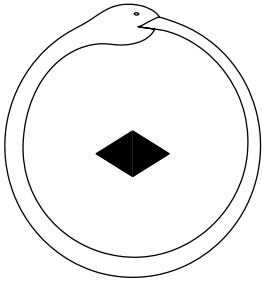


BIOSPHERE, ANTHROPOCENE
AND AMERINDIAN ANIMISM

Luis Eduardo Luna



notebooks
SELVAGEM



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Transcript of the presentation that composed
the round of talks *Viagem ao centro da vida*
[Journey To The Center Of Life] at Selvagem 2018.

An interdisciplinary view is especially necessary at this moment, since we are in the midst of a catastrophic process concerning environmental degradation of planetary dimensions caused by us, and which we must try to understand in all its complexity.

This is the huge responsibility we have, we who live in this moment of immeasurable historical relevance. Our planet is approximately 4,6 billion years old. There was already life here from five hundred million to one billion years after its formation. We have fossil evidence dating back to at least 3,8 billion years.

There is a consensus among scientists that life did not suddenly appear here, but resulted from a series of long, simple abiotic processes involving the six predominant elements in life on our planet: carbon, oxygen, nitrogen, hydrogen, sulfate, and phosphorus.

What is its origin? One of the best known and most endorsed theories by, among others, the British biochemist and writer Nick Lane, professor of evolutionary biochemistry at University College London, places the origin of life in hydrothermal springs at the bottom of the ocean, where to this day numerous species live totally independent of solar energy. The adaptation to fresh water in volcanic land masses would arrive later.

Others defend opposite scenarios: according to David Deamer and Bruce Damer, life would have been generated on the planet's surface in a "little warm pond", as Charles Darwin said, and would soon adapt to the salt water oceans. Water would accumulate in wells or hydrothermal fields close to volcanoes, and would go through cycles of evaporation and recharge. The diluted solutions would then concentra-

te into pellicles during evaporation, where they could undergo chemical interactions and accumulate in the wells when the water returned, either by precipitation, or by changes in water levels related to hot springs or geyser¹ activities.

These multiple compounds would undergo a kind of Darwinian natural selection, leading to the formation of polymers or precursor molecules, later encapsulated in membranes, and finally in cells capable of replication. Similar processes could occur on other planets throughout the galaxy.

Some biologists speculate about an extraterrestrial origin of life, variations of the panspermia theory².

Christian De Duve³, for example, claims that the “life dust” capable of generating life anywhere under the right conditions is spread all over the universe. For him, life and consciousness are not accidents, they are natural manifestations of matter.

Exobiologists like Natuschka Lee, from Umea University in Sweden, work with extremophiles: microorganisms that can survive in extreme conditions of temperature and pressure, such as deep in the Earth, in volcanoes, and even in nuclear reactors. Dr. Lee, in collaboration with scientists from the International Space Station (ISS), has proven that some terrestrial microorganisms are able to survive in outer space, and supports the idea that microbial life can be found in many places in our galaxy.

For 1,500 million years only archaea and bacteria existed here on Earth, single-celled microorganisms, morphologically similar, but very different in their metabolism, with a possible common ancestor: LUCA⁴.

1. A geyser is a hot spring that periodically erupts, spewing out a column of hot water and steam.

2. Theory proposed in the late 19th century that seeks to explain the origin of life. According to it, our planet was populated by living beings or precursor elements of life coming from other planets that spread by meteorites and cosmic dust to Earth.

3. Christian de Duve, Belgian biochemist and Nobel Prize winner for Physiology or Medicine in 1974, together with Albert Claude and George Emil Palade, for having described their discoveries about the structural and functional organization of the cell.

4. The last universal ancestor or last common ancestor, also known as LUCA (Last Universal Common Ancestor) is the hypothetical last living being from which all living beings currently living on earth descend.

Around 1,800 million years ago, something close to a miracle happened: archaea⁵ and bacteria entered into symbiotic relationships, merging to form cells with nuclei containing DNA: the eukaryotes.

The archaea provides the informational genes for replication and repair, and the bacteria supplies the operational genes responsible for the membrane system, the cytoskeleton, and metabolic processes.

This dual origin is visible in the cells of all of us, plants, fungi, and animals (the fungi being closer to us than the plants). The mitochondria, responsible for the production of the energy necessary for the functioning of the cell, ATP, descend from this bacteria that merged with the archaea and conserve their own DNA.

Lynn Margulis⁶ was the first scientist who advanced the endosymbiotic theory, which for years was rejected by her older colleagues, mostly men, but is now proven. This implies an important change in perspective.

In the evolutionary process, Darwin's emphasis was on competition between species, with Margulis the emphasis is on symbiotic relationships, on cooperation between diverse organisms. Here we have a model of how to organize our society, with the predominance of diversity and cooperation instead of competition.

After a long period of time in which only microorganisms existed, 650 to 543 million years ago the so-called Ediacaran Biota emerged. It is named after the Ediacara Mountains in Australia, where the first fossils of pluricellular organisms in complex ecosystems were found, among them the first mobile animals.

In the *Itajaí* [municipality located on the northern central coast of Santa Catarina] Basin, in the state of *Santa Catarina* [a state located in southern Brazil, bounded on the east by the Atlantic Ocean] a deposit with biota dating back 563 million years was found. Some of these

5. Archaea are single-celled organisms that share some characteristics with eukaryotes and bacteria and that develop in extreme environments.

6. Lynn Margulis was a prominent biologist and professor at the University of Massachusetts. She is best known for her Theory of Endosymbiosis and for her collaboration with James Lovelock on the Gaia Theory. We published the Selvagem notebook *Algumas coisas que aprendi com Lynn Margulis* [A few things I learned from Lynn Margulis] by Dorion Sagan.

animals were able to create shells, calcareous skeletons and other hard parts in order to defend themselves or escape from predators which were excavating sediments or developing predatory instruments.

Five hundred thirty-five million years ago, the so-called Cambrian explosion⁷ took place, with the appearance of a great diversity of organisms, including the ancestors of most multicellular organisms and all the anatomical body configurations that exist today. Among the strange organisms that populated the Cambrian oceans is *Pikaia gracilens*, a cephalochordate (an animal that has a head and a nerve “cord” along the rest of its body) about five centimeters long, possibly the earliest ancestor of all of us vertebrates. None of the Cambrian species are alive/ survived until today.

We mammals had our chance with the meteorite that caused the extinction of the dinosaurs 65 million years ago: the fifth great extinction. The first primates appeared 50 to 56 million years ago. They had larger brains than other mammals, eyes in front of their heads - which allowed stereoscopic or three-dimensional vision - and prehensile extremities⁸ with nails instead of claws, as well as movable fingers and toes with very sensitive tactile pads on their tips.

We share these characteristics with the 230 to 270 species of primates that exist today: the monkeys of the old and new world, the lemurs of Madagascar, and those most similar to us: the orangutans of Borneo and Sumatra, the gorillas, and our sibling-cousins the chimpanzees and bonobos, genetically so close to us (we share 99% of our genes with them) that some biologists place them within the genus *Homo*. Our closest relatives are on the verge of extinction: we have destroyed the forests where they live, we have killed them indiscriminately to steal their skins, to devour them, or to amputate their hands or fingers

7. The Cambrian explosion or Cambrian explosion was the relatively rapid appearance, over a period of a few million years, of the most important phyla. This emergence was accompanied by a great diversification of other organisms, including animals, phytoplankton, and calcimicrobes.

8. Prehensile is the ability of structures such as tails, fingers, toes, tongue, etc., to cling to something.

for commercialization. If these last relatives disappear, we will be even more alone on this planet.

Only 70,000 years ago we coexisted with other species of our genus: *H. erectus*, *H. naledi*, *H. floresiensis*, *H. luzonensis*, *H. Heidelbergensis*, Denisovans, Neanderthals, and possibly other species yet to be discovered. We now know that the Neanderthals, of whom we have fossil remains of 200 to 300 individuals, occupied huge territories in Eurasia, from North Wales to the borders of China, and south to the deserts of Arabia, adapting to diverse ecosystems, tundras, deserts, forests, coasts and mountains, and encompassed different genotypes, some, for example, had lighter skin and others darker. Even though anatomically different from us, from a behavioral point of view they were quite similar: they walked completely erect, were mostly right-handed, they used tools not only of stone but also of other materials, they collected shells and eagles' claws, dressed in animal skins, used ornaments, painted on rocks, cared for the sick, buried the dead, and possibly had rituals.

Analysis of the found remains suggests that they were possibly less violent than us *Homo sapiens*. The magnificent book *Kindred: Neanderthal life, love, death and art*, by British expert Rebecca Wragg Sykes, completely changes many prejudiced ideas we had about these close relatives, who disappeared from the earth and of whom we have retained between 1.8 and 2.6% of the genes. Whether or not we were responsible for their extinction is an unresolved question, since there are other hypotheses.

Our species is very young. We have been here for only 300,000 years, a short time compared to *Homo erectus*, who expanded throughout Eurasia and lived for two million years before disappearing from this planet. During the last 11,650 years, after the last glaciation, our planet has been going through an especially stable geological epoch from the climatic point of view, with temperatures suitable for our bodies. It is during this period, the Holocene, that we humans have developed countless cultures and experienced civilizing processes, in many cases completely independent, including the domestication of plants and animals, various agricultural methods, urban experiments, and ways of relating to the world we live in.

Unfortunately it seems that this paradisiacal period is coming to an end: we have entered a new geological epoch, which Paul Crutzen⁹ named Anthropocene, based on the undeniable evidence that the present atmospheric geological, hydrological and biospheric processes are largely anthropogenic, altered or influenced by human activity. Future geologists will find clear stratigraphic imprints¹⁰ of our current epoch.

We are daily spectators of profound climate change, destruction of ecological niches, and the disappearance of countless species. We are experiencing the sixth great extinction.

We lose between 150 and 200 species of animals and plants every single day, when the normal rate of loss would be 1 to 5 species per year. According to the WWF Living Planet Report¹¹ released in September 2020, in just 46 years humans and their activities have wiped out at least two-thirds of global wildlife. This means that the populations of mammals, birds, fish, amphibians, and reptiles have declined by an average of 68%.

In Latin America and the Caribbean the situation is even more dramatic, with the worst numbers observed worldwide: the decline of these species was 94%, signaling “a fundamentally broken relationship between humans and the natural world”.

How has this been possible? Some researchers think that the origin of the great change would be the development of agriculture approximately ten thousand years ago. Others point to a very recent time: the year 1950 would be the beginning of what has been called “The Great Acceleration”.

This was the positioning of curator Dr. Luiz Alberto Oliveira¹² of the extraordinary exhibition about the Anthropocene at the *Museu do Amanhã* [Museum of Tomorrow] in Rio de Janeiro.

9. Paul Crutzen (1933-2021), Dutch chemist and professor at the Max Planck Institute for Chemistry in Mainz, Germany. Crutzen first used the term in an International Biosphere and Geosphere Agency (IGBP) newsletter in 2000.

10. Stratigraphy is a branch of geology that studies the strata or layers of rocks, seeking to determine the processes and events that formed them.

11. <https://livingplanet.panda.org/>

12. Luiz Alberto Oliveira, physicist, doctor in cosmology, participated in the “Céu” [Sky] table at Selvagem 2019.

From 1950 on, after the Second World War, an accelerated process of population growth and increased consumption of all kinds of products began: from metals to food, to the production of sophisticated non-biodegradable and ecologically detectable waste (technofossils). Increased carbon dioxide, methane, nitrous oxide, water and energy use, fertilizer and paper consumption, ocean acidification, rising temperatures, transportation, tourism, loss of arable land, coral reefs, rainforests, etc.

During 2019 the equivalent of a soccer field [of rainforests] was lost every six seconds, with Brazil being one of the main culprits for this unbelievable deforestation that, under the pretext of a supposed “economic development”, eliminated thousands of species to replace them with a few.

Future generations will be baffled by our lack of long-term perspective. For me, born in 1947, it is terrifying to be aware that this enormous destruction coincides with my own life, in which I have gone from writing with ink and feather by candlelight, to using the computer and the smartphone. I need to acknowledge that I am part of this sinister process.

Researchers Simon L. Lewis of the University of Leeds and Mark Maslin of University College London published in 2018 the quite interesting book *The Human Planet: How We Created the Anthropocene*, with a theory especially relevant to us, inhabitants of the Americas. They place the beginning of the Anthropocene in 1610, the year which sees the last moment of atmospheric cooling and reduction of carbon dioxide, detected in ice blocks in Antarctica. This would be the consequence of the disappearance of at least 50 million Amerindians, the result of the violent conquest of the Americas, and the involuntary introduction of lethal microorganisms such as measles, smallpox, etc. - that would wipe out 95% to 98% of the population.

The Amerindians, who were largely horticulturalists, developed sophisticated agricultural methods in various ecosystems. They practiced polyculture without the use of a plow, and domesticated countless species of plants that today feed the world. With the disappearance of these horticulturalists, the forests resumed capturing carbon dioxide, producing a decrease in global temperature.

There were so many forests that the Europeans, English and French, when arriving in North America in the middle of the 18th century, believed that these were places untouched by human beings. Unfortunately, soon afterwards, an incessant process of logging began in the Americas and continues to this day. The Europeans introduced the practice of monoculture, with gradual and irreparable loss of soils, native species and their microorganisms - which in nature form part of a symbiotic network developed over millions of years - becoming ever more imprisoned by pesticides and herbicides.

Alexander von Humboldt¹³, with his profound knowledge of the relationships between organisms and climatic phenomena, lamented the monoculture practices among the Spanish colonizers and their descendants in Venezuela during the 1800s. Moreover, the domesticated animals of Eurasian origin brought to the Americas: cows, horses, pigs, sheep and goats, and the microorganisms they brought with them, restructured and impoverished the biota¹⁴ of large regions, part of what historian Alfred W. Crosby calls “European ecological imperialism”.

We are in a moment that requires knowledge of our environmental history to help us recover at least something of what has been lost. We have this obligation to future generations.

The conquest of the Americas radically changed the history of the world. The English-Spanish historian Felipe Fernández-Armesto rightly titled one of his books, 1492: *O ano que o mundo começou* [1492: The Year the World Began]. Eurasia and the Americas, divided by the Atlantic Ocean, were biotic experiments separated by millions of years. Contacts between humans on both sides of the Atlantic were apparently sporadic and without major consequences, at least during the last millennia, and synchronous civilizational experiments developed quite independently.

In the year 2600 B.C., for example, Saqqara in Egypt and Caral, 150 kilometers north of Lima, coexisted, both with monumental architecture.

13. Alexander von Humboldt (1769-1859) was a traveling naturalist who made one of the first scientific voyages to the central and southern parts of the American continent. *Kosmos* is the title of his treatise on nature.

14. Biota (from the Greek, *bíos* = life) is the group of all living beings of a certain environment or of a certain period of time.

If civilizations flourished in Sumeria - the cradle of Western civilization - between the Tigris and Euphrates rivers, at the same time, in the Norte Chico [Little North], along the Fortaleza, Pativilca and Supe rivers, on the Peruvian coast, at least 30 centers of complex and apparently peaceful societies thrived, without evidence of defensive walls or the use of weapons. This is possibly the oldest civilization in the Americas.

Starting in 1492, the so-called “pre-Columbian exchange” begins with species crossing the seas in all directions, and the beginning of a “new Pangea”, which culminates in our days, when the continents have finally become intimately united through sea, air and computer communications. Pangeia is the name of the supposed supercontinent that existed 335 million years ago, formed by the union of the current continents that would have started their separation 175 million years ago.

In addition to European mass immigration and the partial extermination of native peoples during the 16th to 19th centuries, ten to twelve million Africans were forcibly introduced by Europeans, a crucial and still deeply discriminated segment of America’s population. The American continent’s resources - plants, animals, and precious metals - largely moved by slave labor, were the foundation on which the European, and later the Euro-American, world domination was built. The official discourse, however, is that Europeans brought civilization to the Americas.

We are ideologically colonized. Even today, the history we learn in schools is the history of Western civilization. We speak European languages, our institutions are reflections of that continent, our religions are mostly of Christian character, and the animism and nature cults of the Amerindians have been erased.

In my life, until my meeting in 1973 with Apolinar Yacanamijoy, a shaman from the Inga (Inka) people, who invited me to a ceremony where I received yajé, the sacred drink of numerous ethnic groups in Colombia and Ecuador, I was convinced that the true culture was European and that I couldn’t learn anything from the indigenous peoples. Little by little, I was forced to look in the mirror and recognize that indigenous blood also runs in my veins, and that my identity as a “Westerner” was due to a historically constructed choice.

On the other hand, thanks to the work of Marija Gimbutas, I also made important discoveries about my Western heritage. According to

this Lithuanian archaeologist and folklorist, before the Indo-European invasions at the beginning of the Bronze Age, “Old Europe” consisted of relatively homogeneous egalitarian Neolithic societies where there were no instruments of war, where art (evident in ceramics) and music were cultivated, and from a religious point of view it seems that the cult of mother Earth predominated.

I think it is important to be aware that the persecution of Amerindian “idolatries” was preceded in Europe by persecutions against witches and pagans. Here is an example: Peter von Dusburg’s *Chronicon Prussiae*¹⁵ from 1326 is a chronicle of war about the Catholic crusades to Christianize the pagans among the old “Prussians” (the Baltic tribes of northern Europe). We find the following text: “[...] and as it was they [the Prussians] worship the whole of creation instead of God: the sun, the moon, the stars, thunder, birds, even four-legged animals, including frogs. They also held forests, fields, and rivers sacred.” These beliefs are totally similar to those of many Amerindian peoples and traditional societies around the world.

It is convenient to remember that the invasion of the Americas combined military and commercial aspects with religious justifications that had already been applied in the Portuguese expansion to the African coasts in the 15th century. With the Bull *Dum Diversas* of 1452, Pope Nicholas V, by means of his Apostolic Authority, authorized Afonso V of Portugal: “[...] *full and free permission to invade, search, capture and subdue Saracens and pagans and other infidels and enemies of Christ wherever they are, as well as their kingdoms, duchies, counties, principalities, and other goods (...) and to reduce their people to perpetual slavery.*”

Later the Spanish made use of the *Requerimiento*, the document drawn up in 1513 which the Spanish conquistadors read to inform the Indigenous peoples that their land was no longer theirs, and that was commonly read to the Indigenous peoples before battles, in Spanish or Latin without any translator, often at a great distance from the Indians,

15. Peter von Dusburg (died 1326) was a priest and chronicler of the Teutonic Knights. Known for his work *Chronicon terrae Prussiae*, which describes the crusades of the Teutonic Order in the 13th and early 14th centuries and the conquests and subjugation of the Prussian clans.

or even from the boats: “[...] *Of all these peoples God our Lord has appointed a man called St. Peter, to be lord of all men in the world, and that all should obey him; that he was to be ruler of the whole human race wherever men live, under whatever law, faith or belief.*”

“If you do not do so, or if you maliciously postpone the decision, I certify that with God’s help we shall powerfully enter your territory, wage war against you in every possible way and manner, and submit you to the yoke and obedience to the Church and Their Majesties. We shall take you, your wives and your children as slaves, and as such we shall sell them and dispose of them as Their Majesties command, and we shall seize your goods, and do you all the harm and damage we are capable of, as to vassals who neither obey nor wish to receive their lord, but resist and contradict him. And we hereby declare that the deaths and damages that result from all this shall be your fault and not their Majesties’ or ours, nor of these gentlemen who accompany us.”

In 1496 Henry VII of England authorized John Cabot to “conquer” and “possess” in his name any territory he ventured upon on his North Atlantic voyage that were not already in Christian hands.

Until recently, both in North America and in Australia, children were separated from their parents and forced to stay in massive schools where their hair was cut, where they were forbidden to speak their languages, and where they were supposed to forget the religious ideas of their cultures. The motto was: *Kill the Indian: Save the Man*. The justification, unfortunately present in the minds of some people until now, is the superiority, moral and physical, of the white races that brought the supposed “truth” to all these places.

The big mistake of Western culture was to separate us from the rest of nature: the idea of the exceptionality of human beings. This idea has at least two sources. The first is religious: in the biblical conception, man is made in the image of God, gives names, and becomes Lord of the rest of the species. The second is philosophical: for the Greeks “man is the measure of all things”, as Protagoras said in the 5th century before Christ. Aristotle states that plants have a “vegetative soul,” and animals a “sensitive soul,” placing human beings at the top of the pyramid for having a “rational soul.” Here, an interesting excerpt in one of Plato’s dialogues, composed around 370 before Christ. Phaedrus invites

Socrates to take a walk outside the city. And the latter replies, *“Forgive me, my friend. I am devoted to learning; landscapes and trees have nothing to teach me - only people in the city can do that. But you, I think, have found a potion to enchant me. For just as people lead hungry animals forward by waving branches of fruit before them, you can guide me all over Attica and wherever else you please simply by waving in front of me the leaves of a book containing a speech [by Lysias].”*

Amerindian animist thought, and that of traditional societies on other continents contrasts radically with this view. According to anthropologist Alfred Irving Hallowell, who worked among the Ojibwa of the Great Lakes between the United States and Canada, animism refers to ways of living in which they assume that the world is a community of living people who deserve respect, and therefore good relations between people of different species should be promoted. It implies moral and reciprocal relationships, not only between human beings, but also with “Non-human Persons”.

Importantly, animism is not a philosophy: it implies an intimate and multi-sensory relationship, a participatory and non-discursive knowledge that recognizes intelligence in the natural world, and that there is a subjectivity in vital processes. Animism presupposes relational, and intersubjective epistemologies with our world’s other entities. This is not at all absurd. In life everything depends on everything. Microorganisms - of which our planet houses between 10 and 15 million species - created the conditions for the development of more complex life on this planet. Without insects, there would be no pollination, and therefore many plants would not exist. Without plants, we and the animals would not be here. Symbiotic relationships are essential. We ourselves are ecological substrates for the organisms that live in and on us and upon which we depend. We could even say that we are not individual beings, but conglomerates of interdependent organisms, with a mind and emotions that are somehow collective.

There is currently a convergence between animistic thinking and some evolutionary biologists and ecologists. There is an explosion of scientific literature on the intelligence of various animal species, not only primates, dolphins, elephants or our pets. I want to

mention the books by Jonathan Balcombe on the intelligence of fish, by Carl Safina on different species, and by Peter Godfrey-Smith on the mind of octopuses. The primatologist Frans de Waal titled one of his books: “*Are we smart enough to know how smart animals are?*”?

Currently there is also a growing literature on fungal and plant intelligence. I would also like to mention the work of Monica Gagliano, who combines careful experimental research with openness to subtle communication with plants through dreams. Very similar to what I discovered when I did fieldwork among Peruvian riverside-dwellers. Don Emilio, one of my masters, told me that the plants with which ayahuasca is prepared (*Banisteriopsis caapi* and *Psychotria viridis*) are “doctors”, like tobacco, toé (*Brugmansia grandiflora*) and many other plants. This is the concept of “master plants”, important in the practices of indigenous peoples and Amazonian river dwellers.

Making nature sacred again is fundamental today to reverse the absurd situation in which we find ourselves, especially here in Brazil. I consider the recovery of some kind of animism, without contradiction to the scientific method, as crucial, not only from a personal point of view, but also from a legal one. In fact, we have concrete examples in other continents.

In the year 2017, for the first time, and after an arduous legal battle of more than a hundred years, a river was officially declared a “person”. It is the Whanganui River in New Zealand, central in the lives of the Maori, who consider it an ancestor and spiritual mentor, and whose waters were used to heal their sick. A local proverb says, “I am the river, and the river is me”. To the horror of the native peoples, who considered the river an indivisible and sacred entity, since the 18th century the English have divided it and started using the river as waste and sewage. The colonizers removed the gravel from the river, polluted its waters, introduced trout that killed many local species, and drove the natives from its banks. With the new legal status, the river is represented by two people elected by the Maori. In March of the same year, a week later, India declared the Ganges and Yamuna rivers to be living entities. These two rivers are considered sacred by Hindus, and are regarded as goddesses that provide physical and spiritual support to the population. Now three government officials are their guardians.

In an effort to protect rivers from increasing pollution, in 2019 the Supreme Court of Bangladesh gave the status of living entities to all rivers in the country. This is a necessary paradigm shift. Traditional peoples around the world may appeal to similar ideas to protect their religious rights. If private companies have the status of a “person” (legal entity), why not also a mountain, a lake, or a river? If temples, mosques, synagogues, and *terreiros de umbanda* [place for practitioners of the syncretic Afro-Brazilian religion that blends traditional African religions with Roman Catholicism, Spiritism, and Indigenous American beliefs] or *candomblé* [African diasporic religion that developed in Brazil during the 19th century] are today considered sacred places, the same criteria must be applied to the sacred places of the Traditional Peoples.

Parallel to biological extinction we have the extinction of cultural diversity. If our civilization collapses, as has happened to the civilizations that preceded us, we will lose the knowledge of the forests, rivers, deserts and mountains of the traditional peoples that managed to maintain them. As Leila Salazar-López states, “traditional native societies represent only 4% of the world’s population, but protect 80% of the world’s diversity”. In our case, here in the Americas, we have an obligation to defend the rights of indigenous peoples and their lands, for their sake and for ours. They are the guardians of the forests and the rivers, the mountains and the lakes.

The Researcher and environmental activist Vandana Shiva says that ecological and ethnic fragmentation and collapse are intimately linked and are an intrinsic part of a policy of planned destruction of natural and cultural diversity, to create the uniformity required by centralized management systems.

Linda Tuhiwai Smith, a Maori professor at the University of Waikato in New Zealand, insists in her book *Decolonizing methodologies: research and indigenous peoples*, that indigenous peoples have philosophies that connect humans to the environment and to each other, generating principles of a possible sustainable and respectful life.

It is a paradox that in a country like Brazil, with its extraordinary ethnic wealth, the indigenous population is on the defensive, losing their land, being treated as enemies of social progress. We are witnessing the

continuation of a physical and cultural ethnocide of five centuries. In this very dangerous situation in which we find ourselves, with the need for new paradigms for behavior and relationship with the natural world on which we depend, they can be our true guides, not the bureaucrats who, from their armchairs, decide our destinies based on economic projections, hand in hand with people whose main vital horizon are financial interests.

A large part of humanity has gone astray. We have become ultra-consumerist, insensitive to the fate of the countless species with which we share this wonderful planet. Life, wild, creative and indestructible, will persist on our planet, even if we commit the folly of ruining this enormously rich experiment that we are part of.

I would like to end by mentioning our Desana friend Luiz Lana¹⁶, a great source of ancestral knowledge. The disappearance of the indigenous sages is a tragedy. Let us hope that many young Indigenous people will strive to learn from their elders, so that one day they will take their places and Amerindian knowledge will live on for future generations.

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I was born in Florencia, the capital of Caquetá, Colombia, an originally Amazonian region of amazing biodiversity, inhabited in the past by Andaquís, Coreguajes, Witotos and other indigenous peoples who suffered persecution and ethnocide as in so many other places in the Americas. The region was unfortunately transformed into pastures for cattle and monocultures by settlers coming from other areas of the country, suffering one of the highest deforestation rates in the world.

Since I was a child I witnessed, even if unconsciously, the beginning of this process. I was especially interested in the indigenous people who sometimes arrived in Florencia, at that time a fledgling city founded by Capuchin missionaries in 1920 without electricity, without running water, and almost without cars.

At the age of twelve I entered a seminary in Bogotá, and at the age of 18 I went to study philosophy and theology in two monasteries in the north of Spain.

At 21, I left the order to study philosophy and languages at the Complutense University in Madrid, and for six years I taught Hispanic literature at the University of Oslo, while taking an interdisciplinary master's degree that included linguistics, and introductory courses in astronomy and organic chemistry: the wonderful academic combinations possible at some Nordic universities.

In 1979 I moved to Helsinki to work at the Hanken School of Economics, a Swedish institution. At the same time I did a doctorate in comparative religions at Stockholm University, supervised by Professor Åke Hultkrantz, a great specialist in Amerindian religions, with a thesis on sacred plants and shamanism in the riverside communities of the Peruvian Amazon.

From 1992 to 1994 I was a professor in the Department of Anthropology at the Federal University of Santa Catarina. For family reasons I resigned and returned to my post in Helsinki. After 32 years in Finland, - I retired almost nine years ago - my Brazilian wife and I divide our time between Finland and Brazil. I am director of the Research Center for Psychointegrative Plants, Visionary Art and Consciousness, *Wasiwaska*, and for years I have been researching and collaborating with professionals from various universities in fields such as psychology, biology, neuroscience, and cosmology.

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