



## On the Crucial Significance of the Completeness of the Scientific Worldview for the Future of Human Civilizations

Attila Grandpierre

Konkoly Observatory of the Hungarian Academy of Science

### Abstract

We need a life-affirming, intellect-affirming, and world-affirming civilization. Albert Schweitzer has pointed out that, historically, there are two regions in which life-affirming and world-affirming civilizations exist: Europe and China. I point out that they are historically related. Science has played a crucial role in the rise of Europe in the last five centuries and show how can the rise of China can be facilitated by the new, comprehensive science of ecology. I show that the most powerful tools of science are its first, fundamental or ontological principles. The first principle of physics is the least action principle ( PLA ) , because all the fundamental laws of physics can be derived from it. It was Ervin Bauer who worked out the most promising version of theoretical biology. He formulated the universal principle of all living beings. Inspired by Bauer's principle, I succeed to generalize the least action principle of physics and extend it to biology, allowing the endpoint of its integral to be selected according to biological aims. The biologically generalized action principle is the principle of greatest action, the PGA. It unifies in itself Bauer's principle and the principle of greatest wisdom. In the next step I generalized the PGA to the life principle which involves in it the principle of greatest vitality and the principles of highest emotional and intellectual quality. In this way, the life principle is the unified principle of physics, biology and psychology. It can be conceived as the principle of greatest health. It offers the first principle for a cosmically grounded comprehensive ecology having exact scientific grounds. Understanding the life principle have a fundamental impact in promoting the ecological civilization by the comprehensive ecological worldview. This healthy worldview can serve as the most effective motivational force for humanity to build a healthy, ecological civilization. Due to its exact scientific basis it offers a comprehensive science that is much more powerful than the present Western science built only on physics. It offers a much more attracting, broad and deep curriculum for high education. It offers a scientific basis to mobilize the exuberant bioenergy and galvanizing vitality of mankind and promotes a high level of wisdom. It offers a profound scientific proof for the existence and overall significance of the Qi.

### Introduction: We Need a Healthy Civilization

The World Health Organization defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". It is important to extend this definition and embed our health into the context of Nature. Health is defined here as a state of complete physical, emotional, intellectual, social and ecological well-being. In comparison to materialistically conceived life-as-mere-survival, healthy life proceeds high above that level. This height of life is what gives value to life. This vertical distance above the

survival level can be identified with the quality of life. Health is the maximal, top level of life's quality.

We need a healthy, life-affirming, mind-affirming and world-affirming civilization. As Albert Schweitzer, the Nobel-laureate doctor, philosopher, writer had shown, life-affirming and world-affirming civilization had been present in two regions: in Europe and in China ( Schweitzer 1946, p.xiii ) . Unfortunately, Western thought turned into the wrong road ( *ibid.*, p.xvii ) by the dominance of materialism. At the same time, “nowhere, again, has the problem of world- and life-affirmation has been felt in so elemental and comprehensive a fashion as in Chinese thought” ( *ibid.*, p.xiv ) . I had shown that the ancient Silk Road provided a unified civilization among ancient Central Europe and China ( Grandpierre 2017 ) . Health is a fundamentally ecological concept because life in the Universe has a fundamentally interconnected nature. By the term “ecology” I mean here the science studying all the fundamental communities of life as well as their relations and interactions. Now if the Universe as a whole is living, then ecology becomes a comprehensive, cosmically grounded science, involving in itself all the other sciences.

## Two fundamental tendencies in historical civilizations: natural and modern, ecological and materialistic

In the history of humanity, we may observe two fundamental tendencies of civilization: natural and modern. The natural civilization can be characterized by the harmony between man and his world: the living world of Nature. As Mircea Eliade, the outstanding historian of religion had shown so powerfully in his book, before the origin of Western civilization, all people lived and experienced sacred cosmic life ( Eliade 1987, 3 ) . “Man in pre-modern civilizations courageously assumed immense responsibilities – for example, that of collaborating in the creation of the cosmos, or of creating his own world, or of ensuring the life of plants and animals, and so on. It is responsibility on a cosmic plane, in contradistinction to the moral, social or historical responsibilities that are alone regarded as valid in modern civilization. For pre-modern man, the Cosmos was a living and articulated unity” ( *ibid.*, 93-94 ) . “Nomadic hunters and sedentary cultivators both live in a sacralized cosmos, both share in a cosmic sacrality manifested equally in the animal world and in the vegetable world” ( *ibid.*, 17 ) . This sacrality of life and the world has been pushed into the background by the increasing dominance of materialism. In this way, the sacred life and world has been replaced by a nihilistic, profane civilization. “The completely profane world, the wholly desacralized cosmos, is a recent discovery in the history of the human spirit” ( *ibid.* 3 ) .

This ancient, life-affirming sacral world order has been surviving in the nature religion/shamanism of ancient Eurasia until 1200 A.D. in the form of natural religions, and continued until today in Confucianism and Shintoism. With the birth and extension of the Western civilization, this ancient life-affirming civilization has been slowly replaced by an increasingly materialistic and profane civilization in Europe, creating a schism in history.

As in ancient civilizations, in the first years after our birth our system of values is given by our life. Later on, our learned, secondary system of values arises by the norms of society we are living in. When the secondary system of values is fundamentally different from the primary one, a conflict arises resulting in a schism. Due to this schism, our original, intact, natural personality will also suffer a schism. Gordon W. Allport, the American psychologist of personality pointed out that when Western children become three-five years old, their self-identity will suffer a fundamental change alienating them from their original nature. “The I of the Western man sticks out like a stubbed thumb. In other cultures it blends more readily with nature and with society” ( Allport 1961, 116 ) .





George Land és Beth Jarman in their book "Breakpoint and beyond: Mastering the future—today" ( 1992 ) has surveyed the creativity level of 1600 children between the ages of 4 and 5. Shockingly, their results had shown that 98% of them scored at genius level. They repeated their measurements 5, 10 and 26 years later, on a much larger number over 200 000 ( Land and Jarman 1992, 153 ) . They found that the same group of children at ages of 10, by now in grade school, had rapidly declined to just 30%; a 68% reduction! At age of 15, only 12% had been reaching the creative genius level, and around their age of 31, only 2% of them. Establishing a huge gap between real life and the dry, materialistic curriculum, the already alienated parents of Western families and the compulsory Western education system suppresses free will, curiosity, interest, and motivation, while enhancing nihilism. My conclusion is that preserving our genuine human nature without such a fundamental schism would make us much more creative, healthy and happy. A civilization in which more than 90% of adults are creative geniuses enjoy a higher quality of life and an enormous advance in its future development.

The modern civilization can be characterized by the materialistic worldview in which the living world of Nature is conceived as matter, life and human reason are epiphenomena of matter. Consequently, life and human reason becomes subordinated to matter and are constrained to serve materialism. As Leo Strauss had shown, modernity is the project to emancipate the will from all 'externalities' – God, Nature, and history, successfully. «The crisis of modernity is exemplified in the fact that "modern western man no longer knows what he wants" and has lost all "faith in reason's ability to validate its highest aims."» ( Strauss 1989, 81 ) . Losing its original, internal, natural direction, human will has become an easy pray of materialism. History has become losing its track, time is shifted out of its joints ( Shakespeare 1602 ) . Considering that human will is the primary resource of building a civilization, this means that modernity has devaluated and lost its mainspring: the inner motivation of its people.

Indeed, Western people has lost their faith in their own civilization ( Ferguson 2011 ) . Western world-affirmation and life-affirmation has lost its vitality and become largely ineffective. In Europe, the corruption of civilization seems to begin with ancient Greeks, from the roots of Western civilization. As Strabo wrote, referring to Homer, who lived in the 8th century B.C., "the manner of life customary among us has spread almost every where, and brought about a change for the worse, effeminacy, luxury, and over-great refinement, inducing extortion in ten thousand different ways; and doubtless much of this corruption has penetrated even into the countries ( ... ) which may indeed appear to promote civility of manners, but do doubtless corrupt the morals and lead to dissimulation, in place of the genuine sincerity we have before noticed" ( Strabo 1854, p.462 ) .

The natural civilization is metaphysical, religious and harmonious, the materialistic civilization is anti-metaphysical, profane and alienated. Modernity attempts to devalue metaphysics despite the fact that the decay of Greco-Roman civilization ascribes that event to a "metaphysical disease", the collapse of the pagan worldview. In natural societies Nature is respected as sacred, life as sacred, and human mind has a place in the sacred order of Nature. In modernity, nothing is sacred. Modernity is nihilistic. The natural civilization is based on an ontology in which life, mind and matter each possess ontological weight. It is life-affirming and mind-affirming. Modernism is based on a total denial of meaning and purpose of human existence on earth. The natural civilization is based on the harmonious, natural worldview characteristic to the long-living, pre-modern traditional humanity. The modern civilization is characterized by a materialistic worldview, and its lifetime extends to a few millennia. In light of this, it seems that the term 'civilization' expresses a special ontological stance. This ontological stance has a power shaping the entire civilization to its character. We can consider that 'civilization' is, in the first approach, a term corresponding to an ontological stance influencing a serious share of humanity during a significant period.

## The Ultimate Root of Civilizations: Ontology and Worldview

Ontology is the fundamental basis of our worldview. It is vitally important to realize the importance of worldview. The worldview is a system of basic convictions prescribing how to experience and interpret the world. The way we experience or interpret the world has a crucial importance since all our experiences can be utilized in favor of life or of material interests. It is the worldview that determines which questions are important and how to answer them. What we call thinking is generally the unconscious application of our pre-existing worldview. The worldview is fundamental in our life as well as in science, usually without being aware of doing so. The unconscious usage of the worldview is one of the main causes why its fundamental significance is so frequently overlooked. It is the worldview that determines the way we understand science. This means that the worldview has a primary significance for our life, science and society. Worldview is more fundamental and therefore more significant than science itself.

### The next level shaping our thinking: the scientific worldview and education

The next level shaping our thinking is the scientific worldview. Modern science has become the most powerful basis and tool of materialism. Science has also a fundamental significance in education. Until one has not other possibility but teach a curriculum based on materialistic science, the schools will produce people conforming to the materialistic viewpoints, even in India. If the ecological worldview misses a similarly powerful scientific background to that of modernism, it cannot excel the Western civilization. I think that the most needed ingredient for creating a viable ecological civilization is a comprehensive science of all Nature, completing the science of matter with the sciences of life and mind. This task requires, besides the science of matter a new biology advancing the quality of life and a new psychology advancing the quality of mind, both similarly well-grounded to physics but not subordinated to it. The problem is now: how to find the suitable ground for a life-affirming biology and mind-affirming psychology?

### The Significance of First Principles of Nature

The solution of this problem requires us to recognize that the most powerful tool of modern physics is the least action principle. Since practically all the fundamental laws of physics can be derived from the least action principle, therefore it can be regarded as the first principle of physics. Physics can be defined by the least action principle. The least action principle corresponds to the inertial behavior of physical objects. Living organisms behave very differently. They have their own fundamental laws rooted in biology's own first principle, called as Bauer's principle. The life-affirming biology can have similarly profound impact on our scientific worldview because it has its own first principle.

The biological principle is given exactly and it clarifies exactly what is life. Bauer's principle tells that: "The living and only the living systems are never in equilibrium; they unceasingly invest work on the debit of their free energy budget against that equilibration which **should occur for the given** the initial conditions of the system on the basis of the physico-chemical laws" (Bauer 1967, 51). This means that life is much different from mere mechanical survival and preprogrammed reproduction. **Instead, life is first of all an uplifting power motivating all living beings towards live life fully and actively, mobilizing all their physical, biological and psychological**





energies and transforming them to make life as full as possible. The life principle motivates all living beings towards the heights of life, towards the highest quality of life, balanced well-being and health. Life is, by its very nature, first of all a cosmic principle, carrying in itself the beauty, majesty and eternal victory of the life of Nature, the extraordinary life of the Universe.

It is vital to realize the fundamental significance of the first principles for the ecological civilization. By the term 'first principle' I mean an ontological principle from which all the fundamental laws of the science corresponding to the given ontological domain can be mathematically derived. The different ontological domains are characterized by the dominance the different first principles of living organisms and inanimate objects.

### Biology is More Fundamental than Physics

Already Eugene Wigner, the Hungarian-born Nobel laureate physicist, one of the fathers of quantum theory suggested that biology is a more general science that includes in itself physics as a special subclass (Wigner 1969, 1970). Similarly, one of the fathers of theoretical biology, the Hungarian-born Ludwig von Bertalanffy expressed his hope that "the attempt will be made to extend principles like that of least action" into biology (Bertalanffy 1952). Inspired by Bauer's principle, I succeed to generalize the least action principle of physics and extend it to biology, allowing the endpoint of its integral to be selected according to biological aims (Grandpierre 2007). In this way I obtained the first principle of biology because the mathematical form of the obtained extended action principle, the principle of greatest action, shortly PGA. The PGA involves in itself Bauer's principle (Grandpierre, Chopra and Kafatos 2014) as well as the principle of greatest wisdom. Wisdom is defined as knowledge beneficial for life. I generalized the PGA into the life principle which is the driver of our physical, emotional and intellectual life in a unified form.

The nature of life is based on creativity. Life exists as a self-creating reality. It is more than existence because it is, first of all, a creative activity. The living Universe is the ultimate reality. There is nothing beyond it. Cosmic life has a self-determining nature. Self-determination is possible only as a process, and so, as a final causation. Everything that is already determined, exists in a physical form. Once it is determined, the self-determining nature of the living Universe can be realized only by a next act of self-determination, that is, by final causation. Ultimate reality can be defined as the one that exists by its own determining power. Ultimate reality must be self-determining. Therefore, ultimate reality must apply final causation. Therefore, ultimate reality must be life, cosmic life. It is life by which the ultimate reality exists and changes its many manifestations. It is life the "natura naturans", the self-causing activity of Nature in the philosophy of Spinoza. It is life that is the creativity of the Universe which is the ultimate reality of Whitehead's process philosophy. Life is more than mere existence because it is self-creating, self-causing and self-realizing activity.

In the exact biology, the individual is a psychogenic concept because it arises from self-observation (Bauer 1967, 211). This means that Bauer's theoretical biology does not specify the individual. Generalizing Bauer's principle, we obtained a principle of life and serving as the basis of the individual, the species and the biosphere and forming an inseparable unit. According to the comprehensive worldview ecology is the science of communities of life and their relations with each other, from microbial communities to the cosmic level. Life is shown to have seven levels, that of the cells, individuals, family, nation, humanity, biosphere and, ultimately, the Living Universe. This seven levels of life are the basis of the universal moral world order expressing the reverence of life and its active support. In this way physics and biology can be unified on the basis of the general

action principle in an ontological trinity, while the individual, communal and cosmic aspects of our life are also united. The universal moral world order offers a scientific basis for families, nations and civilizations to be in an active harmony with all the seven levels of life. This means that the new, exact theory of life offers a scientific foundation for a comprehensive ecology rooted in the cosmically grounded moral world order ( Grandpierre 2019 ) .

There is a remarkable logic between the connection of biology to physics: the first step is the biological selection of the endpoint for the biological principle. Once the endpoint of the biologically generalized action principle is fixed by the decision of the living being, the first principle of physics applies and it realizes the biological aim in the most economic way possible. This is the crucial step that gives life priority over matter in the entire Universe. This move elevates life to be the most fundamental aspect of all existence as well as to show that we live in a Living Universe ( Grandpierre 2002, 2012, 2017 ) .

The triune nature of physics, biology and psychology corresponds to the triune nature of matter, life and mind, atoms, emotions and thoughts. In physics, the causes of change are physical forces. In biology, the causes of change are motivations. Motivations have two fundamental types: emotional and intellectual. Intellectual motivations correspond to psychology as the science of intellect. Since biology is more fundamental than physics, motivations are more fundamental than matter. Indeed, in my comprehensive theory of life I had shown that motivations represent biologically governable energies and these are capable of generating virtual particle pairs. Quantum electrodynamics had shown that virtual particles are responsible for all physical forces.

With the new biology based on the life principle, value enter into science, because life is the highest and primary value, without which no other value could exist. We can define goodness as the moral property of activities helping, improving and perfecting life. Since the biological principle has been shown to urge all living beings to act toward the most beautiful, true and happy life ( Grandpierre 2012, 2017a ) , it can be regarded as the objective basis of goodness.

Recently the scientific theory of genuine biological autonomy has become available, indicating that the bridge between the material and non-material world is decision making by free will ( Grandpierre 2012, Grandpierre and Kafatos 2013a,b, Grandpierre, Chopra and Kafatos 2014 ) . Since the selection of the endpoint of the action integral must be made by the living organism itself, and the selection requires decision making what requires a kind of consciousness, the biological principle is inseparable from consciousness. Decision making is the bridge between the realm of mind to the realm of matter. Mind is the tool of life to select the optimal endpoint for the biological principle. The fundamental principle of mental activity is a logic suitable to find the optimal conditions for life, including individual perspectives as well as that of the species and the biosphere, ultimately the ecological community of all life.

In this way, all the three first principles of the Universe can be unified, as they must, since the Universe is a unified whole. We are led to recognize the ultimate Trinity in forms of the first principles of life, mind and matter. The comprehensive, all-encompassing science offers a broader, more balanced and deeper worldview than that of modernity. The comprehensive science presents a fundamental achievement surmounting that of modern science.

### Materialism and the Alienation of Western People

Humanity is the manifestation of the life- and mind-creating ability of the Universe. The natural way of human life is to join to this cosmic enterprise and contribute to the flourishing of Nature, uplifting life and mind. Following this natural direction of human evolution, the natural task of the mind is to serve life's highest





potentials. All knowledge should serve life in the best way possible. This natural way of humanity has changed only a few thousand years ago with the advent of modernity. In the absence of appreciating the first principles of life and mind, materialism restricts mind to serve not life but matter. With that move, time jumps out of joint, and people become alienated.

## The Motivational Power of the Cosmically Grounded Comprehensive Ecology

In our 21st century, modernity is loosing its attractive power, and postmodernism come to the fore. Among the postmodern philosophies the one directed towards harmony, health, and biophily is constructive postmodernism, built on the process philosophy of Alfred North Whitehead by John B. Cobb ( 2015 ), David Ray Griffin ( 2007 ) and many others. They suggest in order to create an ecological civilization a philosophy is needed. Complementing their achievements, I propose to develop such an ecological science that unifies the sciences of matter, life and mind, i.e. the comprehensive science.

The above-indicated comprehensive science sheds new light to human nature. If life and mind have their own first principles, then human life and mind rely on cosmic grounds. Moreover, this cosmic ground is common in all of us and with all living organisms we form, indeed, a cosmic ecological community. The first principles are creative principles because life and mind are by their very nature creative. The biological principle is the basis of the love of life, i.e. biophily, and the mind principle is the basis of the love of truth. The life principle motivates us to behave on the basis of love of life, the mind principle motivates us to think on the basis of logic. The cosmically grounded ecology involves a responsibility and moral commitment for all the seven ecological levels of cosmic life. We have responsibilities for the health of our cells, for our individual health, for the health of our family, our nation, humanity and Nature. We have a responsibility to shape our individual life in communal and cosmic perspectives in order to live an ultimately meaningful and valuable life.

This all-comprehensive science based on the first principles of the Universe offers a reliable, essentially complete and balanced scientific worldview. Until now, there has been no alternative to the materialistic modern science in the education system. The exact all-comprehensive, animistic and holistic ecological science could be the key for a balanced, health-enhancing, attracting and motivating curriculum for the schools of the future ecological societies. The mainsprings of civilizations are human aspirations. The civilization which keeps the natural, ecological, cosmic motivations of humanity in high esteem, will develop the highest level of creativity and will be able to develop much better and much longer than the other one which denies and ignores their significance in history. Making the healthy idea of life principle conscious and attributing priority to it in our individual, communal and cultural conduct of life endows us with the highest level of motivation, enthusiasm, bioenergy and vitality propelling our civilization with the utmost power of Nature.

If the Universe is living and has the ability to create life and mind, it is a lawful necessity that evolution proceeds toward the development of an intelligent civilization. Similarly, it is inevitable that intelligent civilizations develop sciences. It is necessary to point out that it is the simplest science that develops first. The first science to develop is physics, the science of inanimate material objects. Similarly, it is a lawful necessity that in the age of physics materialism becomes prominent. In the age where physics has gained hegemony over other branches of science, materialism becomes increasingly influential. As we argue, it is also a lawful necessity that after the development of physics the evolution of science does not stop. Inevitably, it will reach the next stage. This next stage, necessarily, will be the science of living systems, that is, biology. Our material resources are limited; our sources of energy are limited, therefore further quantitative growth of matter-based civilization

can be considered as highly limited. On the other hand, the prospects of a life- and mind-based civilization have no limitations at all. Knowledge about how to live with the full collective and cosmic potential of life and intelligence has no limits. We argue there is nothing more urgent than acquiring knowledge about how to understand the nature of life and consciousness and how to elevate life and intelligence in a way that would present the most sufficient long-term harmony with Nature.

This essentially complete and therefore healthy and balanced, comprehensive ecological worldview can serve as the cure for the split between mind and soul, science and religion, Nature and society, the division between the sciences and the humanities and other fundamental problems of humanity like presenting a universal basis for morality. It can cure the split between nations by indicating that all nations live their life in one level of the seven of the comprehensive moral world order. The primary, Nature-given values of all nations are to discover how can they contribute in the most harmonious way to their development, to work for the highest level of health of humankind, the biosphere and the Living Universe. The comprehensive ecological worldview indicates that genuine human behavior is the one that is consistent with life's two constituents, and secures the harmony of life's three categories as well as of its seven levels. This healthy balance and harmony is, as this book suggests, the essence of humanity's culture and civilization. The health of civilization requires their balance, harmony and mutually fruitful co-operation. It is interesting to note here that in Chinese philosophy "the context of life constitutes either a personality or a nation or humanity as a whole or the universe at large, and in which all elements and participants enter into a relation that is the most intimate and harmonious in character" ( Fang 1957, 249 ) .

Our result seems to show fundamental similarities to the ancient Eurasian philosophy along the Silk Road, from which Chinese culture has preserved the most complete written documents. In Chinese philosophy, 'Qi' is the vital force of which everything is composed, "the ultimate foundation for the existence of the universe"...the "ontological source of the universe" ( Zhenyu Zeng 2011 ) . The exact biology we developed based on Bauer's principle offers a scientific proof for the real existence of the Qi.

The comprehensive science and worldview can play a key role in working out the life-affirming and truth-affirming curriculum necessary for creating the ecological civilization. It can be useful in complementing constructive postmodernism by working out a comprehensive scientific worldview as well as adding new theoretical power to the ancient Chinese philosophy, because it connect the Qi with the most powerful principle of science and the Universe.





第五屆 尼山世界文明論壇

The Fifth Nishan Forum on World Civilizations

# 论文集

PROCEEDINGS

〔上卷〕



QUFU CHINA

中国·曲阜