Trek*. In the original series and later series, when they came out in the 1960s and the 70s and 80s and 90s, when we looked at the 24th century we had all these fancy technologies; super-fast spaceships but the humans in it, the personalities, the characters were basically no different from people today. There's no psychological transformation in them although all of the technology has changed around them. This is a big blunder in that when we think about the future of humanity. We have to seriously consider that we as a species in terms of our mentality, beliefs, cultures, modes of consciousness, all of that may transform too. It will transform significantly because the simple fact is, and I don't just simply get this from science fiction but from fundamental evolutionary science, humanity is a transformational species. We are not static and if you go back fifty thousand years, a hundred thousand years, five hundred thousand years ago, you see we have been transforming and changing. We're not standing still. We're not going to be the same five hundred years from now

along all the dimensions of human psychology. So regarding the image of Star Trek: If we get out into space and interstellar flight, whether it be robots or humans, the humans or human-like robots are not going to be like us psychologically. They're going to be different in many different ways.

Victor Motti: I recall a very well-known thought experiment among philosophy students or people who study mind-body duality: it is called the *Brain in a Vat*. They use it as a thought experiment but it's appears to me that could be it one of the scenarios that actually we will realize in a very distant future. We might not need even our body. We can preserve our brain in a liquid and connect the brain in a liquid to the outside world.

Thomas Lombardo: That image of the future of humanity has been used on countless occasions in science fiction. It comes up in Stapledon's *Last and First Men*. That image corresponds to the fifth form of the human species where we intentionally create technological enclosures in which we place our giant brains hooked up to nutrient supplies and sensory and motor systems so that our brain can both perceive the external world much better than we can in this body and could manipulate it much better than in this body because it's hooked up to all kinds of machinery. But the human here is simply the brain. What subsequently happens in the story is that these super intelligent human brains, the fifth humans, who live a few hundred thousand years in the future, decide that they will not be able to realize a complete form of human evolution without having a body. But they have given their bodies up. So they design a sixth form of human that has a body again. They decide that without a body there's something that we lose in the process. There's a sense of immersion and intimacy with the physical world in the biological world that is gone without having a body. They decided that without a body you can't have a complete human

experience and so you have to go back and regain/recreate the body. Almost at the same time that Stapledon wrote *Last and First Men* an American science fiction writer named Nat Schachner wrote a science fiction story called *Ecce Homo* which envisioned humanity in the thousandth century. Now we're only in the 21th century. In this distant future time we have perfected ourselves so that we exist as super big brains, who have omniscience and omnipotence, and are connected with all the appropriate technologies to be aware of everything in the universe and be able to manipulate everything in the universe. We realize the full mental perspective and we are absolutely totally bored; there's no challenge anymore. So we realize this highest level of mental evolution, we have given up our bodies and technology does everything for us, and we don't know what to do with ourselves

Victor Motti: So in a sense perhaps even after this current trend toward better artificial intelligence takes off it could be possible that in a few decades, people decide to go back in time.

Thomas Lombardo: That's what happens in that story *Ecce Homo*. The last surviving member of the super humans who starts to have feelings of godliness has these two normal human servants who he wants to reproduce and worship him as if he's God. The two servants decide to kill the super human and start the human race all over and go back to the beginning. So this scenario has been tried out on many occasions, the big brain in the vat. In fact, we have a body in the movie The Matrix but we're literally in an enclosed liquid environment with hooks unto our brain and wires into our brain. We're having this total experience of the world although we're inside this womb-like structure. That idea goes back to Descartes. This is a very interesting topic. We've just scratched the surface. It is a very important topic. It's the question of what direction do we want

to head toward in the future because we're going to have a significant say in how we guide our future evolution.

Aliens, Ecology, and Space

Victor Motti: In the previous section we began talking about the broad topic of consciousness. We dealt with mind-body problem from different perspectives; contributions by philosophers, both Western and Eastern approaches. A very good lesson for me was that you provided an interesting insight into the future of artificial intelligence. You said that imagination and emotions play a key role in our intelligence. Also, you were quite open-minded about the possibility that in the future a sort of consciousness could emerge in non-organic matter. We even went far away to imagine extreme scenarios like the very well-known thought experiment which is called brain in a vat and bodiless brains.

Thomas Lombardo: We talked a little bit last time about alien minds too. I also brought up what I take to be the big mistake of Star Trek; that we imagine humans in two or three or four centuries ahead who have super technologies but psychologically are not much different than today. We will probably see greater human diversity three or four centuries from now. So looking over the notes and thinking about my ideas on science fiction and the future evolution of the conscious mind I thought it might be a good idea if we go back to Olaf Stapledon and also include in our discussion his book titled *Odd John*. This novel is about a human who is born in our contemporary times but is much more significantly evolved than present humanity.

In general, Stapledon in various novels goes into great depth about how consciousness could evolve into the far distant future. He was very holistic and if we think about the possibilities of the conscious mind in the future we should think about intelligence, mental health or mental well-being, and also ethical character. All those three dimensions are part of a holistic vision. Stapledon

really dealt with all of them; how we would evolve intellectually, how we would evolve in terms of our consciousness and mental health, and how we would evolve ethically. He considers all these dimensions in *Odd John*—focusing on one individual advanced human—but also in *Last and First Men*, where he considers all of humanity evolving collectively.

One starting point is when we say the conscious mind in the future, we should realize that the future is an open-ended continual process. It's not like there's a future and then that's it. When Stapledon thought about the future evolution of humanity he went out in stages and steps—eventually two billion years into the future; speculative of course, but thoughtful speculation. So it wasn't like there was one future for humanity. There were a series of future humanities, one after another. I mentioned that he considers 18 successive human species running out two billion years into the future: how we would see transformations across these ages and different factors, different abilities, and different challenges coming into play. This is kind of like a never-ending story. I could imagine five hundred years from now but then what about another five hundred years or what about a thousand years, what happens then? So just as a starting point let's not think that there's some future, a definite point that we get to and that's what the future evolution of humanity would be. Because after that there will be another stage, yet another stage and so on. Perhaps it will go on indefinitely. Of course we could wipe ourselves out and that'll be the end of us and that would be the end of the future evolution of the human conscious mind. But in Stapledon's *Star Maker* he goes further and considers how conscious minds and conscious intelligence would evolve in the universe as a whole, even past the point of humanity. So when we talk about alien minds, or if we talk about computers with minds, or robots with minds, we can think out even further where might all go past the point of humanity.

Victor Motti: Do you think that Olaf Stapledon says that the human species will become extinct in some point in the future because of the growth of the power of other sorts of beings in the world? Or do you think that he believes that humanity will step in a suicidal path in the future?

Thomas Lombardo: The second one is a strong possibility. Actually in Stapledon 's scenarios in *Last and First Men* humanity eventually does go extinct. But only two billion years in the future and they go extinct not because of any self-destructive factor; they go extinct because they face a cosmological challenge that they cannot solve. A challenge with being able to leave our solar system in order to survive. Our solar system is going to be subjected to a catastrophic disaster and they don't have the capacity to travel and settle on other stars.

Science fiction writers would say that we need to, sooner or later, be able to travel to other stars. Arthur C. Clarke said that the reason why the dinosaurs went extinct was because they didn't have a good space program. The meteorite hit and boom, that was the end of them. They were stuck here on the Earth and they had nowhere to go. The environmental consequences of the impact wiped them out. We can't just simply continually sit here and put all our eggs in one basket on the Earth. We've got to get out into space. We have to settle other planets and we have to actually if possible even spread to other solar systems. Because sometime in the future some earth-shattering precarious event may happen where we have to get off of the Earth and move someplace else. Stapledon's Last Man could not figure out how to get out of the solar system and they went extinct, which is I think a rather pessimistic view about the future capabilities of humans. We need to spread. A Russian cosmic theorist (Tsiolkovsky) said the Earth is our cradle and we can't stay in the cradle forever. We have to go out and spread throughout the cosmos. That's going

to be a dimension of our future evolution if we are going to survive in the long run; the Earth isn't going to be here forever.

Victor Motti: Some sort of criticism from my side about such novels is they are too much focused on humans; they have a human-centric perspective of consciousness. In my own book which is titled *Alternative Planetary Futures* I ask the question: Why we are not investing in research on fauna and flora consciousness? I mean in the Western mindset the majority of researchers, engineers, and scientists are too much focused on building smarter robots or increasing the ability of humans. They do not pay enough attention to the already available living forms that have some level of consciousness. You can begin with dogs and cats and then all other sorts of animals. Have you seen any science fiction books which have already made any reference to such a scenario? I mean if we will become able to communicate or have a reliable interface with the world of animals or with the world of plants?

Thomas Lombardo: Definitely lots of it. There's lots of science fiction that addresses this question. The first one that popped to mind was actually a series of science fiction novels by David Brin that were written back in the 1980s and the two in particular that I would mention would be *Startide Rising,* in which dolphins have been evolved and technologically enhanced so that they become partners with humans in the exploration of space. We have a crew on a spaceship that consists of both intelligent dolphins and intelligent humans. This requires that part of the spaceship be immersed in water and also in *The Uplift War* which David Brin wrote a couple of years later. In *The Uplift War* we have biologically enhanced and intelligently enhanced chimpanzees. We also have intelligently enhanced gorillas as well as the dolphins. So in those two novels Brin considers how we would be able to, with our science and technology, facilitate the

evolution of other intelligent life forms on the Earth. I would also mention one of my all-time favorite science fiction novels by Clifford Simak, *City.* In that novel dogs and lower level mammals such as rabbits in the future acquire verbal intelligence facilitated by humans. Another really great science fiction novel is *Brain Wave* by Poul Anderson, in which the entire animal kingdom is intelligently enhanced through a cosmic event. So science fiction writers have considered this topic. Kim Stanley Robinson's *2312* considers ecological evolution across the solar system and we get all kinds of ecological experiments and developments in different kinds of life forms, both animal and vegetable.

Victor Motti: It could be a very useful scenario since we are tied to our ecology. There are many calls for saving the ecology, saving the planet. But the activists that are advocating for it cannot easily sell their movement to the majority of people because some would say we are not dependent on animals or vegetables. We are only dependent on a limited number of them for slaughtering them and eating them.

Thomas Lombardo: No in fact no we don't have to think that way. In fact, don't think of the rest of the biological forms of life on the planet as simply a resource. There are whole sets of other living forms that we can develop various kinds of relationships and partnerships with. But as an evolutionist I would say that we can't think in terms of saving or preserving the ecology. We have to think in terms of evolving it. We can participate in the purposeful evolution of life on the planet and not to simply focus on ourselves. We can reach and interact in a positive fashion with the rest of life. But this whole system we're in is evolving, we're not going to preserve it, we're going to evolve it, not abuse it but evolve it. So in Brin's novels we develop partnerships with others, partnerships with other intelligent forms of life on the Earth that have abilities that we don't have

but need a boost. In fact, Brin's scenario is that the universe is a whole living form. We will participate in attempting to help other living forms increase their intelligence and abilities. So lots of species get uplifted in Bryn's scenario.

Victor Motti: There are many interesting trends and ongoing progress in making lab-grown meat. If it actually takes off we would see that people will stop killing and eating cow, sheep, pig, dog and other kind of meat from animals. In that case we should wonder what could be the use of domesticated animals. Also, there are many military uses of animals in warfare, or in conflict situations. Very recently we saw that in the US military strike against ISIS leader Abu Bakr al-Baghdadi they used a dog to chase the terrorists. When I put together all of this and see that we will no longer need animals for eating them, and there are of course some calls for stopping eating them or slaughtering them for consumption because of the impact on the global warming or other kind of issues or considerations about Ethical Treatment of Animals, I would say that we can imagine a future in which many different animals or even plants or as you say vegetables could serve as our partners in a collective planetary consciousness system.

Thomas Lombardo: Yes, the most recent one I mentioned was *2312* by Kim Stanley Robinson at the solar system level with different experimental ecologies all over the solar system. Stapledon in *Star Maker* goes into great depth trying to explore how different kinds of intelligent beings across the cosmos would develop cooperative relationships and self-reinforcing, symbiotic relationships. For example, he considers one type of intelligent life form, which is actually a symbiotic pairing together of a crablike creature and a fish-like creature, who developed a joint consciousness, a higher form of consciousness in a symbiosis with each other.

Victor Motti: So you would say that there is no over-emphasis on a human-centered vision for the future of consciousness throughout the science fiction literature?

Thomas Lombardo: In Stapledon's *Star Maker* he considers a really big question. How to imagine consciousness, mind and intelligence evolving across the cosmos, of course in different kinds of planetary systems, different kinds of star systems, and what would be the different kinds of life forms? Individual cells that are disconnected from each other but somehow can form into a collective consciousness as a swarm. A consciousness that never leaves their planet but evolves. It can communicate with consciousness and minds all over the galaxy. So science fiction will give us that diversity of perspective to transcend our human centric thinking about what conscious minds would be like. In Stanisław Lem's *Solaris* the planet, the whole planet is one collective integrated conscious mind.

Victor Motti: When you say that here are many possibilities or open ways to explore the future of the relationship between mind and body I would say that perhaps in the future we will be able let a male body have a female experience, or a female body have a male experience. Imagine that a man can have some sort of altered consciousness using advanced technology to experience how does it feel to be a woman. Or a woman could feel what it would be like to be a man. What are the visions you see in the science fiction literature about the future of relationship among people, in particular among men and women? What are the possible scenarios that have been already explored in science fiction literature about the future of sex or future of marriage or future of relationships?

Thomas Lombardo: We have a lot of different possibilities. There is the possibility in all of its different forms of humans having sex with aliens; all different kinds of aliens. We have lots of science fiction novels where we have sexual relationships between humans and aliens, like Philip Farmer's *The Lovers*. Secondly we could have more than two sexes, right now we have two sexes, but in Stapledon's *Last and First Men* he has 64 semi-distinct sexes. We need 64 distinctive beings to form into a unity to create a baby out of it. It's a much more complicated sexual act. It's not just simply a physical intimacy. It's a psychological intimacy that has to be realized before you get one baby out of it. That's one of his visions of the evolution of sexuality.

Another possibility, which relates to the one you brought up at the beginning, is Ursula Le Guin's *The Left Hand of Darkness* where the species on a particular planet at different times of the year are both male and female. So the way you end up getting an experience of the other side of the coin is you become the other side of the coin. I can't remember the exact details but Joanna Russ in *The Female Man* experiments with that idea as well, switching sexual consciousness. We could participate realistically in the consciousness of another person, whether it's the same sex or not. Science fiction writers have explored that technological question in different forms.

One general possibility is to hook up my body to another body and through some kind of technological interface feel the world and experience the world from their point of view. It's kind of mental empathy and mental immersion in another consciousness. So I could move into your mind or vice versa and feel it. Experience it to see how you experience it. People are working on that in real science too. But science fiction writers have definitely explored that.

A second kind of possibility, which has been explored in science fiction, connects with the thinking of the contemporary A.I. theorist Ray Kurzweil. If Ray Kurzweil and his sympathetic researchers are correct there will come a point where I could download my consciousness into a machine and from there be able to manifest myself back into the physical world and take any form I want to take. Through nanotech or within a virtual reality as an avatar I could manifest myself in numerous particular configurations. The science fiction writer Greg Egan explores this idea in his novel *Diaspora*. So forget about how does it feel to be like a woman. How about how does it feel to be like a whale, or a butterfly, a bat? Science fiction writers have speculated on that as well. Stapledon, in fact, explores this possibility in *Star Maker*—merging with the consciousness of an alien.

Victor Motti: Yes, there are certain groups of technologies that are enabling such a capability for humans in the long run. I just want to say technologies related to consciousness are not only about robots becoming aware someday. But there are possibilities that would allow us as humans to experience directly the world or the environment from the perspective of any other conscious being. An empathy technology. This is a very big achievement not thought of even in the wild imagination of psychologists. They couldn't have seen such a capability becoming available as a technology.

Thomas Lombardo: This is going to be a challenge to being able to work it out. What I mean by that is that each of us has our distinctive identity with our thoughts and our feelings and we have a sense of autonomy and separateness; a sense of freedom. What if we lived in a world where everybody's mind could invade everybody else's mind anytime they wanted to? Maybe we would have a rule that you can't go into another mind unless the other mind gives you permission to go

into it. But of course somebody will figure out how to break that rule. So people who advocate for increased intimacy, empathy, and mutual understanding have to think out the challenges of this. Let me mention two very famous science fiction novels by Joe Haldeman titled *The Forever War* and *Forever Peace.* In *The Forever War,* which he wrote as a result of his experiences in Vietnam, he discussed among other things the use of technology to coordinate a group of very tightly connected soldiers within a particular military unit. He developed it further in *Forever Peace,* where the soldiers in a future war could experience the consciousness that each of them had, so they worked as a unified military unit. They were very efficient in that everyone knew what everyone else was thinking and doing. But the twist in the novel was that if you were able to experience the consciousness of your enemy then would you want to kill him or her? Somebody facilitates a significant move in this mutual consciousness among all the warring factions. So I am in your boots and in your mind. The result of it is that no one wants to hurt each other anymore because we all can empathize completely with the point of view of the other and that's the end of war. So the argument would be if I could empathize with you, if I could feel how you feel then I wouldn't go into war with you. I wouldn't treat you as somehow insignificant or attempt to push things upon you that perhaps don't feel very good to you. At least we'd figure out better ways to cooperate if we could mutually resonate or mutually experience each other's points of view very effectively. So that's been played around with as well and that could happen through technology.

Victor Motti: So it could be a positive or mass “peace technology” unlike a nuclear weapon or a weapon of mass destruction. It could be a new tool available to humanity at large, to use it effectively to guarantee forever peace. So there is still some space for the culture of hope about the future.

Thomas Lombardo: But I'll tell you there's going to be challenges. We can make that step forward, but to be comical for a moment here, in Douglas Adams' *The Hitchhiker's Guide to the Galaxy* there is this alien fish that lives on some other world and this fish has the property that if you put it up to your ear you can read other people's thoughts. This looks really great. So everybody's going to be able to read each other's thoughts, all their thoughts, and what happens when everybody is able to read each other's thoughts is that everybody goes to war with each other. Because of all the things that people are thinking about each other that they find offensive. So maybe it is better that we can't look into each other's minds. You got to take that into account as well. That will be part of the challenge. People value privacy and people have lots of thoughts that they don't want to share with anybody else. We get into trouble if we share our thoughts and feelings with another person. So if we're going to have empathy we have to somehow work it out so that people still maintain a level of privacy and that's the issue today with technology like social media. It's getting too damn invasive. We're trying to connect together more and more, and people are saying we're too connected together. But this is even a deeper level of connection, as envisioned in science fiction novels, if we have conscious minds in complete resonance or communication with each other.

Evolution, Progress, and a Culture of Hope

Victor Motti: I feel that many engineers and sometimes even futurists have a very simple or reductionist idea about human intelligence. When engineers or futurists are talking about artificial general intelligence which is abbreviated as AGI they often refer to a sort of human level or human kind of intelligence that can be applied in a general situation as opposed to artificial weak intelligence or artificial limited intelligence which are designed for a very specific task. But after we talked about consciousness and that very complex issues that you raised I saw that we cannot separate or isolate intelligence from our emotions, imagination, or even our body, or our sexuality. The very holistic nature of the human intelligence cannot be reduced to intellect alone and it occurred to me that we can of course make another term that could be abbreviated again like AGI but we can put the idea into words like Artificial Gestalt Identity.

Thomas Lombardo: Yes, and "Gestalt" is a German term meaning the whole, a key idea in Gestalt psychology. The Gestalt psychologists flourished in the last century and emphasized a holistic perspective in psychology.

Victor Motti: And they rejected, by the way, the reductionist point of view of many engineers or people who have a mechanical model for the human intelligence.

Thomas Lombardo: The Gestalt psychologists in fact were very critical of the analytical reductionist forms of psychology of the last century. When we use the expression holistic identity or Gestalt identity what we're getting at is that our cognitive intellectual aspects of the mind are integrated together with our emotions, desires, motives, body, behavior, and perception. So our

intelligence manifests itself in that Gestalt and not as a distinct and separate intellectual process. When we envision the future evolution of the human mind we should think in terms of the future evolution of the gestalt of the mind. The gestalt of the future of human identity is not just simply becoming a smarter or thinking faster or having greater memories.

Victor Motti: We haven't even touch the issue of unconsciousness or sub-consciousness. It's a broad and deep subject. When some futurists or engineers describe artificial general intelligence they are aiming to reproduce a human level consciousness or mind and they are simply overlooking the unconscious.

Thomas Lombardo: It's not that all AI investigators and thinkers ignore emotion. For example, I've seen over the last 10-20 years a number of researchers in this area who attempt to develop robots and computer intelligence that either express or are sensitive to emotion through facial expressions. So they're working on it. It's not like they're totally ignoring it, but the emphasis has been on the intellectual, or as psychologists would say the cognitive dimension of human mind. Regarding the unconscious, how does that help in understanding humans? The question would be how does one add the unconscious into a simulation of the human mind and how might the unconscious be a factor that also evolves in tandem with the conscious mind in the future. So all and all, the challenge of simulating a holistic mind is a big one and so when we imagine the future of the human mind or other kinds of minds we have to imagine how it could develop along all these different dimensions.

We see ourselves as having a personal identity, a unique identity, you're Victor, I'm Thomas, and there's this person with their unique identity, and one of our distinctive characteristics seems to

be these unique person-hoods or personalities that we have. Perhaps not as much articulated in terms of its individuality is a bacterium or a more primitive creature. They may have some kind of identity there but we don't see it very well. Perhaps humans of the future will have personal identities that are much more colorful, unique, distinctive and rich than we have today. That would be a dimension of evolution that we haven't even begun to consider.

I just want to emphasize that science fiction is the mythology of the future and so when we look at science fiction stories it's important to keep in mind that science fiction is going to offer different visions of future minds. It has provided us with narratives or stories about possible types of evolved conscious minds that are different than us, that are more advanced than us, or in any way distinct from us. These stories are informative and inspirational. Sometimes they warn us; don't go down that path. Science fiction does have lots of narratives and stories that hit us at a personal emotional level about the possibilities of the human mind in the future. People would be familiar with Arthur C. Clarke's *2001: A Space Odyssey*. Clarke in the novel imagined a future type of conscious mind that was facilitated by a higher alien intelligence that was never exactly revealed. It may turn out that something powerful in us could be created in the evolution of us in the future. So we end up with a rather mind-boggling inspiring narrative. Clarke 15-20 years earlier had written one of his most famous novels *Childhood's End* in which he talked about aliens intentionally pushing humanity to the next level of evolution in their minds and in their identity. So Clarke has at least two noteworthy novels that engage us, and involve aliens helping us along. We get "uplifted," to use Brin's term, to a higher level of consciousness.

Victor Motti: Before we started our recorded discussion today we had a conversation off the camera, and you told me about a philosopher friend of yours who was interested in our dialogue but was not too much in favor of our optimistic approach to the future of consciousness. Because, if you look around there are many planetary challenges, in politics, society, economy, and environment. What could be your reaction to such kind of criticism? It is often said that in considering science fiction literature as a way to expand our mind about future possibilities we forget or ignore what we are already living in.

Thomas Lombardo: My philosopher friend, aside from a background in philosophy, has a strong orientation to social, political and cultural thinking so he looks at the type of society and its values that we are embedded in when he thinks about the nature of humanity. What he sees at this point in time is that human society is dominated by big business and commercial motivations and militant competitive governments who throw a lot of their focus and energy into the evolution of weaponry and international competition. So he sees militaristic political forces and big business forces controlling and directing the overall way of life of humanity and he sees those forces as destroying our environment, resources, and putting an emphasis on rather shallow values like money and political power and he sees the whole process as disastrous in the long run. So he can't understand how you could be optimistic about the future evolution of the conscious mind when we live in a world that in his view is controlled by very destructive and negative forces. And it isn't changing. He sees our environment going down the tubes and in the long run that's just not going to be very supportive of our evolution psychologically. We live in a world of disaster and catastrophe. He also believes that it is important for us to become spacefaring creatures in the future. We need to get off of the Earth but at this point in time he sees us fighting so much among

ourselves, having such a narrow focus of consciousness that we're never going to get off of the Earth successfully. So we're just going to revert to some more primitive kind of reality and stay stuck on this planet in the future. He has some good points and points that other people would bring up too. How could one possibly be optimistic about the future evolution of humanity given our political corruption, our authoritarian and totalitarian mindsets politically, our excessive commercialist, money ruling reality and the growing separation of the haves and the have-nots. Can everybody possibly have the same level of a plenitude that we have in the modern West? That's just not going to work. So all in all, yes he wonders how we can be rationally and realistically optimistic.

One response which I do find repeatedly in science fiction going back to H. G. Wells and Olaf Stapledon and numerous other science fiction writers is that the history of evolution is a process of advancement followed by stress and catastrophe, leading to further advancement, followed by stress and catastrophe.

Victor Motti: But the general trend is upward.

Thomas Lombardo: Yes, exactly. So I talked quite a bit about Olaf Stapledon and his novel *Last and First Men* in which he envisions this two-billion-year evolution of humanity. What I should highlight in that is that Stapledon all along the way keeps seeing and noting potential problems, obstacles, social disasters, and collapses that occur periodically that set the stage for the next step forward, but the system keeps falling apart because it can only push itself so far and it has weaknesses. Then humanity has to pick itself back up again and put us up back together in a different kind of way. So one can be optimistic and optimistic even from an evolutionary point of

view if one acknowledges and realizes that there are going to be numerous problems, collapses, and catastrophes over and over again, leading to new forms of human society and forms of the human mind. I have seen in fact on the *World Futures Studies Federation* (*WFSF)* email discussion forum a number of futurists who actually take this view. That this system where are presently in is not going to work but that doesn't mean one has to be totally hopeless. Rather sooner or later it is going to collapse under its own inefficiency and then we will move to something better later on. There are plenty of futurists I see who say this very kind of thing. Stapledon definitely acknowledges that. So perhaps we are in a system that is just not going to work because of who controls the power in that system and dictates the way of life for the general population. We're infiltrated with militant antagonism and antagonistic nationalism and the desire to have materialistic plenty. We don't think past our own neighborhood. We're too egocentric and ethnocentric. This kind of antipathy perhaps does not generate a very advanced form of consciousness and doesn't have the potential to move itself forward except if it falls apart in some kind of way and then can reorganize.

Victor Motti: The idea of progressive time is recent and new in human civilization. People used to believe in the cyclic time, aimless repetitions of seasons, rise and fall of empires and dynasties. I would say Zoroaster, the ancient Persian prophet and philosopher, was among the early thinkers who contributed to the idea of the progressive time. That is, if combined with a circular pattern of time, we are able to progressively improve the conditions on the planet and beyond it.

Thomas Lombardo: Yes, that brings up an important theme of course. There were other early thinkers, for example Lucretius and Democritus among the Greeks, who also believed an evolutionary progress back 2,000 years ago, a little bit after Zoroaster. So the idea has been around

for quite a while but a point that you just made is of critical significance. When we think about our future evolution we need to think in terms of purposeful evolution. Humanity has the capacity to be conscious of the future and has for a long time set goals for the future. Goals both about its environment and about itself. So where things may lead in the future is going to be a consequence of actions that we take to attempt to direct our own future evolution now.

I'll introduce another science fiction writer here to get this point across—contemporary science fiction writer, Greg Bear. One of his better known books is *Darwin's Radio,* in which he thinks about the future evolution of humanity. He delves rather deeply into natural evolution and then attempts to explain how in this future scenario a new form of humans starts to emerge across the globe due to the tension, stress and adaptive challenges going on in our present day. You wouldn't call it purposeful evolution but it's evolution that occurs due to environmental challenges. It's a very good book on envisioning what the next stage of human evolution would be.

He also wrote another excellent science fiction novel called *Queen of Angels* in which humans actually attempt to enhance themselves in the future using nanotechnology. One way in which we could intentionally, purposefully evolve ourselves would be to technologically enhance ourselves. In *Queen of Angels* we have two different forms of humanity, one of which isn't enhanced and the other is by nanotechnology. But this is a very good book also on psychological evolution.

A third book by Greg Bear is *Blood Music* which involves nanotechnology as well, but it gets out of hand. So here comes our challenge of course. We want to improve ourselves, we try to evolve ourselves, we experiment with different kinds of technologies, one of which would be nanotechnology, but the nanotechnology that we create develops a mind, a will of its own, and

begins to spread across the surface of the Earth and integrates together with the biological and wipes out humanity. So there's the existential risk factor which is that we may try to advance ourselves with technologies like nanotechnology and it's uncertain where this will lead. Because we may make some kind of mistake and instead of getting more advanced humans like in *Queen of Angels* we end up with human disaster like in *Blood Music*. The three novels I mentioned are very good novels on the whole issue of evolution by Greg Bear. Here's a contemporary science fiction writer with three different kinds of stories but all centering around this issue of how we could evolve in the future and both the promises and the dangers involved.

Victor Motti: Another topic that emerged during the time we recorded the last dialogue in this series concerns an article or a book review that was published on the *Scientific American* website: "Does Consciousness Pervade the Universe?" It is about a book written by philosopher Philippe Goff. He brings up a very interesting idea which is called *Panpsychism*. The possibility that perhaps even lifeless matter like electron is also a constituent of consciousness. I personally like the idea because as you all know my book *Alternative Planetary Futures* has been written inspired from a scientific or pantheistic worldview. Such ideas are even more interesting for me because of my background in Persian mythology. Panpsychism also answers the puzzling question that we raised previously when I asked you what or where was the mind or consciousness before the emergence of the life on the planet. You said that is a puzzle. If we consider that even lifeless matter like electron or proton has some sort of consciousness you can also extend your idea of reciprocity between mind and matter well before the emergence of life. I imagine that you have some agreement and some disagreement with what Philippe Goff is talking about in his work interview.

Thomas Lombardo: Yes, I read the interview as well. What I had mentioned to you which I'll summarize right now concerns this idea that consciousness pervades the universe, *panpsychism*. This idea we can find in earlier contemporary philosophers like Bertrand Russell and Herbert Feigl who I had studied when I was younger in graduate school. They both postulated that consciousness is nothing but the inner state of the physical brain. When you look at the physical brain from the outside it looks like what we call physical matter but the physical brain inherently and intrinsically is consciousness. So consciousness is the intrinsic state of an outwardly physical object. Goff is arguing that everything in the universe intrinsically is consciousness but extrinsically it appears as physical matter. So you always have consciousness and you also have physical matter. In that sense you find a way to preserve the notion that mind and matter are reciprocals. But I have trouble with that at least to some degree, because it seems to me that consciousness emerges and evolves. Maybe you can include that in panpsychism by saying that the electron has a very primitive kind of consciousness, okay great, all right, maybe we could do that. But then I also see consciousness as something which is not simply an intrinsic state but it's a reality that reaches out into the world. So it is through consciousness that I make contact or an interface with the physical world. But to call it simply an intrinsic state of everything physical misses this external grasping. So I don't know whether consciousness can be understood as an intrinsic state of physical matter. I know this is getting rather philosophical and abstract but there's something about the idea, that it's intrinsic to matter, that concerns me. You also mentioned in there the notion of pantheism; the idea that God is not separate from nature, but God is the same as nature. Here we find the character of Spinoza who was a pantheist, who believed that God and nature were the same.

Victor Motti: Well, Spinoza's pantheism doesn't recognize your emphasis on the evolution of the nature or God.

Thomas Lombardo: Yes, so for Spinoza God always was, is, and will be. God is absolute perfection, infinite substance with infinite modifications. God exists, that's it. I would imagine if one were to follow an evolutionary line of thought that God would be something that would evolve as opposed to just simply be. We have the old notion of God that is eternal and eternally perfect. This is Spinoza and it seems like Spinoza misses the whole point about evolution. So if one had a cosmic mind, an omniscient and omnipotent being, I would see that more as a result of evolution than I would see it as something that was given at the beginning, or provided the ground of things. So I still want to in response to both panpsychism and pantheism stick with the idea that the conscious mind and higher forms of the conscious mind in some important sense have to be understood from an evolutionary point of view. They are things that evolve through nature and aren't necessarily somehow given right at the get-go. It seems to me that's the right direction to go.

Victor Motti: You must have watched an interview with Mary Jane Rubinstein titled "Multiverses, pantheism and ecology". She's also talking about pantheism and the very big mystery of consciousness. She discusses the relationship between nature and the idea of God, and what could be the very distant future with respect to the evolution of the conscious mind.

Thomas Lombardo: In fact, I found that interview very interesting and would recommended to readers to watch it. Her emphasis though is interconnectivity and ecology. She approaches the issue of myths, which I approach in the science fiction series, as an important dimension of human

consciousness. According to her, our myths before were informed by patriarchal and hierarchical types of philosophies and religions.

Victor Motti: I used to challenge you on the title of your book series *Science Fiction; The Evolutionary Mythology of the Future*. I told you we can also say that science fiction could be the religion of the future. I feel that Rubinstein is also reminding us that it could be the case that some centuries later humanity will decide to use science fiction as the key source to have a new set of mythologies and theologies.

Thomas Lombardo: I agree in general with her because she presents the argument that our modern mythologies should be informed by our contemporary understanding of nature and not be based on archaic concepts of reality and the older mythologies like angels in the heaven. So she wants to argue that we should develop new types of mythologies, new types of stories that are informed by contemporary science. In fact, that's what science fiction is, that's exactly what it is. They are more credible than the ancient ones. But she also at the same time wants to argue that there are a diverse set of contemporary scientific cosmologies. For example, dealing with the nature of the origin of the universe and whether there's a multiverse. Whether these universes evolve. There's different angles that scientists take on this. So we need a diversity of mythologies informed by a diversity of different scientific points of view. What I would say is critically important here is that our new mythologies just as much as being informed by an ecological conception of nature should be informed by evolutionary conception of nature as well. She doesn't spend too much time on that second point. I would say that it's very critical that the ancients in general did not acknowledge or believe in or conceptualize the concept of evolution as you pointed out. They had a cyclic theory of time and they didn't understand; they weren't aware yet that over time

there has been great transformation in nature. So we have to incorporate that into our mind. That's why we can have future visions and science fiction novels in which humanity is transformed through evolution and in particular through purposeful evolution where we use our minds, our science, and our ethics to advance ourselves. We transform in the process even with our troubles falling down upon us along the way.

Love, Sex, Gender, and Marriage

Victor Motti: I suggest that today we talk a little bit further about your ideas on the future of relationships, the future of sex, love, family, and everything related to this topic.

Thomas Lombardo: It would be appropriate for us in talking about the related topics of gender, love, sexuality, and the family, to include parenting and the raising of children. All of those factors get woven together in both futurist thinking as well as in science fiction. I will set the stage.

The other evening my wife and I and a couple friends went out to dinner. I happened to be standing outside of the restaurant and looked into the store next to me which sold flowers and various niceties for the house. There was a gigantic display in the window of different kinds of artificial flower bouquets to buy for your loved one for Valentine's Day. It hit me as I was looking at this incredible display of different bouquets that Valentine's Day has turned into the same kind of commercialized event that Christmas has. It's another way in which our commercialized culture attempts to sell various increasingly more expensive products to the population where you could buy these artificial flower bouquets for a couple of hundred dollars apiece.

Victor Motti: In addition to the physical market you'll see lots of businesses around with matchmaking platforms or digital networks for people. They are thinking about applications of AI to find the best appropriate match for you in terms of long term relationship, it's yet another aspect of commercialization of love and sex.

Thomas Lombardo: Yes, we get the technologizing of love and of meeting people who we can resonate with intimately and personally. We sell it as a product and we also attempt in different

ways to refine the process through AI. The thing that struck me in the window was that even though it's presented as if the vendor is interested in you being able to express your emotions and your romance or feelings of love toward your loved one, underneath it all it's just efforts to sell their products. Even with dating services where the argument will be we could find you a more compatible match through our analysis of your personality, you are having this huge pool of other people involved that ultimately feels as if they're in it to make money. We can find your true love for five hundred bucks, or you can have the most beautiful bouquet that you can give to your loved one for 250 dollars. I don't mean to sound too cynical but it seems as if at least in my country all human values end up getting turned into how much they are worth in terms of money. It is a commercial product and let's try to sell them. So that's a trend that we see obviously in the last hundred years where all of our values tend to get commercialized and sold as products. Also the products get imbued with all the technological sophistication you could possibly think of to make it more scientific and more efficient. Science sells.

Victor Motti: Seen from my background in the Middle East the importance of love is a rather recent phenomenon or a modern approach to family because in these societies arranged marriages have been the norm for so long. It doesn't matter whether a girl or a boy is in love with their partner because everything is decided by the father, by the family. The importance of love in forming a family is a modern thing, to more progressive and less traditional societies.

Thomas Lombardo: In fact, Jeanne, my wife, and I brought up that point when we wrote an article back about 15 years ago on the future evolution of love and marriage. One of the things that we found in our research was in fact the point you're making that arranged marriages both in the East and the West historically have been the dominant way. Later on freedom to marry who

you love became the criteria, the fundamental criteria. So when Jeanne and I looked at the issue of both the history of love and marriage and the future of love and marriage one angle that came out was how might we envision marriage and love evolving in the future from the perspective of preferable futures. What would make marriage and love better and improved psychologically and socially? We also brought in science fiction. Because in science fiction you find diverse views on love and sex and marriage. So instead of saying that there's one ideal direction here, there's all different kinds of possibilities. I consider that love, relationships, marriage and gender may in fact significantly diversify even more so in the future. Science fiction has looked at a variety of different possibilities of course including love and marriage with aliens, which is making it even more extreme and unusual.

Victor Motti: Even sex with robots.

Thomas Lombardo: Yes, sex with robots. In fact, there was a book that came out a few years ago called *Love and Sex with Robots.* One of the classic science fiction stories of the 1930s was called *Helen O'Loy*. It's in the *Science Fiction Hall of Fame* and it's a recollection of this gentleman who was thoroughly in love and infatuated with and idealized his robotic female lover. It's a very moving and sentimental kind of science fiction story. Keep it in mind that his great central romance was this robot, a female robot. In science fiction the issue comes up regarding if one could create an ideal mate robotically through science and technology that would satisfy all of your particular tastes and would be totally in harmony with you. In a sense subservient to you. Is that such a good thing or rather might it be better that when we do bond with others that there's a significant level of friction and dissonance. You go looking for the perfectly compatible mate and envision it in a robotic form where everything that you want she or he will do exactly the way you want him to,

but maybe that's not a good thing for us psychologically. There's a science fiction movie called *Cherry 2000*. In that movie a gentleman has a perfect robotic wife and the wife short circuits in water and he goes looking for a replacement but meets a woman who he has a lot of arguments with along the way. Eventually he realizes that this woman who wasn't totally compatible him provides a much more meaningful sense of love than this robot he had who was very beautiful and did everything exactly the way he wanted her to. That's an angle we could take on this. A certain amount of dissonance between unique and not totally matched up human individuals might be a better kind of reality.

Victor Motti: I think the movie *Her* shows another aspect regarding a relationship with artificial intelligence or robot that doesn't actually need the embodiment. It's only an operating system.

Thomas Lombardo: It's an operating system that possesses the kind of personality that resonates beautifully and harmoniously with the human character. So even though she doesn't have a physical body she is totally in tune psychologically with him. He's in love with her. The message in the movie was still that someone who is perfectly harmonious with you, your personality, tastes, and likes, may not be a very good thing psychologically for you. So to go looking for the perfect match is a psychological weakness. It's important to be challenged in relationships. It's important for the individuals not to mesh up perfectly because of course we don't mesh up perfectly with reality in general. We have challenges, difficulties, and problems and that builds our character. It helps to develop us psychologically. So to have the perfect match whether it's virtual, whether it's romantic, whether it's through some kind of dating service, these realities may not serve us well psychologically.

Victor Motti: Well in that case, using your words, the conscious mind of humans will not evolve, it'll become static.

Thomas Lombardo: Yes, Jeanne and I in fact have had discussions over the years regarding that. This is my own belief on this and not everyone may agree with it. But I think that to have a life partner and to work through a life together with its challenges on the outside and the challenges between you and the other person is an essential piece of our individual evolution. We cannot completely self-actualize as individuals without an intimate other and part of the intimate other is going to be the challenges that you face with that other person and the working together to address life challenges as partners. So in terms of our future evolution I think that we need to keep in mind that part of our individual evolution in the future is going to involve the intimate other, the partner working with us and having certain elements of dialogue and friction along the way.

Victor Motti: So do you believe that in science fiction literature there isn't much change in the practice of love or lovemaking or sexual behavior envisioned in the next decades? Are we going to expect that a new territory could open up for humans to experience? Are we going to see any big changes on the way to the future?

Thomas Lombardo: I can see for sure that love, sexuality, and intimate relationships will diversify and evolve in future. I will give you an important theme that gets addressed both in contemporary psychology and has also been addressed in science fiction. Through most of human history we have existed, at least recent human history of the last few thousand years, in male dominant societies. We have had very strong sexual stereotypes of the male and the female and what the male is supposed to be like and what the female is supposed to be like. The marriages that have

come out of these relationships have only reinforced and emphasized this male-female division, this social political superiority of the male over the female. This a complicated issue but in general our marriages and our relationships mirror this male dominance within society as a whole. So one question that comes up in science fiction is what would it be like if the male dominant type of society that humans presently exist in were to disappear and instead we had an equality of the sexes. We had less stereotyping of what each sex could do in life. A great example of a classic work in a utopian thinking of the last century is Charlotte Gilman's *Herland.* Here the society is made up entirely of women; there are no men in it. The women have evolved the capacity to reproduce without the need of sex. Women in this society are self-actualized individuals. Gilman wrote this book because she felt as if the society that she lived in was repressive of women's self-actualization, identity, and power. A lot of people are quite familiar with a much more recent book by Margaret Atwood *The Handmaid's Tale* in which we have a dystopian future. Male dominance becomes even more extreme than it is today where women become literally objects that are used simply for reproduction and this is a nightmare, a nightmare of the future.

Victor Motti: I and my wife are actually watching that TV series based on this novel. It has some striking similarities with the nonfiction current reality in today's religiously governed countries like Iran or Afghanistan.

Thomas Lombardo: Yes, right that's a very negative narrative. So one fundamental issue in thinking about the future of sex, gender, and intimate relationships of males and females or male-male or female-female is the question of each of the genders having equality of psychological, social, political status and power versus not having that. A lot of science fiction simply reflects contemporary thinking about males and females where the heroes are the males and the women

are serving them off to the side as the romantic interests of men. But in order to be really inventive and open in terms of thinking about the future this is a very significant issue that could change and create totally different kinds of societies. I mentioned those two books but there's plenty of other ones. In fact, it's good to look at female authors in science fiction who have addressed issues of gender and sex like Ursula LeGuin in *The Left Hand of Darkness* and Joanna Russ in *The Female Man.*

Victor Motti: A very interesting assumption in your talk about the future of relationships is of course that there is a couple of lovers—I mean two partners. But in the Middle East, where I come from, having several partners is legal. Of course not for women but for men it is legal to have four wives. Polygamous relationship is very common in the Middle East and areas under the influence of the Islamic law. There are some other regions of the planet where a woman can have several husbands. I remember that in one of your commentaries regarding Olaf Stapledon you were talking about not only two but several people that can have mental union. One of these narratives that you were talking about was that it could be possible in the future that our body and mind become separated. We can have a mind without a body. Can we say that it would be possible that a fusion of minds, of several minds not just two, can happen?

Thomas Lombardo: There are lots of factors going on in the Stapledon's vision of multiple sexes. First, we have to envision that future humans will have a level of telepathic power so that they can unite mentally. Second, we need to envision that procreation becomes a much more thoughtful and orchestrated type of reality where you just can't have a kid because you have an attraction to someone of the complimentary sex, you have sex and then boom you have a kid. In Stapledon, in

a sense, people don't have a right to have children they have to earn it. They have to come up with a cluster of sub sexes who contribute into the creation of the child and provide for a highly evolved offspring out of this merging. You brought up the point and it's a good point to make that what we consider to be either acceptable or desirable or possible with respect to how many people bond together into intimate relationships can vary. One possibility is where you have one male with many females. Or you can envision a queen female and she forms bonds or mates with many males.

Victor Motti: Many of these have been already experienced throughout the human history. For example, Sultans had the harem and the concubines. I'm interested to know what science fiction writers have explored that will be totally new. Today because of the Internet and easy access to adult entertainment, I could say many things have already been explored or shown. Everything that could be fantasized by men, or sometimes by women. But can we say that there are even more visions that have not been already shown but are part of the imagination of science fiction literature writers?

Thomas Lombardo: I could say that a diverse set of visions have been presented. Often they become part of mainstream culture, like for example the issue of virtual sex and virtual relationships, where it's an avatar or a simulation of yourself and of another who have the relationship. That has been envisioned in science fiction— for example in Fredrick Pohl's "Day Million"—that to a degree have actually come to pass in contemporary society. We're still evolving that capability. But that is a vision that originally came out of science fiction back fifty to seventy-five years ago. In *Accelerando* by Charles Stross, which is a science fiction novel, the possibility is presented that one can create multiple conscious strings of your own personal identity. So for

example here's my body right here but I'll also download my conscious mind into a second body, a robotic body or into a computer or into a third one. In that way I encounter three or four or five different individuals in my life who I want to have long-term lifelong intimate partnerships with. I could have them with all four or five persons because I could multiply myself four or five times.

Victor Motti: I can imagine that today's bipolar patients can become multi-polar people in several bodies and have different lives simultaneously in parallel with each other.

Thomas Lombardo: Yes, exactly. But the idea here is that you have one distinct identity. Let's say we're going to download your distinct same identity into three or four different physical instantiations. And each of those physical instantiations can have its own relationship with a different individual. That's what happens in *Accelerando*. You multiply yourself. In the science fiction trilogy, *The Neanderthal Parallax,* all of the citizens of this envisioned alternative reality are bisexual, all of them, and have a same-sex partner that they live with for three-quarters of the month. When the females go into heat they temporarily live with a complementary sex partner. So everybody has one of each and that's the norm. The norm is to be heterosexual for four or five days during a month and homosexual the rest of the time.

Victor Motti: I am interested in the future of love and sex because you know sometimes divorce between couples is simply because people cannot tolerate the different personalities or identities inside a person. If future technologies will allow us to differentiate our mental richness, or depending on how you see it we could say our mental illness, if a typical person can have several bodies and several distinct identities we can of course find a very exotic solution for the problem of divorce between couples.

Thomas Lombardo: I would argue personally there's a value in monogamy. You could present the argument that as people live longer lives the norm is increasingly becoming something more like sequential monogamy. So every 50 years or so you switch partners. If we were to live for a huge extensive time—like in *The Last and First Men* they live for a quarter of a million years—that's their life span—so across that lifespan they have multiple partners, multiple love relationships, and not just simply one. But then Stapledon believed in polygamy at least for the male; he believed in polygamy personally and philosophically too. So it's conceivable that as we live longer we will increasingly be sequentially monogamous as opposed to just being with one partner. We can have polygamous cultures and all of that as well. So here's another possibility that's a little bit strange. I'll mention two novels by Philip José Farmer. He was a science fiction writer of the 1960s through 1990s or so, a very interesting writer who penned two novels *Flesh* and *The Lovers.* He is very well known for bringing a lot more explicitness regarding sexuality into science fiction. *The Lovers* is a story about a love affair between a human and an alien female. Various other science fiction writers have also entertained that possibility too but this is a very famous book about that. *Flesh* is a book about the future and it's an envisioned future in which biotechnology has advanced such that we can hormonally supercharge a male. One male could have sexual relationship with tens of thousands of females within a short period of time and literally fertilize the entire population of a society. In *Flesh* a male is chosen by a matriarchal society of the future that has a queen who rules their society and periodically a male is selected and injected with huge amounts of sexual hormones so that the male can participate in this religious ritual over which time he has intercourse with all the females in the population to produce offspring. This is very inventive along many dimensions.

Victor Motti: After learning about all of these narratives I could say that there is some richness in nature that could inspire many visions for the future of love, sex and family. There is a richness also inside the human mind. We can use perhaps technology to explore the richness of several personalities or identities that could reside in just one person, using them to differentiate into several bodies and experience a range of union between couples or whatever you call them. A lot has not been yet explored, we could have new, different or diverse experiences about the changing relationship or the changing intimacy among humans.

Thomas Lombardo: Yes, nature of course has inspired us in the past creatively along lots of different dimensions and we can look to nature with respect to love and sex for inspiration. Another key thing to keep in mind is that sexuality to a great degree in the past was necessarily and functionally connected with reproduction. But reproduction and sex have been decoupled now. So people talk about having sex for the sheer enjoyment of it— for the expression of love and of intimacy. It doesn't necessarily have to lead to procreation. Although we do have religious mindsets even today who will say you should really not engage in sex unless your intent is to have a child.

Victor Motti: In addition to reproduction, given my background in the Middle East, I would say that in more traditional societies, marriage is a part of power sharing, a key element of nepotism, a sort of bargaining chip between different wealthy and powerful families who govern a country through exchanging their boys and girls with each other, to have those families tied together more tightly, to remain united with each other so that they maintain the stability of the power and wealth structure.

Thomas Lombardo: Exactly.

Victor Motti: In some Middle Eastern countries the power structure and the so-called political parties are formed entirely around the concept of marriage. The political figure is the son-in-law of the head of state and the female behind the scene is the bride of another family. They simply form an entire, sometimes hidden, web of power sharing with each other for wealth distribution using marriage as the key tool or cement to make the union solid and strong.

Thomas Lombardo: You're perfectly correct on that obviously, but the fact of the matter is that Europeans did the same thing. European royalty did the same thing.

Victor Motti: But not today—I mean not in the governments.

Thomas Lombardo: Not today anymore because royalty in Europe has disappeared or diminished significantly in power, but in the past hundred years most of the kings and emperors in Europe were related to each other through marriages. When you look at the history of marriage it appears that a significant motivator behind arranged marriages was in fact to cement social cohesion, relationships, and functionality between different neighboring tribes.

Victor Motti: So you are saying that in the future neither power sharing nor distribution of wealth among the powerful families is going to be the key function of marriage—not even reproduction and making babies. Biotechnology could be used to produce customized babies if you like. Then we will have pure love, right?

Thomas Lombardo: Yes, as an ideal, pure love and intimacy. Functional partnerships too. Partnerships in whatever the businesses and life pursuits of the individuals. The individuals may

want to get together to work together on one hand, but we should also think in terms of ideals, of what enhances mental health, and what is good for society individually and collectively. We have to also consider the question of increasing diversity. So given our technological power and our increasing understanding of human nature it seems to me that we'll see more human diversity in the future not less. When people for example talk about the future evolution of humanity it seems much more plausible to me that in the future humanity will increasingly diversify. Right now given our planetary society, there's a great deal of intermixing going on between different regions of the world and you could say that humanity is homogenizing. But at the same time I think that we will see diversification going on in the future between different variations of humanity, and if that happens of course we're going to see diversification in marriages and relationships too.

Victor Motti: Or we can anticipate interracial marriages to be more common in the future.

Thomas Lombardo: Yes, interracial. Even though it sounds like a slightly perverse notion we should consider that we're going to have intimate relationships with members of alien species. In fact, somebody might say from a philosophical point of view it's good that we bond together with aliens because that will enrich our empathy and understanding of the great cosmic web of life. Go up and meet with the Martians. Where there's alien civilizations, you will find creatures that are in some sense compatible with us even to the degree that we could mate with them. That could happen in lots of different ways. I want to highlight the notion that fundamentally love is a psychological reality, and there is a physical embodiment of it. But it's a psychological reality and so when we think about the evolution of love, marriage and families we can't just simply think about the biological end of this. We have to think about how we psychologically and in particular emotionally can evolve our capacity for love and understanding of each other so that love and

marriage in the future is more highly evolved than it is today. Because we can evolve ourselves individually and therefore we can evolve ourselves as couples or as triads or whatever the case may be.

Planetary Wisdom and Cosmic Consciousness

Victor Motti: So far we have touched on many different topics about the longer term futures. Any suggestion about how to conclude this dialogue?

Thomas Lombardo: I would add that on the last part of the dialogue regarding sex, love and parenting I introduced a few books written in science fiction on that topic. But there are numerous other books in which the readers of science fiction will find various ideas on sex and gender in the future. I recommend one of the great science fiction writers of the 1960s,70s and 80s, Robert Silverberg, a very prolific and popular writer who wrote one of the most fascinating and imaginative books on the future evolution of humanity titled *Son of Man.* It was written in the Cultural Revolution Hippie period around 1970. It contains an extreme amount of inventive sexual activities—sexual activities between all different kinds of future humans—it is very imaginative and literally borders on the pornographic for that matter. So both in terms of inventiveness and thinking about the diversification of human evolution and the diversification of sex and love and gender I highly recommend this book.

Victor Motti: Since you are bringing up the hippie culture I should say that when I shared part of our dialogue on consciousness with a couple of colleagues who are experts in international issues their immediate reaction was that so you are talking about the past, the hippie culture of the 1970s and not the future. It again reminded me of the topic we started with. I mean a few people disliked that you put the key term *consciousness* in your book series instead of mind or intelligence, which are more fashionable or marketable these days. Now that we are ending the dialogue perhaps we

can tell those people that consciousness, mind, and intelligence and other key terms should be in the same category.

Thomas Lombardo: Well I have a few comments. First, during the hippie period there was indeed a lot of talk about consciousness and about expansion of consciousness, through the drug culture in particular. But also through the philosophies and practices influenced by the East. So one can associate the term consciousness and the study of it with both the hippies, as well as Eastern philosophies. But that is only one wave of many waves throughout history and across the globe regarding interest in consciousness. In contemporary times and over the last 20-30 years especially there's been a great surge of interest in consciousness and there are various centers and conferences about it. In fact, there's one here at the University of Arizona, in which people from diverse disciplines like physics, biology and also Eastern traditions do study and research on consciousness and report on their ideas.

Victor Motti: So it is a multi-disciplinary field and no longer associated with the altered state of consciousness through drug culture.

Thomas Lombardo: Yes, that's just a piece of it. If I say altered states of consciousness what I'm talking about is outside of the normal type and structure of human consciousness which people in general possess. How might one modify it, expand it, and alter it. Consciousness is a natural phenomenon; we all possess it to different degrees. It's something that can be scientifically and empirically studied. It's a great deep question in both philosophy and science: What is consciousness? And how does it arise in a natural world? It doesn't have to be associated with the spiritual or the religious. It's a fundamental reality that we all participate in. We are all conscious.

So what is consciousness, how does it develop, and how can we further enhance it. It's part of nature. My response to people who tend to associate it with either the hippies or drugs or mysticism or spirituality is that there's a lot of study and research going on all across the academic disciplines at this time.

Victor Motti: Even today in the corporate world, in businesses, there are several consultancy firms which provide the service of organizing mindfulness sessions inside the corporate rooms for the top managers, as well as the staff, because there is a lot of workplace stress and tension in the business of large corporations, in particular financial sectors or other very rapidly changing businesses. Some consultants organize mindfulness sessions and this is of course a very profitable business itself.

Thomas Lombardo: Yes, it is and in fact the mindfulness movement which has become very popular in the last ten years is a set of diverse efforts to instruct and guide people in the development of controlling one's consciousness. If one looks at normal consciousness, one thing about it is that it frequently is very jumpy, different images and feelings keep popping in and out of the mind and often they are agitating. I have one friend who has a strong Buddhist background who feels that the central challenge for humanity is learning how to better control their consciousness to make it more uplifting, organized, and focused and not so scattered, superficial, and fragmented. He practices meditation every day and that's how he attempts to control and evolve his consciousness. So mindfulness is in fact the practical effort that takes different forms to understand consciousness, to attend to it more, and to learn how to focus and control it more with different philosophies behind it as to what that means. Consciousness has always been a practical challenge but at the same time a philosophical problem. It's a very practical issue with

very practical concerns. As a summary point for our discussions I would suggest that science fiction, the reading of it, the experience of it, is a way in which we can stimulate, enhance, expand, and enrich our states of consciousness.

Victor Motti: You also had an emphasis on reading the novels, the literature, and not only watching movies.

Thomas Lombardo: Yes, because the movies tend to repeat the same plots, dramas, and philosophies over and over again. Not all of them, but a lot of them. There's the issue of what is going to sell, what is going to be marketable, and what people are going to connect with. So it tends to be constrained in that regard. But science fiction writers in general have been more creative, diverse, and expansive in how they approach science fiction and the themes and ideas that they develop. So I would definitely recommend the reading of stimulating, consciousness expanding novels.

Victor Motti: Are we going to miss anything if we do not have time to actually read all the science fiction literature but only your book series. Can we become engaged or involved in discussions around science fiction and its relationship with the evolution of the consciousness and mind?

Thomas Lombardo: Science fiction addresses a diverse set of different themes, but many of the most important ones are discussed in volume one of my book series. I continue to discuss them in later volumes. One key theme is the exploration of outer space and what we encounter as possibilities in outer space, including contact with alien intelligence and alien civilizations and what that would mean and how that might transform humanity. There are also the issues of humanity and technology and how technology may transform us; whether technologies can in fact become

conscious; the robot as an archetype within science fiction; and biotechnology and the possibilities of that in the future where we may modify and purposefully evolve our own biological forms or the biological forms of other animals. Also, connected to that would be the whole general theme of modifying or controlling the environment to the point of terraforming as another fundamental theme.

Victor Motti: How about social innovations, I mean new different forms of governance or new economies, or new social contracts.

Thomas Lombardo: Yes, that's another one, a very fundamental theme, which is utopian and dystopian science fiction and the possibilities of different types of societies. Societies with different values related to the performance of government, with different ways of organizing people together, something that goes all the way back to H. G. Wells and before. In fact, science fiction has repeatedly delved into the possibilities of future societies, or you could just invent and speculate on what alien societies would be like and how they might be different too. So something we brought up very early in this dialogue was that science fiction deals with the *future of everything* and consequently it's going to deal with technology, space exploration, ecology, biology, psychology, and society, all the different fundamental features of human existence. Some writers will emphasize certain dimensions more than others so that needs to be taken into account. But the best science fiction writers we mentioned earlier write about very complex, intricate and rich visions of the future. They are integral. I also should mention in this regard that both theologians and philosophers throughout history have speculated and thought about what indeed is the big picture of the universe, of everything. What does it all mean? What is the cosmos? Does it have a purpose? What direction is it possibly taking? Those are the deepest philosophical

questions. Science fiction writers also address that part of the big picture thinking. So I would suggest that science fiction enhances one's consciousness by expanding and stretching it to consider other perspectives on the nature of reality with an emphasis on the future.

Victor Motti: I know that you have made an important comparison between *heightened future consciousness* and achieving *wisdom*.

Thomas Lombardo: Wisdom is identified by philosophers, psychologists, and spiritualists throughout history as a heightened state of consciousness, a heightened awareness and capacity for dealing with life. My proposal which I develop in fact in my book *Future Consciousness*, which was published just before the science fiction book series, is that if you look at the different definitions of wisdom, a lot of the qualities that are identified in being a wise person really come down to having a heightened sense of future consciousness. Wisdom ultimately is a heightened awareness of reality that allows one to guide and direct the future toward the best or most positive ends. So if one heightens one's future consciousness and part of the heightening is going to be creative—that's what science fiction provides for us, flexibility and more openness—then that indeed will facilitate a more informed, thoughtful and positive guidance into the future. So I think that a lot of people when they talk about wisdom are really talking about how you develop your mind so that you can guide the future better.

Victor Motti: But many believe if you have a grasp of history that could be enough to achieve wisdom. You are saying that we need to shift our focus from the past to the future possibilities.

Thomas Lombardo: I would say that one of the great sources of information and inspiration for thoughtful considerations regarding the future is going to be through understanding human

history. We look for the patterns in history, we look for the insights through history, and we look for the flow of time as it has occurred within history. That informs us. It gives us a sense of understanding of how things have been moving along, what people think about this process of change, time and development. That will provide for us the capacity to more intelligently and more thoughtfully deal with the future. So one doesn't discount history. I would say though that the primary purpose behind the human capacity for memory of which we are very good at is to inform us and help us to guide the future. We remember so that we're more intelligent about the future. That's part of the expansion of consciousness, that we have deep consciousness of the past. So it's not like history and the future are opposed to each other. But one shouldn't get stuck in history, one has to look forward through an informed state of mind regarding history.

Victor Motti: I was talking to a friend of mine who is an expert in artificial intelligence about the prospect of technological unemployment because of the rise of machines and automation. I use a specific method which is called the Zurvan integral framework, which is introduced in my book *Alternative Planetary Futures.* You are required to name a few heroes and anti-heroes for the future transformations. When I tried to explain to my AI expert friend what could be a narrative for the future of massive unemployment because of technological developments he said that if your pay attention to history we have already a very well-known hero whose name is Abraham Lincoln. Actually he made the comparison with the Emancipation Proclamation. He told me that workers are slaves and their employers are masters. So artificial general intelligence could actually emancipate all these slaves from their masters. In drawing such a comparison and similarity with this historical period in US history you can anticipate that there will be a big war on the planet between those who are keeping the old order of the world versus the new emerging order. He

told me that many times you can find heroes for your narratives by simply recalling history. I was trying to convince him that sometimes we also need to look at some science fiction literature because they are preparing our consciousness for disruptive changes and discontinuous development or progress into the future, as opposed to what has already happened during the human history.

Thomas Lombardo: I love history and even considered as you talked what lessons can be learned from Abraham Lincoln and the Emancipation Proclamation and the subjugation of large populations of the world by an elite portion of the human population. All of that you can study in looking at history and it will be inspiring. But then you also need to consider that if that's the way it has been and this seems to be the nature of humanity, how would I imagine a different reality and future. What would be the consequences of it? I could ask your friend try to write a story in which machines have taken over all the work. No one has to work at all. What would life be like and I'll toss up at him something, which is both history and about the future and science fiction at the same time. A great novel by Jack Williamson written around 1950 called *The Humanoids* envisions humans creating robots which do everything for us. All kinds of labor are completely eliminated and the robots' primary function is to serve humanity to the point where they are protectors. They don't let us risk danger in any way whatsoever because their function is to make life as easy and enjoyable for humanity as possible.

Victor Motti: Isn't that vision a sort of paradise engineering?

Thomas Lombardo: Yes, it is, but it turns out to be a nightmare. It turns out to be a psychosocial nightmare because if the machines take over responsibility for everything including protecting us

and we become like constrained imprisoned children who have nothing to do and aren't allowed even to go out and walk in nature for fear that you might get stung by a bee. So AI providing for all our needs may not be a desirable or preferable future. Science fiction writers have discussed this and have written about it repeatedly. You can imagine both negative and positive scenarios on it. Write a story on it and consider the consequences. Science fiction would inform you of those different possibilities. I'm not saying that it might not be a good idea in some respects to have machines taking over most of our present types of jobs and vocations but we also have to consider in the big picture what indeed we're going to do. Where do we fit into this? What happens to humanity?

Victor Motti: Some objections to using science fiction in trying to understand what is going to happen next is that people would say that human nature is fixed or static, it doesn't evolve. Earlier you mentioned that in most science fiction movies every technology is present, every super fantastic gadget is there, but future humans are essentially like us today. Future humans behave or have the same values or have the same mental capacities as we have today. So people would say that human nature is going to be untouched, human nature simply doesn't change at all. When we were talking about the future of love or sex or relationships, a certain group of conservative people would say don't try to open up different possibilities, we need to have a certain pattern of behavior to remain indefinitely as they are now into the future. We don't like (or want) any change in human nature.

Thomas Lombardo: Well actually this is a case where history is going to provide an unequivocal refutation of that position, that human nature does not change. Because indeed what natural

history, social history, and archaeological history reveals in great depth and power is the evolutionary transformational nature of everything and that includes humans so.

Victor Motti: Can you give a few examples?

Thomas Lombardo: Until 10,000 years ago we were much more nomadic beings. We had a different kind of psychology, we did not have cities, we moved about and so our way of life and our values and our way of thinking were much different. We were often very animistic, which a lot of us even still are. We saw spirits in everything in nature. If we go back five hundred thousand years, we'll find that our brains were significantly smaller and that the frontal lobes in particular were smaller. So our capacity for foresight that we have today was undoubtedly very different. If one looks at the more recent patterns of transformation one sees this overall movement toward more democratic cultures and less authoritarian top-down cultures, which changes mindsets as well. It seems to me that evolution is a pervasive fundamental phenomenon at all levels of reality and that includes humans. In fact, we may be changing faster now. There's evidence that genetically humans are mutating at a faster rate than even a couple thousand years ago. So to say that humanity is somehow constant is to fly in the face of fundamental natural reality. We're a part of nature and nature is evolutionary. We can see at a technological level that we have changed. We shouldn't suppose, like as in Star Trek, that while transforming all of our technologies somehow we're going to stay the same. I mean all of our technologies are having an impact on us. There's evidence now that the use of computer technology, smart phones, and Google and web-based consciousness is actually causing significant changes in the architecture of the human brain. So the notion that human nature is static is ridiculous. It's sort of like saying the Earth is flat. As ridiculous as saying that we were created exactly the way we are now roughly six thousand years

ago, as Bishop Ussher calculated in his chronology, and we haven't changed at all since. There's a connected myth here too—the myth of unique cultures. Human cultures across the planet have been interactive and transforming realities since humans began to interact with each other as tribes. There are no pure static cultures. Because cultures are constantly exchanging products and ideas between each other and transforming. As the environment changes, as other factors come into play. So our cultural mindsets are in a state of continual evolution and interpenetration with each other.

Victor Motti: It's the same topic that I have worked on in my book *Alternative Planets Futures* where I highlighted the emergence of the planetary identity.

Thomas Lombardo: Yes, exactly. That's being facilitated in part because of the capacity to more effectively communicate with each other. As we think out our big issues we realize that a lot of our big issues are going to need to have planetary initiatives to address them. We can't conceptualize humanity as a set of distinct nations or cultures motivated for its own benefit. There's ways in which we have always been affecting each other. We've been moving things along collectively. So having a planetary consciousness is a critical emergent quality. All the way back to H. G. Wells in 1900; he was arguing for a planetary consciousness too. So was Stapledon in the 1930s.

Victor Motti: Many would say that because of the rise of nationalism or far-right parties on both sides of the Atlantic that perhaps globalization is actually dead or is in retreat. Or an entirely new globalization, which could be led by China could be dangerous. I would say that globalization needs open borders, immigration flows between countries, or flow of goods and capital between

borders. But *planetization* or the emergence of a planetary consciousness or planetary identity is much more general, less dependent on economics or international trade. Because assuming nationalism, even though there are closed borders or protectionism, we can use the current technologies to develop our conscious mind. The evolution of our consciousness doesn't need open borders but open minds; it doesn't need at all free flow of capital, workforce, or goods or shipments of containers between oceans; it just needs a curiosity to learn about the other cultures and civilizations, curiosity to engage in conversation the other, the foreigners, the aliens. Just like what we are doing right now, we have not moved to live in the same area, but we are talking about the planetary level of consciousness.

Thomas Lombardo: Yes, and we haven't as far as I recall ever exchanged economically, any products that each of us makes and tries to sell to the other one. When you think about nations in the world, or different cultures in the world, to use an analogy or metaphor, I am an individual and so are you. Each of us is an individual and we have certain distinctive qualities. These qualities of course change over time so we're not static as individuals. We are individuals and yet at the same time we also are part of groups, we interact with each other as individuals. We may feel threatened that our individuality and uniqueness is going to get controlled and swallowed up and suppressed by the group. But we can't walk away from the group, we can't be solitary creatures. What we need to do is continually work out how we can keep our distinctiveness and individuality and perhaps even enhance it and yet at the same time interact with each other as a social creature. We can't avoid being a social creature unless I'm going to go hide away on an island someplace by myself and be a hermit. Part of the mistake of nationalism and ethnocentrism is that neither of those positions realizes how critical and central is the interaction with the other for its own

individual distinctiveness. We are open systems and when I say let's put up walls what that does it constricts the individuals who are behind the wall. It constricts the nation because it can't interact with others and it is through the interaction with others that individual reality is enhanced, stimulated and developed. So Japanese, Chinese, Russian, American, Persian, Egyptian cultures, all of those cultures, and all of the associated nations, they are all a product of historical interaction over centuries and to try to cut them off from the other is based on a fundamental misunderstanding of the nature of what we are.

Victor Motti: In my book *Alternative Planetary Futures* there is a section on the role of the brain wiring in shaping our open or closed identity. Scientific studies show that our unconscious mind automatically, without our awareness, divides our surrounding based on selves or the extended I and the non-significant others. When you were talking about the science fiction visions of facing extraterrestrial aliens I thought that perhaps our planetary identity might be realized in some distant future if indeed some alien civilizations or cultures could be discovered, or they discover us. Because our brains naturally need to identify someone to be the non-significant other. We could say that the aliens are the others and all the cultures on the planet are our selves.

Thomas Lombardo: In fact, that scenario has been discussed and talked about in science fiction too. It's the encounter with the alien that will unite humanity. But we should also consider the following: The alien culture would bring with it diverse and different ideas, inventions and perspectives that we as humans have never considered. That will enrich us. We may feel united relative to them at first but in opening to the alien our states of consciousness get expanded too. In coming to a conclusion of this dialogue I should mention in Olaf Stapledon's *Star Maker.* He

described the process by means of which the universe in the distant future integrates into a single cosmic mind. But there are a set of barriers, of limitations, of constraints that minds have to break free of to expand outward such that they can encompass the totality of intelligence and mentality in the universe. So no matter how far out we go, no matter how much we bring in of the other, there's still another other behind that, that we may need to encounter and we may need to somehow integrate as well. In the end of Stapledon's novel the galaxies can only unite when the biological comes to the realization that the non-biological is part of the overall intelligence of the universe. That takes a lot of work.

I can just sum it up here. Consciousness is constrained by the perspectives—the thoughts, the ideas, the mental frameworks that we use to interpret reality. Science fiction facilitates the expansion of that, of those frameworks, of those perspectives. It expands out into the future, into possibilities. So by reading it you expand consciousness, and to break down the walls that divide us is an expansion of consciousness, of getting past the narrowness of our present perspectives. Science fiction helps to do that. Science fiction will facilitate that expansion and growth of mental frameworks.

Victor Motti: Thank you very much for this summary. I hope that people take it more seriously and begin reading your book series, *Science Fiction: The Evolutionary Mythology of the Future*.

