

TOWARDS A NEW SYMBIOSIS IN THE MEXICAN ENVIRONMENT: ART & SCIENCE

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In contemporary art the most recent artwork of Gilberto Esparza deals with microorganisms, environmental issues and electronic media. His project *Plantas Nómadas* navigates the everyday life urban ecosystem. His work is based on the recycling of consumption technology, human wastes and a robotic mechanism that survives from served waters and solar energy.

Introduction

From the outset of civilization, human beings have tried to express some of their ideas, fears and emotions through art. One of our deepest fears today is the continuous destruction of nature and the irreversible alteration of the ecosystem. This concern has reached the art arena together with the sciences, both of which, in cooperation, create tools for new expressions, perhaps as solutions for the apparently uncontrollable problem. The results are broadening the limits of art and science beyond unrecognized limits. The artworks we study in this context are examples of this process.

The evolution of informatics systems, hardware, and the arts have revolutionized the way we perceive the world and by consequence the aesthetics of arts itself. Few are the cases in daily life where digital process is not playing a role in modern existence and thereby enabling us to fulfill our tasks in the world.

With the use of these new tools, many human activities have undergone changes, sometimes, not in the right direction: uncontrolled materialistic consumption may be one of the causes. The development of the web has become a tool and a weapon for globalization, a concept strongly tied to those concerns. Today, the global frontiers are blurred, time is relative, and perhaps the only limitation is the capacity of reception and transmission of data, depending on the levels of technological advancement in the region.

Antecedents of the Project *Plantas Nómadas*

For instance, to observe the robotic creatures *Parásitos Urbanos* (Urban Parasites) of Gilberto Esparza is to pass through the lens of the future, and believe that the most disturbing images like those found in the painting *The Garden of Earthly Delights* of Hieronymus Bosch have become true. It makes us feel, in a way, that we are entering a sort of the *Gate of Hell* in Dante's *Inferno* or into the space of a science fiction novel. This is not because the goal of the artist is to intimidate the viewer, but rather the opposite: his works pretend to become a savior device of humanity after the damage already done to earth.

The physicality and size of *Parásitos Urbanos* are not like the microscopic organisms that enter our body and which we are not able to see; nor are they like the new invented sicknesses that are globally widespread today; and neither are visible to the so called viruses made to affect computers. It is true that not all parasites are microorganisms; however, Esparza's mimetic parasites are depictions of living creatures

that are mechanized and autonomous to some extent. In this case, they have not evolved in nature as the rest of living species, but in the creative mind of the artist. The devices are designed to obtain their requirements of energy from existing sources like electric lines, solar energy or batteries - in order to move and call the attention of viewers - while at the same time emitting sounds, like animals that roar, sing or tweet in order to call the attention of their partners. The artist's robot emits sound in order to call the attention of the viewer by emulating zoosemiotics.

At first glance the devices seem to be part of the ecosystem in which they inhabit but once we pay close attention to their movement, we realize that they have an independent mechanism.

Esparza is not only working with scarce technology within the arts, creating quasi-mechanized creatures living from the wastes of the city, he is as well, tackling one of the most destructive problems faced by humanity, the destruction of the environment and the problems generated by the overpopulation of humans.

The Biological Side of the Robot

Plantas Nómadas is a concept that includes micro-organic plants contained in unhealthy waters (Geobacter) and a robot living in an environment, which has been rendered hostile after transformation by means of human activity. The plants have been transplanted from the soil and adapted to the new ecosystem. Its nomadic condition allows it to adapt and find nutrients with the help of the robot.

This artwork is an example of the lack of human consciousness destroying the planet, and the persistence of care for the planet. By observing the piece in its environment we can contemplate how the robot takes residual water, separates its elements and ignites the motor of the robot by providing energy.

The piece is a prototype of a hybrid organism developed in symbiosis by being constituted out of electro-mechanic, kinetic and biotic systems. Its electro-mechanical construction works with the help of biological cells cultivating a diverse spectrum of bacteria that transforms the glucose and the amino acids, releasing microvolts of energy. The energy is accumulated inside a harvest system, providing autonomy to the whole device. The design of the system uses cybernetics in order to protect the system itself and keep it alive.

The power cycle nourishes the bacterial culture that feeds the electronic system. The purified water that is irrigated to a plant comprises its existential cycle. *Plantas Nómadas* were created in earnest of a concern for the deteriorated environment caused by human activity and its irreversible consequences. These changes are directly hitting all sorts of life on the planet making it imminent that organisms have to, either, adapt faster or perish. During the mission of *Plantas Nómadas*, several organisms adapt themselves to the new environment in order to survive in a symbiotic way, taking advantage from the nutrients found in polluted surroundings. The paradoxical thing is that this symbiosis manages to start off the union of a robot whose origins are in the human imagination and which is yet manufactured in a system that is bound to the modifying surroundings of the natural Earth. *Plantas Nómadas* are a species that come indeed from the alienated processes that the planet is undergoing. It is a robot of inverse understanding, whose vital processes do not need to obey or be in agreement with the structure of capital production. Their behavior, movement and times, are determined by their vital cycle of existence, it is

an organism that exists in contradiction to the acceleration of the world that has been imposed by human dynamics.

The goal of Esparza's research seems to open the possibility of reversing the alterations of ecosystems and therefore the killing of other species. The pretension is to learn the habits that other species have accumulated throughout millions of years of adaptation and reintegration to the environment and to give back to the Earth, in different form, the energy that it rendered to us. The idea may allow the human species to survive on the surface of the planet.

It is our concern to highlight the lack of water and its pollution all around the world and the possible solutions through the use of a new hybrid organism, which are products of alienated processes. It appears - by the simple act of coexistence in those zones of ecological disaster, to represent, a serious manifestation of social and environmental impacts in the communities that depends on clean water of the rivers.

Ecological Concerns

Plantas Nómadas is a utopian dream of healing the earth, where the waste of uncontrolled human consumption and growth deteriorates and destroys nature. The long known Malthusian theories on over-population, [1] demonized by the Catholic Church are not far from truth.

The damage to biodiversity in modern times (in the name of progress) ends up in the paying of a high price. Some solutions may be found with the ethical consumption of resources, an anti- Malthusian consciousness about human reproduction or a strict birth control and a respectful behavior towards nature. If that happens, the earth will continue to feed the living creatures on its surface for many more generations to come.

The united system of knowledge of the sciences and the humanities to which [2] it appeals in his book *Consilience* have found a point of convergence in Esparza's *Plantas Nómadas*.

It appears that the Enlightenment ideals have collapsed not because of a continuous progress in the name of social development but because of capitalist wastefulness. It will be suitable that the work of art in focus will be made for mass circulation, like cars, in order to save the planet. A utopian desire rooted in ecological initiatives.

In formal terms *Plantas Nómadas* is like a Kafkaesque cockroach, nevertheless instead of the human becoming an insect turned upside down, it seems that Esparza's dream is to contribute to reverse a future natural catastrophe. It is a sort of crusade against the evident disregard of nature.

It is quite revealing in the first two lines of the introduction by Ian Pindar and Paul Sutton, of Samuel Beckett's *Endgame*, where Hamm exclaims: "Nature has forgotten us" and Clove replies: "there is no more nature." [3]

In analyzing Esparza's device, we realize that it is a conjunction of nature and machine living together, a proposal for new ecosystems and symbiosis of nature and culture, art and science, and last, the creation and destruction as one of the conditions of nature but nowadays most importantly with ecological balance. In that sense, Guattari argues:

“The earth is undergoing a period of intense techno-scientific transformations. If no remedy is found, the ecological disequilibrium this has generated will ultimately threaten the continuation of life on the planet’s surface. Alongside these upheavals, human mode of life, both individual and collective, are progressively deteriorating. Kinship networks tend to be reduced to a bare minimum; domestic life is being poisoned by the gangrene of mass-media consumption; family and married life are frequently ‘ossified’ by a sort of standardization reduced to their meanest expression..... It is the relationship between subjectivity and exteriority – be it social, animal, vegetable or Cosmic – that is compromised in this way, in a sort of general movement of implosion and regressive infantilization. Otherness [l’altérité] tends to lose all its asperità.” [4]

The symbiosis of robot, plants and microscopic organism may therefore appeal to opposites, the Apollonian and Dionysian concepts in the *Birth of Tragedy*, [5] where the author argues that “Man is no longer an artist, he has become a work of art; man himself now moves with the same ecstasy and sublimity with which, in dream, he once saw the gods talk” and in this case we may say that it is not man who became a work of art but a fusion of nature and machine creating new organisms. *Plantas Nómadas* is a piece where ethics became an unquestionable component of the artwork itself and more than an aesthetical constituent to what art pleaded long time back. Here the artwork is closely connected with scientific thinking rather than with gestural process of painting or sculpting characteristic of traditional art. Postmodern times have favored the development of new expressive forms concerned with the earth itself distancing at the same time from the inaction of the land art in the sense that it uses its components by transforming it, but does not questioning the human effects on the earth.

The natural and the technological

Nowadays the scandals centered in some religious institutions concerning material wealth and libertine morals of the leaders, make it possible for a nihilistic society to flourish, a society closer to nature's demands and its protection. Technology became important to contemporary knowledge only through the mediation of a generalized spirit of performativity. Even today, progress in knowledge is not totally subordinated to technological investment as Lyotard, claims. In many art works produced nowadays, some artists need the newest discoveries and inventions produced in science to achieve their ideas, while scientists are more open to intuitive thinking that had characterized the arts. In *Plantas Nómadas* both processes go hand in hand, looking for an equilibrium that keeps both the mechanism and the organic system in symbiosis while producing an artistic experience. The goal in the artist's mind is to keep the machine working through the recycling of served water and the bacteria contained in it. The mimesis of nature, for instance, is emphasized with the sound produced by the robot when it has excess of energy - it becomes a kind of animal in its aspiration to reproduce itself. *Plantas Nómadas* the sound may have as its goal to spread the benefits of the robot on a wounded earth. A question arises, Is it possible to envisage and build an autonomous community of robots that could reproduce themselves? Deleuze's concerns about the reproduction of machines was as follows:

“It is said that machines do not reproduce themselves, or that they only reproduce themselves through the intermediary of man, but “does anyone say that the red clover has not reproductive system because the bumble bee (and the bumble bee only) must aid and abet it before it can reproduce? No one. The bumble bee is a part of the reproductive system of the clover. Each one of ourselves has sprung from minute animalcules whose entity was entirely distinct from our own... These creatures are part of our reproductive system; then why not we part of that of the machines?” [6]

Deleuze's question is fundamental on metaphysical issues. An approximation was made some time back with hybrids between human and machine approached in creative writing such as Mary Shelley's novel *Frankenstein* or analysis like the *Cyborg Manifesto* of Donna Haraway.

Esparza's work is promoting an interdisciplinary study of ecological perspective in a profound scientific engagement. The interstitial piece is on one hand mimicking amphibians, living partly in aquatic sediments and soil, while there is also another concern for land involving the process of restoring nature after being abused, by the seven thousand millions of humans inhabiting its surface.

Plantas Nómadas show us that through the exploration of the intersections of art and science many imaginable worlds can be reached, by originality, producing a state of fascination and enchantment. Paul Virilio quoted the architect Kasuo Shinohara who claimed that "the city of the future will express the beauty of confusion" to what Virilio reacted: "I am, on the other hand, quite convinced that it will in the near future illustrate the tragedy of the fusion of 'biological' and the 'technological.'" [7]

Here the artist is not far from what Virilio fortell. It is also important to mention the recent work of the Brazilian-American bio-artist Eduardo Kacs with his project *Natural History of the Enigma* that consisted of the hybridization of his DNA and a petunia plant (The *Edunia*).

In Esparza's work, the green plant is provided with a locomotive system that at the same time is ignited with clean energies, solar and micro biotic combustion cells. A previous work of his used a similar principle of solar photocell, though it was far more simple and tremendously poetic, the artwork was produced in 2008 and was named *Perejil buscando al sol* (Parsley looking for the sun).

The idea in *Perejil buscando al sol* as much as in *Plantas Nómadas* is that the artist in a way is altering the evolution of the plant by adapting a locomotion system in the first case, and locomotion and nutrients to a symbiotic system in the second.

An article of Victoria Gill, that appeared in the BBC news, affirmed that "plants can think and remember, based on the founs of the scientist Karpinski Stanislaw (2010), chemical signals could be passed throughout whole plants - allowing them to respond to and survive changes and stresses in their environment, included in his study was a discovery that when light stimulated a chemical reaction in one leaf cell, this caused a "cascade" of events and that this was immediately signaled to the rest of the plant via a specific type of cell called a "bundle sheath cell." [8]

From this perspective, the apparent symbiosis of the plant and the machine, the artificial intelligence and the chemical signals of the plant complement each other. The machine becomes the perfect object, where the movements of the machine, like human gestures, or the locomotion of a turtle, are replicated in the piece, but the automata is just an object. As Baudrillard wrote:

"The strictly practical object acquires a social status: this is the case with the machine. At the opposite extreme, the pure object, devoid of any function or completely abstracted from its use, takes on a strictly subjective status: it becomes part of a collection." [9]

The piece may look like an animal-machine or a toy, but it is not. Its complexity goes further because it is an art piece and falls into a new classification called *Device Art*, We quote:

“What we call device art is a form of media art that integrates art and technology as well as design, entertainment, and popular culture. *Device Art* is a concept that pushes the boundaries of media art and inherits the legacy of the experiments artists have been conducting with media technologies. By raising questions regarding possible relationships between art and technology, the role of hardware-based devices, and the borders between art and its related fields, and creating a common ground for artists and engineers to work together as equals, we might find some answers with regard to future directions rather than the past.” [10]

In a sense, the robot reflects the spirit of his creator, it is the perfect mirror or pet, the object is the perfect domestic animal. It is the only ‘being’ with such qualities that exalts my personality instead of restrained. [11]

Baudrillard compared the robot to a mirror because the robot does not produce real images but only desired ones; it assumes the image of the perfect domestic animal because it highlights the character of its owner. *Plantas Nómadas* incarnates the myth of functionality, where its efficiency is in direct relation with the amount of nutrients contained in the water and the sun that hits the photocells. The robot, as Baudrillard makes a case, [12] is a symbol of a completely functionalized and personalized world that at the same time embodies the abstract power of men *in extremes* and without plunging into identification.

Conclusions

Esparza’s robots draw attention to our relations with the environment allowing us to see the fragility of the machine, like nature, that at some point will stop running, perhaps destroyed, or become a part of the museum cemetery.

The creation of Esparza's piece questions the human excesses in consumerism, wastefulness and the lack of control of the public administration to handle the problem of the residues produced.

References and Notes:

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