

THINKING OF OURSELVES AS HUMANITY IN THE AGE OF COMPLEXITY: A TRIBUTE TO DAVID LOYE

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Abstract:

The work and the life of David Loye were prophetic, able to read the signs announcing a new human condition and the need for an anthropological metamorphosis. His foresight was undoubtedly rooted in his profound cosmological and anthropological vision of evolution, which marked his life and his thought. I cherish the memory of the overwhelming emotion with which, in a conference in 1986 in Florence, he shared his vision: “To sense how we humans are the inheritors of all this power and movement over space and time is at once awesome and humbling, but also exciting and inspiring. The residue of such feelings is the special sense of responsibility many scientists share: that all this shall not perish because of us” (Loye, 1987, p. 67). These words have since inspired my research. The following thoughts express my deep gratitude to David’s work and life, which are intrinsically related.

Keywords: Anthropocene Era; Evolution; Complexity; Humanity; Human History; David Loye; Reverse Adaptation; Unitas Multiplex

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HUMANKIND’S PLACE ON EARTH

Our time is a time of interdependence, of everything with everything. It is a time of complexity, which means that different components are constantly being interwoven as one unit. We are participating in the birth of a new planetary community. Indeed, this planetary interweaving started taking shape with the Colombian Encounter. It is

since then that the multimillennial sense of human inhabitation of Earth has shifted, from diasporic to interdependent. However, from the first half of the 20th century this interdependence has taken on a different meaning, which first manifested itself through an unprecedented danger. The atomic bomb dropped on Hiroshima in 1945 was the alarm bell of a possibility that had until then been unimaginable, namely the global annihilation of humankind. This unprecedented possibility radically transformed the human condition. Humankind has suddenly become potentially suicidal. This possibility of self-annihilation led to the emergence of a common fate for all the peoples of the Earth, all connected by the same life and death problems. It was the birth of a planetary community of fate.

Since then, the human condition has been transformed by a sudden and simultaneous increase of might and interdependence. The planetary system has turned inwards. There are no longer expanding frontiers to escape to. The risk of self-annihilation has deepened. First and foremost, the nuclear threat has grown larger. The chances that nuclear weapons are used in local conflicts are greater. In addition, the possibility of self-annihilation has crept into our increasingly difficult relationship with the environment. The human influence on the environment has become a great force of nature that can determine the very future of humankind as a biological species. In a way, a community of fate has also taken shape through the co-evolution of humankind as a whole and the condition of the biosphere—Earth—that humans inhabit.

A REVERSE ADAPTATION

A complete reverse adaptation has taken place in the last two centuries, one in which it is not humans who have to adjust to the environment to survive, but in which it is the environment that needs to relentlessly adapt to human activity. The influence of human activities on climate and ecosystems marks a discontinuity throughout natural history. The increasing impact of technologies in the Modern Age had spread the illusion that humankind would eventually free itself from nature. It wasn't so. Surely, people are more and more interconnected with each other and independent from local

ecosystems. However, the very survival of the entire human species remains strictly dependent on the functioning of a single immense global ecosystem. Within this ecosystem, the cooperative and antagonistic relations among the countless organisms within it (plants, animals, and bacteria) sustain environmental conditions favorable to the flourishing of life as a whole, particularly human life. Maintaining this good functioning is an unavoidable challenge that humanity must take on in this age of complexity.

There is not a single human action today, no matter how local it may appear, whose consequences cannot influence the planet as a whole. It is within this complex perspective that we can comprehend the emergence of a new human condition, happening through a simultaneous and unprecedented increase of technological power and planetary interdependence.

In the past, the appearance and the evolution of life on Earth turned the planet into a single integrated system composed of completely inseparable biotic, geological, and physical-chemical elements. Today, developments in human history have added complexity to complexity: The fate of the planet is intrinsically interdependent with our political, social, economic, and cultural developments.

THE ANTHROPOCENE ERA

This shift is indicated by a new term: the Anthropocene Era. This refers to our current global age, in which human influence on the environment has become macroscopically evident. It is a new age in the history of the Earth, which definitively began with the “great acceleration” of the 1950s. The basis of the Anthropocene hypothesis is the conception of the Earth as a single dynamic, self-regulated complex system characterized by physical, chemical, and biological, as well as human, components. The hypothesis is also rooted in the belief that man-made change is a complex, multidimensional phenomenon that requires a multi-causal explanation capable of connecting man-made social, political, and economic changes with their numerous

environmental, physical, chemical, and geological effects on a local and a global scale. Due to this entanglement, nature and society have become one single thing. With the Anthropocene Era, the distinction between human and natural history has ended once and for all. Social and human systems have become a whole anthroposphere, actively sustaining an anthropogenic biosphere.

AN EXTENSION OF RESPONSIBILITY

David Loye observed, “How can we show - and thereby know - *our* place in evolution? How can we quantify the structure, function and direction of human consciousness? How do we measure human responsibility?” (1987, p. 68) Due to this unprecedented increase in planetary interdependence and technological power, nature has entered the field of human responsibility. This extension of responsibility has transformed the nature of our technological actions. The evolution of technology has expanded the sphere of responsibility to new domains, namely to the living species, to the natural ecosystems, and to the planet as a whole, as well as to the very chance of survival of our own species.

The consequences of our actions dilate in space: local events more and more often reach global dimensions. The consequences of our actions also dilate in time: responsibility encompasses our very future. This calls into serious question a certain attitude that sees mankind as the ‘guardian and the owner of nature.’ We now know that every desire to dominate nature not only degrades nature, but our humanity, too. Humanity is inseparably linked to nature, and depends on nature more than nature depends on us.

There is a growing gap between humans’ seemingly limited technological interventions and their consequences, which are more far-reaching than one could predict. Citizens are deprived of any control over science, as are politicians and other experts. In this regard, it is necessary to take into consideration an important aspect of complex systems: Complex systems are extremely sensitive to both large and small perturbations

they encounter in the various stages of their development. They react to these in a way that does not necessarily correlate with the intensity of the perturbations themselves. A local, micro incident can trigger large-scale changes, producing global, macro effects, which can radically transform the whole planet.

Complex systems can therefore change in a sudden and unforeseeable manner. This is demonstrated by our current crisis: We find ourselves in a fully humanized ecumene (i.e., a permanently inhabited land) whereby each local event, because of the close interdependence of everything with everything, can - at least in principle - lead to consequences that rapidly amplify to a global scale. The most effective metaphor to describe the age of complexity is still that of the butterfly effect, suggested by mathematician and meteorologist Edward Lorenz (1972). For example, the flap of a butterfly's wings in the sky of a Chinese region can have important effects on the weather in another continent, and in the rest of the world a week later. Complexity as the intertwining of multiple factors brings the unexpected onto the agenda. The unlikely becomes probable.

TRAGEDY AND EPIC

The genres of tragedy and epic serve as helpful metaphors to understand the two attitudes that confront each other in the face of the complexity that the new human condition poses to science, philosophy, human action, and above all to education. This is something that Auschwitz survivor Yehuda Elkana (historian and former President and Rector of Central European University) suggested to me years ago.

On the one hand, the tragic attitude considers what happens as the manifestation of the unavoidable. This attitude leads to the search for the necessary and sufficient conditions capable of explaining how what was inevitable happened. It applies to complicated mechanisms, studied by classical science. Controllable. Predictable. On the other hand, the epic attitude presupposes that what happened could have happened differently. Accordingly, one can reconstruct why things went the way they did, while

simultaneously considering alternative outcomes. This attitude applies to complex systems.

The decision to take either a tragic or an epic approach strongly influences the way we elaborate knowledge, the way we perform actions, and the way we define our projects. As David Loye observed,

In the necessity for the various disciplines to work their way through the intricacies of the Perceptual, Storage and Projective Images, most of us bog down along the way and never reach the point where we are forced to deal with the imperatives of the Action Image. But the main lesson of our time seems to be that it is this image of all the images of the human future - this Action Image conditioned by and seen within the context of the others - that we must now form and bear ever more firmly in mind if we are to have a human future. (Loye, 1987, p. 75)

THE MEANING OF BEING HUMAN

The analysis conducted thus far motivates the urgency to understand that it is not *Homo sapiens*, in a generic sense, that is transforming the Earth. Not at all. It is different peoples, cultures, and societies that transform the Earth, and that will be able to transform the history of the Earth and humankind, in different ways. Using the term Anthropocene without dealing with this distinction detracts from the true sense of anthropogenic environmental change, and from the need for new governance strategies. It diverts attention from the fact that recent environmental changes are unprecedented and extraordinarily complex, as well as from the need to face the disparities characterizing human populations, and the environmental changes they create. The history of the Anthropocene Era has just begun. There are different ways in which this Era can unfold. Some are better and some are worse. It is possible to mold a future in which human nature and non-human nature prosper together. The challenge of complexity posed by the Anthropocene Era obliges us to reflect on the meaning and

implications of the new human condition, a global condition in which humankind reinvents the meaning of being human.

A COGNITIVE CRISIS

Like all global crises, the crisis we live in reveals a more profound cognitive crisis. Indeed, this is the most profound crisis of our time. Complexity challenges our educational institutions to question themselves. It is true that the complexity of this world's problems is paralyzing. It is precisely for this reason that we need to rearm ourselves intellectually in schools and universities, learning how to conceptualize complexity. In the global world, everything is connected. Every problem entails many intertwined dimensions which cannot be analyzed separately.

Our schools and universities therefore need to urgently take on the challenge posed by the complexity of our time. The current crisis requires us to change our outlook on the world. First and foremost, we need to be capable of looking at the complexity of the world. In light of this urgent matter, the real malady of our time is simplification. David Loye observed, with his usual sharpness, that “social science has wondrously advanced in technique but this technique has been applied to ever smaller parts of the system and its needs” (1987, p. 68).

Disciplinary specialization has led to extraordinary findings. These findings, however, are often incapable of explaining the relevant problems composed of a multitude of intertwined dimensions that cannot be scaled down or simplified. School and university education, as well as field expertise, teach us to separate the disciplines from each other; they don't teach us to link them. They continue to disjoin knowledge that should be interlinked. Hence, even the solutions that these institutions seek and offer are often part and cause of the problem. That is to say that the cognitive tools we use to find solutions to the crisis, as well as to the most difficult problems of our global age, are themselves the source of one of the most difficult problems we need to solve, because they are ways of thinking that divide what is in reality intimately connected.

BEYOND A HISTORY MADE OF WARS

David Loye was very aware of the present crisis and its potential consequences when he wrote, “We look out around ourselves today, for example, and see the survival of our species threatened by the conflict of the super-powers, the terrorism of the lesser powers, and the fact of nuclear overkill. This is our overriding Perceptual Image” (1987, p. 76). How timely are these words of his!

The current unprecedented power and interdependence of the human condition highlights the inadequacy of the cultural and anthropological paradigm that continues to regulate the relationships among the peoples of the Earth, as well as the relations of the whole of humanity with the Earth itself. The 20th century was held hostage by the zero-sum ‘I win, you lose’ games that characterized human history more than any others. This occurred in relations between peoples on the international level and within single national societies, as well as in the relationship between mankind and the environment. In these ‘games,’ one side wins at the expense of the others who lose.

In today’s age of planetary interdependence, however, the perpetuation of these ‘games’ is disastrous and incompatible with the future and the well-being of humanity itself. Indeed, today all the actors of zero-sum games can lose. The real risk is that there will no longer be winners and losers, but only losers.

Humanity today, for the first time in history, *must* come out of the age of war and of the reckless exploitation of the environment. It *must* come out of the zero-sum games paradigm in order to engender a paradigm of positive-sum games. This process involves a profound discontinuity in the evolution of the human condition. David Loye deemed our time, namely the end of the 20th century, as

[a] time of ours to live, to fear and to hope - the late 20th century - as the pivotal dividing point between two kinds of mind. One is what may be called the Truncated Mind, still caught within the cage of lower brain and mind. The other

is the crucial emergence and spread of the Actualizing Mind, the activation of higher brain and mind in which these guidance sensitivities I have outlined are more fully operative. (Loye, 1987, p. 75).

THINKING OF OURSELVES AS HUMANITY

Our challenge is to begin thinking of the planetary community positively. In other words, Earth citizens should consider their shared belonging to a global interweaving of interdependencies as the only adequate condition that can guarantee the quality of life and the survival of humanity itself. Problems such as climate stabilization; the maintenance of animal and vegetal biodiversity; the transition to renewable energies; the fight against poverty; and the valorization of human dignity, health promotion, and health care, to name a few, transcend national and regional borders.

Today, for the first time in its history, humanity, from being an abstract concept, has become a concrete reality. This means that humanity has become the product of the planetary interdependence among all human societies.

It is within this perspective that the horizon of a new planetary humanism is perceived. A creative and sustainable future can only result from the conscience of the community of fate that binds all individuals and peoples of this planet, and that binds the whole of humanity to the global ecosystem and to the Earth.

Today's humanity must learn to think of itself as humanity precisely because of the danger that binds all peoples to the same destiny, of life or death. Indeed, all human beings face death, but a new type of death, the possibility of species-wide self-annihilation, has entered the life dimension of humanity. Nevertheless, it will be possible to find salvation together, not only because we will feel that we are all threatened by imminent and unpredictable dangers in the same way and at the same time, but also because we will understand that our singularity is enriched by plurality.

This is the mental jump, or, to put it in Gregory Bateson's words, the "deutero-learning," (1972, p. 159-176) or paradigm shift we oppose because we favor the paradigm of simplification. The appeal of simplification has deep cultural and historical roots. It characterized the dominant thought paradigm in the age of modernity. Its logic not only molded classical scientific discourse until at least the 20th-century scientific revolutions, but also social, political, and institutional discourses and practices. Outlining boundaries, establishing one's identity in opposition to alterity, as well as finding a simple, abstract, quantifiable, and univocal solution, have shaped a mental habitus that is so deeply rooted that another way of thinking, such as complex thinking, appears alien and difficult.

A CONTINUOUS CREATION

Becoming human is an unfinished and ongoing process, through which the creation of new humanity has taken place and continues to take place. Being a work in progress is a distinctive and generative marker of human nature, as well as of the collocation of humanity in nature and in the universe. *Homo sapiens*, throughout history, was not born human, but has 'learned' to be human.

Humanity's mental and biological heritage does not limit it to a fixed and predetermined range of possibilities, as in the animal world. Instead, this heritage opens access to a spectrum of possibilities that are unlikely to be exhausted in the near future. It is as if the human species, by physically generating a diaspora on the surface of the planet that has resulted in the emergence of very different ecosystems, had also implemented a diaspora in the universe of symbolic possibilities. The different possibilities implemented in space and time are what we call cultures. They are all generated by the same mental and biological baggage of our species, but they are structurally unfinished because they point at a much larger universe of possibilities. The incompleteness of the human condition is rooted in its original link with diversity and multiplicity.

Humanity is a continuous creation which does and undoes itself in stages, turns, and thresholds that can nullify the dominant trends of a specific moment. These can lead to the emergence of new trends that are also compatible with the richness of its mental and biological heritage. The future results are of necessity not inscribed in some 'essence' of human nature.

Humanity today is characterized by an unprecedented peculiarity, namely the possibility of reflecting on its global identity and its profound history. The knowledge of mutations is indispensable in comprehending the present mutation, in its unlikelihood but also in its possibility. Past and present human diversities cannot be situated on a line of progress that maps all that is 'not modern' onto humanity's 'juvenile past.' The different human experiences - separated not only by time but also by space - cannot be reduced to mere archeological facts. It is the entire human experience that appears to be relevant to the present and the future. Human experience is becoming planetary in space as well as in time.

It is therefore necessary to become aware of the complexity of human identity, particularly in its current planetary condition. This awareness was captured by French philosopher Edgar Morin through the expression *unitas multiplex*, namely a unity that contemplates the multiplicity of the social, cultural, biological, and individual facets that characterize human existence (in Andrade Salazar, 2020). In other words, such an awareness requires taking into consideration all the times of human history, all cultures, as well as all the findings that have widened and re-written the framework of human evolution and history in the past decades.

A NEW PAIDEIA

Inhabiting complexity therefore requires the capacity to wear different 'clothing,' to display a different *habitus*, thus triggering alternative and more productive narrations. Hence, the role of education is crucial to implementing the paradigm shift required by new times. The culture of a planetary humanism requires understanding humanity's

indivisibility as well as its plurality. The indivisibility of human life must be understood, at the same time, as terrestrial, biological, psychic, social, and cultural.

The quest for a positive and co-evolutionary relationship with all living and non-living world actors is the precondition for our very survival and for the possibility of outlining a livable and prosperous future. It is for this very reason that today's ecological considerations are part of a transversal discourse that could have the function of connecting, rather than separating, the inevitably diverse viewpoints of different cultures. A global positive response to the imminent environmental challenges is the fulcrum of the unprecedented self-comprehension of a humanity that can be defined as 'one and multiple, one because multiple, and multiple because one.'

Humanity can only hope to solve its vital problems by deeming itself a community of fate, a single and multiple community. Such a process is the emerging presupposition of the human condition on the planet. The resulting universalism does not contrast diversity with unity, nor does it contrast the singular with the universal. It acknowledges the unity of human diversities, and diversities in human unity. By the same token, it arises from the recognition of unity in the global ecosystem within the diversity of local ecosystems and of the diversity of local ecosystems in the unity of the global ecosystem. The identity of the human species entails the possibility, however unlikely, of the emergence of a new humanity. The human condition in the global age entails the possibility of a true universalization of the humanistic principle. Turning the fact of planetary interdependence into the construction of a new Earth 'civilization' - promoting an evolution toward cohabitation and peace - is the arduous and improbable, albeit creative and unavoidable, task of a new *Paideia* that can take on the challenge of complexity, giving birth to planetary humanity. The ancient Greek concept of *Paideia*, which refers to a well-rounded human education, well applies to the formation of a new humanity that has become aware - through the development of interdisciplinary cognitive tools - of its position within the history of planet Earth.

I would like to end these thoughts of gratitude toward David Loye with his own words, which I listened to in person with great enthusiasm and which I read over and over again.

For those of the Truncated Mind the automatic projection is an Action Image only of the armaments one must beyond all reason accumulate for protection against an ever opponent who must never be trusted, however the cost. This is the culmination of one very popular view of evolution: that of the survival of the fittest, a view of humankind as a higher order of being chiefly distinguished by possessing, in our remarkable technology, a more elaborate set of claws and thangs than anything in the 'lower order' animal kingdom. Opposed to them are small but rapidly proliferating bands of those of the Actualizing Mind. Out of their futures, social, systems, moral, and managerial sensitivities, they resonate to and articulate another view of evolution. This is the view of the earth not as a place for bloodshed, degradation and widespread misery, but as a place for the long-sought human fulfillment of peace and prosperity. Theirs also is the belief that the opportunity to help this ancient and abiding Image of the Future become the Image of the Present is now at hand. (Loye, 1987, p. 76).

Utopia? Maybe. Nevertheless concrete and possible. The challenge that David took on is to be able to conceive of a humanity as a reserve of evolutionary possibilities that are still unheard of; that is, to be able to conceive of humanity as the subject of a constitutively unfinished evolution.

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