# THE TECHNO-SCIENTIFIC CIVILIZATION AND THE DE-REALIZATION OF THE IMAGE. GODFREY REGGIO'S *QATSI TRILOGY* IN THE LIGHT OF JACQUES ELLUL'S REFLECTION ON TECHNOLOGY.

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Godfrey Reggio's so-called "*Qatsi* trilogy" – a triptych put together in the course of thirty years and featuring *Koyaanisqatsi* (1982), *Powaqqatsi* (1988) and *Naqoyqatsi* (2002) – is an excellent example of how documentary film can overcome the positivistic claim of an objective reproduction of "reality," of a neutral observation and of a primacy of content, to take on directly the complexity and ambiguity of our experience, in which what is seen (the "object") is inseparable from the act of seeing (the "subject"). This correlation between subject and object, the perceiver and the perceived, the eye and the world is the fulcrum of the most advanced practices in the documentary film landscape of the last quarter of a century. This deep transformation process, of which Reggio's experimentations have been a significant harbinger, has brought documentary film into the apparently alien and unrelated territory of art and essay film, and has put it with ever increasing clarity at the heart of contemporary artistic research. Contemporary artistic research, as a matter of fact, appears to be characterized by a *documentary turn.*[1]

The *Qatsi* trilogy is a deeply coherent audiovisual experience, that has, as a matter of fact, two authors: the director, Godfrey Reggio, and the composer of the musical score of each of the three films, Philip Glass. In what follows I will try to point out the main aesthetic features of the trilogy. I'll be doing so by taking into consideration Reggio's main concern, that is the articulation of a broad reflection on the philosophical-anthropological pair humankind/nature within the framework of the fundamental trends of present-day society. The *Qatsi* trilogy constitutes Reggio's most relevant contribution to a crucial debate spanning the XXth and XXIth centuries, namely the debate around techno-scientific civilization.[2] To better understand the complexities of Reggio's *mise-en-scène* it is crucial to consider his perspective on the techno-scientific civilization, acknowledging the intellectual influences he explicitly points out and clarifying on that backdrop what his work on images and sound brings about (or, put another way, how he specifically thinks through images). Despite the "audiovisual coherence" I have mentioned, one of the most compelling traits of the *Qatsi* universe is that its unity of inspiration, approach and vision takes a new and original shape in each of its three "galaxies." In discussing the trilogy it is of paramount importance to account for these differences; therefore, I will divide my article in three parts, one for each film.

## 1. LIFE IN THE TECHNOLOGICAL SYSTEM

In order to delve into the trilogy, a good course of action is to start from the end credits of the three films. In *Koyaanisqatsi* there is an extremely interesting "Inspiration&ideas" section where the names of Jaques Ellul, Ivan Illich, David Monongye, Guy Debord e Leopold Kohr are singled out. Some of these names come up in the other two films as well. In the "Special thanks" section of *Powaqqatsi* one can find the names of Jacques Ellul, Ivan Illich and Leopold Kohr (there Monongye and Debord are missing). Finally, in *Naqoyqatsi*, an "Inspiration" section includes Ivan Illich, Jacques Ellul, David Monongye and La Gente / YCFA[3] (Debord is still missing, Kohr is removed, while Monongye is back in). David Monongye has been a traditional leader of the Hopi Native Americans, who now primarily live in the Hopi Reservation in northeastern Arizona. In 1946, after the dropping of the nuclear bombs on Hiroshima and Nagasaki, he revealed to the world, together with three other members of his tribe, the traditional wisdom, the teachings and the prophecies of his people. The titles of the films of the trilogy come right from the Hopi language (the linguistic root "qatsi" means "life").[4] On top of that, in the last musical piece of *Koyaanisqatsi*, a choir sings the prophecies of the Hopi tribe in their original language.[5] In contrast to these indigenous people, whose culture has been marginalized and reduced to irrelevance, stands North America as avant-garde of the Westernization of the world and of its transformation into a technicalized Global Village. The other intellectual "mentors" mentioned in the end credits have all dealt with Western society and have in various ways developed a critique of it: Jacques Ellul (1912-1994) from the point of view of technology; Ivan Illich (1926-2002) from the point of view of institutions (mainly the school and medical systems); Guy Debord (1931-1994) from the Marxist point of view of the transformation of reality into *spectacle*; and, finally, Leopold Kohr (1909-1994) from the point of view of the "cult of greatness" that underlies centralized political and economic structures.[6]

The interpretative work that will be conducted in the present contribution aims at highlighting some focal points of the audio-visual meditation on technology developed in the *Qatsi* trilogy. Therefore, among all the above-mentioned cultural guides, I will dwell mainly on the thinking of Jacques Ellul, evaluating not so much the extent and the form of its presence in the cinematic works taken into consideration, but rather its ability to enlighten some aspects of Reggio's triptych. In short, I will put to test its hermeneutic incisiveness and productivity, without *directly* discussing the consistency of Ellul's main theses. The choice of this approach doesn't have to do only with the necessity to narrow the field of investigation, but also with a more strategic and intrinsic motivation. Son of its times, cinema – real «eye of the 20th century»[7] – is a technological product

that performs a mechanical sight. Choosing the cinematic medium, Reggio is perfectly aware that he is developing a reflection on technology *from within technology itself.* The visual angle of technology thus allows us to grasp the meta-cinematographic character of the director's endeavor and to follow his indications regarding the "nature" and the possibilities of moving images.

Beginning in the fifties Ellul put together one of the most rigorous, documented and comprehensive critical investigations of technological development, expressing it in a lively and indomitable research, whose most important junctures have been the books *La Technique ou l'enjeu du siècle* (1954), *Propaganda* (1962), *L'Illusion politique* (1965), *Métamorphose du bourgeois* (1967), *Les Nouveaux Possédés* (1973), *Le Système technicien* (1977), *L'Empire du non-sens* (1980) e *Le Bluff technologique* (1988).[8] His questioning of the "tyranny" of technology has earned him the truly simplistic and self-justifying label of "obscurantist and terrible retrograde" (Jean-Luc Porquet).

In order to understand the impact of Ellul's theses on Reggio's work, it is very instructive to listen to an interview in which the director tries to point out the main goal of *Koyaanisqatsi*:

> What I tried to show is that the main event today is not seen by those of us that live in it. We see the surface of the newspapers, the obviousness of conflict, of social injustice, of the market, the welling up of culture. But to me the greatest event or the most important event of perhaps our entire history – nothing comparable in the past – this event is fundamentally gone unnoticed and the event is the following: the transiting from all nature, or the natural environment as our host of life for human habitation, into a technological *milieu*, into mass technology as the environment of life. So these films have never been about the effect of technology, of industry on people; it's been that everyone – politics, education, things of the financial structure, the nation-state structure, language, the culture, religion, all of that exists within the host of technology. So it's not the effect of…, it's that everything exists within. It's not that we use technology, we live technology. Technology has become as ubiquitous as the air we breathe. So we are no longer conscious of its presence. So what I decided to do in making this film is to rip out all the foreground of a traditional film, the foreground being the actors, the characterization, the plot, the story; I tried to take the background – all of that that just supported like wallpaper – move that up into the foreground, make that the subject, ennoble it with the virtues of portraiture and make that the presence. So we looked at traffic as the event. We looked at the organization of a city as the equivalent of what a computer chip looks like. We looked at acceleration and density as qualities of a way of life that is not seen and goes unquestioned. Life unquestioned is life lived in a religious state.[9]

Reggio, therefore, intends to bring to the foreground what usually stays in the background. The background is in itself elusive and inconspicuous, because it leaves room for the individual phenomena that follow one another in plain sight. They can be there, be present in so far as they are allowed to stand out against the background and attract attention. But the background remains the encompassing dimension, the phantom thread that binds together all that steps temporarily into the limelight. That's why Reggio deems it so important to bring to the foreground that which usually is a mere "wallpaper" of flashy events. To bring to the foreground the background *in itself*, that is, in its withdrawing, is something that blatantly edges close to a paradox – a paradox that, as we will see, lies at the very center of Reggio's cinematic trilogy, and perhaps of human experience as such. If one looks beyond the kaleidoscopic horizontality of the fragmented multiplicity and adopts a "vertical" gaze, if one dwells on the background and becomes aware of it, one can try and grasp the overall logic of our reality. This overall logic of the contemporary world is called by Jacques Ellul the *technological system* – an expression that, as recalled before, features as the title of an important study published by the French author in 1977 and translated into English in 1980, just a couple years before the completion of *Koyaanisqatsi*. Ellul points out that work and the means produced and used by it represent a "mediation between man and his natural environment. […] Man has thus created a whole set of mediations around him."[10] But if technological operation "has always existed throughout history", this is not the case for the "technological phenomenon", that, according to Ellul, "has been specific to Western civilization since the eighteenth century" and is characterized by "consciousness, criticalness, rationality."[11] By virtue of the four industrial revolutions (the revolutions of carbon, of electricity, of nuclear energy and of computing machines), the technological phenomenon has established itself as an autonomous system, self-regulated through the feed-back of information, a system that moves in the direction of a *complete closure*. Technological mediations, which as such have the tendency to crystallize and be detachable from those who produced them, have proliferated and multiplied themselves to such an extent that they form "both a continuous screen and a generalized mode of involvement."[12] Technology, in the end, must be taken "not only as a means", but as a "universe of means – in the original sense of *Universum*: both exclusive and total."[13] This could look like the result of quantitative growth. But the fundamental difference lies elsewhere, and has to do with the relationship between science and technology. Their relationship is no longer conceivable in terms of the pair theory/praxis, as if technology were an *application* of science. Inasmuch as *functionality*, *efficiency* and *effectiveness* have become the benchmarks, the applicative dimension has acquired a primacy over the epistemological one. If scientific knowledge, in its modern philosophical foundation, aims at

establishing humans – in René Descartes' words – as "the masters and possessors of nature,"[14] it finds an essential counterpart in technology. The link appears even more intrinsic, if we consider that scientific knowledge, becoming experimental and abstracting from sensitive intuition and perception, ends up studying phenomena that are produced artificially through technical equipment. Theories become therefore *explicative models* that are evaluated on the basis of their being more or less beneficial and useful. Ellul writes:

> Technology is both ahead of and behind science, and it is also at the very heart of science; the latter projects itself into technology and is absorbed into it, and technology is formulated in scientific theory. All science, having become experimental, depends on technology, which alone permits reproducing phenomena technologically. Now, technology abstractly reproduces nature to permit scientific experimenting. Hence, the temptation to make nature conform to theoretical models, to reduce nature to techno-scientific artificiality. "Nature is what I produce in my laboratory," says a modern physicist.
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> In these conditions, science becomes violence (in regard to everything it bears upon), and the technology expressing the scientific violence becomes power exclusively. Thus, we have a new correlation, which I consider fundamental, between science and technology. The scientific method itself determines technology's calling to be a technology of power. And technology, by the means it makes available to science, induces science into the process of violence (against the ecology, for instance).[15]

The technological system must therefore be more appropriately defined as a *techno-scientific* system. The technological system is based mainly on *information technology*, on the computer, which is able to "integrate the parts of the *technological* subsystems."[16] "It is the computer," states Ellul, "that allows the technological system to definitively establish itself as a system."[17] The computer promotes (and imposes) better data-processing via the connection of the various networks of data, and this integration is the *World Wide Web*, the *Internet* ("inter-net" literally means the net that stands between and connects all the sub-nets – it is the net of nets, a second-degree net that enhances connectivity itself and the reduction of the world to the circulation and elaboration of data). Through fragmentation and division, the technological system tries to make the totality of human experience computable, and so to translate it into *information*. This translation process is the way in which the technological system substitutes for the natural environment and becomes the new human milieu. "Technology reduces a whole to simple units," underlines Ellul, "by analyzing it and generally compartmentalizing it."[18] Technology "is inevitably *simplifying*, *reductive*,

*operational*, *instrumental*, and *rearranging*. It reduces all that was natural to the fragment of a manageable object. And anything that cannot be thus managed, manipulated, utilized, is rejected and discarded as worthless. On the huge debit side of possibilities, value is placed only on things that can be utilized. […] This environment is totally artificial (which is not a criticism; the natural does not have an eminent and normative value for me). Each factor in this environment results not from the combative creation of a living whole, but from an addition of processes that can be isolated and combined as artificially as they were created, ex post facto. Each factor can be examined, measured, isolated from the rest because we establish the connection; and we can test the result. The technological environment is in fact characterized by the growth of abstraction and controls. It is obvious that in such conditions, the technological environment scarcely favors spontaneity, creativity. Nor can it know living rhythms (which are obviously tied to the natural environment)."[19]

To understand the technological phenomenon it is not enough to take into consideration the single devices and instruments that stay each time in the foreground. As we were saying before, it is necessary to turn one's attention to the background, and thus regard the technological phenomenon "as a whole, in its unity."[20] A parcellary vision of technological discoveries and machines leads to an "abstract empiricism", that claims to study immediate reality with exact methods, but is destined to lose sight of "overall reality" and of "interactions."[21] Ellul stresses that such fallacious approach involves the assumption of a false view of "not only the whole, but also every particular technology; for each one can be truly comprehended only in its relationship to the others."[22] The technological system, as a matter of fact, is "a qualitatively different phenomenon from an addition of multiple technologies and objects."[23]

The technological system has another relevant consequence. If one considers the use and the production of *single* techniques, technology looks neutral and human beings appear to be in charge. The "sovereign man" acts in full independence: "All technological elements come from him, have no existence outside of him, and return to him; in short, man gives them their coherence."[24] Ellul underlines that "there is great reluctance to admit that a specific organization of technology exists, relatively independent of man, a sort of schematizing of life by technology."[25] Such belief is based on the "Platonic" assumption that "ultimately nothing has changed, man is still man, society is still society, nature is still nature."[26] On the contrary, in the *mediatized environment* there is an essential integration and correlation between human being and technology, so that within this framework human beings themselves become officers of technology, they are shaped and molded on the basis of its needs. The logic of integration and correlation consists precisely in this: humanity establishes a system that, in turn, determines human beings (or, at least, a certain *type* of human). "Man, who is to act upon this system, who is to use these technological objects, is not a man per se, an absolute

subject either. He himself is incorporated in a technological society", writes Ellul.[27] Human consciousness has become "the simple reflection of the technological environment."[28] Marshall McLuhan's well known formula – "The medium is the message" – is confirmed, in the sense that "the message that man is trying to transmit has become the pure reflection of the technological system, of technological objects, of images and discourses which can only be technological images and discourses on technology."[29] In Heideggerian terms, it could be argued that the "anthropological-instrumental", or *humanistic*,[30] view of technology is no longer viable, because human beings are not the masters of technology. The experience of *belonging* to the technological environment, the fact that human beings aren't entities isolated from the whole, can help them rethink at once their very nature and their relationship with the environment in general, or, as Heidegger would say, with *being*. This implies the overcoming of the traditional, humanistic definition of human beings.

The techno-scientific system, or environment, is the very background of contemporary society that Reggio was talking about in the aforementioned interview. In *Koyaanisqatsi* he brings it to the foreground cinematically through an array of very specific and powerful decisions regarding the *mise-en-scène*. First of all, Reggio gets storytelling out of the way. By eliminating that veritable catalyst for attention (or attention-centralizer) that is the plot, the director is able to obtain a more distributed attention, that gets spread on what usually is the mere "wallpaper" of "big scenes" and "climaxes." The effect of the dilution of attention is attained through a paratactic and associative editing: the director does undoubtedly resort to striking visual syntheses, to stunning images loaded with an emblematic, symbolic and synecdochic significance (the "virtues of portraiture", to recall Reggio's interview), but he simultaneously defuses their uniqueness by virtue of multiplication, that is, by putting together, at a rapid pace, a series or collection of them. Despite its impact, each image gets re-absorbed in the flow: what really dominates is, here too, the "bigger picture," the mosaic, to which the individual images belong as small, partial tiles. The same result is also achieved through Glass's music, a minimalist soundscape (or carpet of sound), that is spread evenly on the images and that via its repetitive character does not create attention peaks (as would normally happen in the musical accompaniment of a story, that reinforces its dramatic structure), but produces instead an equivalence: it places all the "portraits" on the same level. Through the deep audio-visual consistency of *Koyaanisqatsi*, Reggio finds a convincing equivalent of Ellul's belief that technical phenomena must not be considered separately, but in their overall network of interactions: only in this way does it become possible not to get "distracted" by the newest and most prominent inventions and products, and to bring forward the "background," that is the techno-

scientific system, or environment. Through a thumping succession of audio-visual elements, through the juxtaposition of heterogeneous images, picked up from different contexts and moments of everyday life, Reggio is able to bring out what properly makes techno-science a system and an environment: its *pervasiveness* and *ubiquity*, its addressing all the areas of experience (work, free time, values, forms of perception, etc.). As Ellul states, techno-science can take into consideration only what can be translated techno-scientifically, what can be transformed in numbers and calculated: the rest is discarded, ignored, and, ultimately, degraded to the point of irrelevance (in the techno-scientific environment only what is *effective* is *real*). In a relevant anthropological transformation, human beings are determined by their *function*: they are holograms of the technological environment. Hence Reggio's choice to punctuate the movie with portraits of men and women (alone or in groups) busy carrying out their tasks, which are indicated by their very outfits. These outfits are *uniforms*: they standardize workers, they literally give them a *unitary form* on the basis of their duties, and at the same time set them apart from other types of workers. What turns out to be useless – or, likewise, what has ceased to be useful (*in primis*, old people, who are no longer up to date and cannot keep up with the frenzied pace of technological development) – gets marginalized, sidelined, or rejected. Hence the portraits of outsiders and outcasts, of human "wrecks," that appear in the movie with their now *formless* apparel.

However, the most striking stylistic choice through which Reggio tries to bring forward the "background" of contemporary society – a stylistic choice that has become very popular and that has penetrated widely in the mass media, although often only as a flashy gimmick and certainly outside of the director's vision – is the extensive use of fast motion, the impressive acceleration imposed on scenes by means of *time-lapse recording* (*Koyaanisqatsi* literally means "life in turmoil"). This technique is adopted by Reggio within a precise aesthetic project. It does not just produce a hyper-realistic or hyperbolic effect, by increasing the frenzy and the hysteria that often afflict daily routine in the outposts of (Western, but now largely global) techno-scientific civilization. The acceleration sparks a deeper view, an effect of surprise, of disorientation, of estrangement, and even of choc:[31] suddenly, through a simple change of pace, something unexpected emerges within the fabric of the habitual acts we perform every day, something at first invisible because covered by the very variety of those acts. What emerges is the mind-numbing impression of mechanical repetition, of modularity, of iteration. The activities we normally perceive as free, reveal *ex abrupto* their belonging to a widespread schematization of life, a meticulous regulation of conducts, a calculated and millimetric management of fluxes of human beings, means and goods, in a sort of general application of a tayloristic paradigm of assembly line fragmentation.

The technological system becomes a *totality*, and so constantly runs the risk of imposing itself in a *totalitarian* fashion. The technological system has an essential drive towards universality: it wants to embed everything, to standardize, to uniform, to *normalize*. The epicenter of these transformations are the big cities, the metropolises or megalopolises, real central nervous systems of technicization – even though the latter, as Ellul remarks, does not consist only in urbanization and in the related depopulation of the countryside through the automation of agriculture. Cities are the *utopian* places[32] of an all-pervading control, of a self-handling of human beings and of a man-made duplication (or *simulation*) of the world, of a complete replacement of the natural with the artificial – a replacement that Paul Virilio, in many ways a successor of Ellul,[33] has traced back to what he calls the *gnostic* project of modern science[34] (that aims at recreating from scratch the perishable matter things are made of, especially human beings). Relying on an interesting physiognomic approach, able to understand a phenomenon through the identification of morphological analogies, Reggio puts side by side aerial shots of cities and images of integrated circuits: the staggering similarity between the two triggers the aforementioned estrangement.

Tracing *Koyaanisqatsi* back to its proper cultural horizon, one can avoid serious misconceptions, for example the idea that the movie expresses a dualistic, Manichean perspective, within which the "pristine beauty of unspoiled nature" would be set against the "more ambiguous 'terrible' beauty of humanity and its creations."[35] Actually, for Reggio, as for Ellul, human beings are "technological animals" that transform their environment and themselves. What Reggio, on the basis of the teachings of the French philosopher, sociologist and theologian, wants to underline is the epochal hiatus that happens when techno-science turns into a system, an environment. Reggio's aim is not to expose the effect of technology on human beings – as if an unchanging human nature stayed outside technology – but to describe *life within technology*. Ellul has stressed that a "detechnicization" of man and society is out of the question.[36] The only sensible goal is to establish a different, *freer* relationship with technology, to make it less dominant.

Those who have recognized a dualistic structure in *Koyaanisqatsi*, have always recalled against Reggio the rift running between the first part of the movie, in which the viewer supposedly meets an Edenic nature, and the second part, devoted to "wild" urbanization. This kind of oversimplified hermeneutic scheme finds little to no confirmation in the movie: *Koyaanisqatsi*'s incipit does not show a peaceful and joyful nature, but instead an arid one, devoid of life, reduced to mere geosphere, to its four elements and to their processes. Between the two parts, moreover, there is a fundamental *trait d'union* that has not been emphasized enough: the technological gaze. The shooting modes adopted by Reggio (aerial shots, fast motion, slow motion, etc.) go beyond the possibilities of human sight: they therefore bring into play a *post-human perspective* that concerns

both the geosphere and the biosphere. This perspective deeply marks cinematography as a mechanical form of sight tied to military technologies and propaganda. In his book *War and Cinema,* Paul Virilio has underlined that from the XIX century the "war machine" started going hand in hand with a "watching machine," producing a *logistics of military perception* that in the course of the XXth century has evolved into a *strategy of global vision* (put in place through electronic tele-detection systems such as spy satellites, drones, etc.).[37] As many images of *Koyaanisqatsi* witness, Reggio is perfectly aware of the technological contiguity between cinema and the military. To discredit Reggio's film on the basis of the belief that it contradicts itself, condemning technology through technological means, clearly shows a short-sightedness and a fundamental misunderstanding. Precisely because Reggio sees technology as a system, as a new environment, he knows it is impossible to pretend to just jump out of it. A reflection on technology must be conducted *within* technology. The point is, instead, to employ technological sight to overcome humanistic subjectivism and to prepare the conditions to rethink humanity as such.

## 2. A MELANCHOLIC MONUMENTALIZATION

*Powaqqatsi* constitutes to some extent a complement to *Koyaanisqatsi*, first of all because from a geographical point of view it deals with what lies outside the Western world, the so-called "Third-World" or "underdeveloped" world. From the end credits it can be gathered that the film has been mostly shot in the following locations: Peru, Brazil, Kenya, Egypt, Israel, Hong Kong, Nepal, India. But the film doesn't just go for a translation in space, moving away from the Western world: it is human experience as a whole that changes. This shift is immediately apparent in the new, different forms assumed by the collaboration between Reggio and Glass. As said, *Koyaanisqatsi* is based on aerial shots and fast motion: the "human" perspective ends up being exceeded and the true protagonist becomes the technological system. *Powaqqatsi*, on the contrary, stays at eye level: it dwells on human actions, it amplifies and expands them through a wide use of slow motion. In contrast to *Koyaanisquatsi's* fast motion, *Powaqqatsi's* slow motion does not feel like a "magic trick", it does not have the function of abruptly letting something astonishing come up, that sparks estrangement and shock; it aims, instead, at intensifying what is seen, at emphasizing characteristics that, at normal speed, risk being overlooked. Reggio has openly admitted that his goal was to "slow it down, so that, in effect, it becomes monumentalized. In freezing a moment, you create a monument, and that's what we tried to do with the film, to have it become a monument of 100 minutes."[38] *Powaqqatsi* is a monument erected to humankind, to its practices, its abilities, its genius, its application and perseverance, to the incredible variety of the ways it inhabits the world

(as in Leopold Kohr's perspective, the polychromy of the *local* – the *small* – is opposed to uniformity of the *global* – the *big*).[39] In this respect, *Powaqqatsi* has a humanistic approach. The central role of human beings brings about a shift on the level of color values and musical sonorities: the synthetic colors of *Koyaanisqatsi* – either too dull and lifeless or, conversely, too explosive – are replaced by vivid, saturated and mellow ones; the metallic notes are replaced by a score that weaves the hammering and repetitive patterns with Oriental motifs and children choirs. The two films have, however, a structural homology: both feature a paratactic editing that puts a bunch of images side by side without letting any of them get the upper hand. The editing reveals, thus, the *trait d'union* of the images, their *family resemblance*: the technological environment in *Koyaanisqatsi*, the human environment in *Powaqqatsi*. This does not boil down to a mere opposition between a negative, *inhuman* dimension, and a positive one, where the *humanitas* of the *homo humanus* is (sometimes precariously) safeguarded. Yet again, Reggio stays away from ideological simplification. If we look at the film closely, it cannot be ignored that all the countries and places shown are besieged by the advent of techno-scientific civilization, whose hasty diffusion causes dramatic imbalances between the appearing of new values and organizations and the erosion of traditional cultures. Reggio does not let himself be tempted by the siren song of nostalgia: the past is not idealized, nor depicted as a realm of superior realization of humanity – a stance implying that the only true "progress" would be a return to the old, a rewinding of the tape of history. *Powaqqatsi's* humanistic perspective is knowingly based on a step back from the domination of the technological system, which in "underdeveloped" areas is still to come, even though it is actually making inroads and spreading like wildfire. *Powaqqatsi* gives voice to an *elsewhere* that, coming before the technological system, does not belong to it *yet* – the technological system has not yet reached its *perfection* there. However, if the *otherness* of the "Third World" consists in its *coming before*, the result is that it is destined to be subdued and incorporated by technology. The evidence stemming from a *not yet uniform elsewhere* can help question the technological system in genealogical terms, it can help us to understand it better, rethinking it, it can in this sense assume a "predictive" character (as with the use of the Hopi language and of the Hopi prophecies), but it cannot represent *in itself* an alternative, or prepare a trespassing beyond the absoluteness of the technological environment. In order to make that possible, a "knight's move" is needed: not a step backwards, but a step sideways.

The very same labels of "Third World" and "underdeveloped" world result from a sequential logic of *before* and *after* – a logic that takes hold exactly when technological development becomes the universal measuring unit. Here too Reggio's visual thinking appears close to some stimulating ideas of Jacques Ellul, who stresses that the advent of the global village has given rise to a

previously impossible direct comparison. Earlier, before the establishment of a universal measuring unit happened, societies were "too different to compare themselves with one another:"

> Once there is universality of a type, technology, in which everybody aligns himself on this structure and adopts its ideology, comparison becomes inevitable, and inequality sticks out like a sore thumb. Raymond Aron is perfectly correct when he says that "the very notion of inequality in development is meaningless outside of industrial civilization." The "problem" of development has become a "problem" because of the ideal of well-being and the general spread of technicization.[40]

Technology, therefore, promotes an integration of the world, a synchronization of its dynamics and processes, but this unification triggers competition and causes fragmentation and deep divisions.[41] "The universalization of the technological system – writes Ellul – does produce an identity of foundations and structures in diverse societies, bringing human groups together materially; but it puts them, without fail, in a position of power conflict. For we must never forget that technology is never anything but a means of power."[42] Accordingly, the "Third World", in order to "survive" and to play a role, must accept the disintegration of its traditions, of its rites, of its beliefs, of its social tissues, in favor of a difficult and painful (because uprooting) transition to an anonymous technological environment, whose development is an end in itself. Hence the distress of the "underdeveloped" societies and the crisis they have to go through:

> The tragedy of the third world is precisely its (present, of course, but not essential)[43] incapacity for using technologies. It is perfectly moral but intellectually ludicrous to be scandalized because the rich countries are getting richer and the poor ones poorer. Posing the problem in this way is very idealistic and virtuous, but it dooms us from the very outset to understanding nothing. The matter is in no wise "capitalist;" it is technological. The "technological gap" is widening because the third world is not yet fully integrated into the technological system. So long as this is the case, the third world can only keep growing poorer while being more and more outclassed by the technological powers. […] The only possible route for the third world is technicization (I am not saying, industrialization!), the establishment of political and economic structures able to make optimal use of technology – a psychology of work and yield, a social organization that is "individualistic and massified," etc. In other words, the development conditions of the technological system in its entirety, as a system. […] Furthermore, when I state that the only possible route is technicization, I am merely saying

> that it is the route imposed by the technological system, by universalism. I am not saying that this route is morally, ideologically, or humanely *desirable*, or that it is *good*.[44]

The only viable survival strategy, therefore, lies, *despite everything*, in the process of technicization, which can be implemented in various ways, but in the end remains true to its automatism. This process doesn't require a total standardization, provided that all the local differences are "translated" in terms of *spectacle* and *tourism*:

> There will still be (more and more) local crafts, folk songs and folk costumes; festivals and marriage rites will be marvelously aboriginal, and religions will flourish. […] The technological world does not entail the great rectilinear avenues of the identity of ideologies! The greatest apparent diversity can reign, provided it does not interfere with the basic fact! For, under the seeming pluralism of cultural forms, a universal and common system is crystallizing, identical in all parts of the world.[45]

There is an additional Ellul observation that helps, perhaps more than any other, to understand the fundamental tone of *Powaqqatsi*. Ellul points out that in the second half of the XXth century, exactly when technology has become the all-inclusive dimension and has begone to develop independently, a counter-movement has shown up that has led to historians, sociologists and ethnologists acknowledging the "dignity of all cultures"[46] and the originality of each history. On this basis the distinction between primitive people and evolved people has been discarded: their different structures appear to be all "well equipped" and "well adapted." [47] But this acknowledgement has been possible, in some ways, thanks to a preliminary *technological appropriation*, that completely shifts the terms of the problem and introduces an ambiguous note:

> To believe in universal history, interpreting savages in terms of a future that is merely our own present, is tantamount, for Lévi-Strauss, to projecting upon other societies the system of thought that characterizes ourselves and to interpreting by our own myths" (M. A. Burnier). No doubt, no doubt… But we have discovered this exactly at the point when technology is invading these nations more surely than colonial armies and assimilating these cultures. Right now, at the very moment that their value is being discovered, technology is destroying them. And technology is today confirming the earlier discourse of the superiority, the truth of Western culture. Western culture is the future of those societies, just as it is our present, and

> there is no myth involved; except precisely the myth that these cultures have a different future ahead of them. Practically all we have left of them is a poignant memory.[48]

In the light of this consideration it is possible to grasp the authentic framework of the monumentalization pursued by Reggio in *Powaqqatsi*. This monumentalization has a distinct melancholic and elegiac vein: it's a farewell, uttered via a technological instrument as the camera (the monumental intensification and expansion of focus is attained through the slow motion). On one side, unique cultural manifestations, unique histories are recorded and celebrated; on the other side, the method itself of the recording and celebrating implies their end, their sunset. They are eternalized by what is consuming them, immortalized by what turns them into the inconsistency of shadows printed on film and brought back to life through a beam of light, perpetuated by what reduces them to archaeological findings of celluloid, ready to be included in the endless archive of images and spectacles. *Powaqqatsi* literally means "an entity, a way of life, that consumes the life forces of other beings in order to further its own life" – a *vampiric life* that belongs, in general, to the technological system, and, in particular, to cinema, to its *abstract and tautological mimesis*, to its artificial fragmentation and reconstruction of time and movement.

## 3. SIMULATION OF PROXIMITY AND THE COLLAPSE OF SPACE-TIME

The cinematic short-circuit – or short-circuit of the image – is skillfully shown in *Naqoyqatsi*, the last and definitive chapter of the trilogy. The film undertakes the exploration of the deepest core of the techno-scientific system, *information technology*, which encompasses "electronic brains" (computers – *ordinateurs* in French) and the network for the storage and the instant sharing of data. The techno-scientific system is to be understood, in the end, as an information technology system, a system based on information theory, on *cybernetics* as first theorized by Norbert Wiener in 1948.[49] In the incipit of the movie the fundamental characters of the new computer language appear: strings of O and 1, that build up *bits* of data ("bit" means "binary digit"). We are looking at a formal, codified language, that has a precursor in the Morse code. It has been developed on the basis of Boolean algebra, which features only two values, or logical states: *true* and *false* (1/0). Computer language ultimately consists of a sequence of yes/no decisions – it is based on an extreme polarization (usually represented by an electrical voltage or current pulse, or by the electrical state of a flip-flop circuit), which allows maximum effectiveness of communication, since it minimizes possible interferences, distortions, and background noises in encoding, transmission and decoding processes. Computer language achieves maximum effectiveness of communication through the

combination of *speed*, *safety* and *univocity*.[50] Its binary language is depurated, inert, non-dialectic,[51] a language that, in Heidegger's terms, limits itself to a *signal* (a set of information that is conveyed in the form of bits). As in the first two chapters of the trilogy, even in *Naqoyqatsi* the paratactic editing and the iterative music bring out the fundamental character of the computer system: its *"phantomization" of the world*.[52] Every dimension of life and experience is translated in information, schemes, diagrams; it is transformed in a computable, manipulatable and operational double. "The computer, writes Ellul, "can process only technological data, for they are the only decipherable and the only profitable data".[53] Either something can be mathematizable and reduced to technological subsystems, or it gets confined in the realm of the *irrational*, of the *unusable* (in some way the two tend to coincide). The artificial, electronic, computerized images of the movie are not articulated only horizontally, via juxtaposition, but also vertically, via interweaving, intersection, stratification and overlapping. They acquire, thus, an ectoplasmic semblance: they are ghosts of light and energy, fluctuating in the void,[54] and busy enhancing one another and acquiring some depth and consistency. However elusive, there is a distinct trend of *virtualization* at work here. Paraphrasing Hegel, we could say that *what is real is virtual*; or, in Debord's terms: "What appears is good; what is good appears."[55] The completely mediatized reality consists in the evidence and in the force of impact of the explicative model put in place. The computer, therefore, "creates a new reality:"

> The transcription, the perfect transposition taking place through it will devalue any ascertainable reality – always uncertain, fragmentary, subjective – for the sake of an overall grasp, that is numerical, objective, synthesized, and imposes itself upon us as the only effective reality. […] We are at present living in that uncertain universe. But along comes a rigorously objective and neutral organism and offers us a transposition which seems certain because it is mathematical. How can we help but believe that this image is resolutely true. […] The other mental pole that helps us to enter this computer reality is, of course, our habit of translating the world in which we live into numbers, or even viewing it in terms that are infinitely huge (the galaxies) or infinitely small. It is probably the latter element that is the more decisive. When told that the wood we touch is made of empty spaces and atoms whirling at unbelievable speeds, when told that all our solid environment is actually menaced by antimatter, that energy and mass are interchangeable, we insert ourselves into an abstract universe, the reality surrounding us is neither meaningful nor assured, and all we can be certain about is numbers, for they at least are independent and autonomous. Hence, we are ready to lend reality to the universe manufactured by the computer, a universe that is both numerical, synthetic, nearly

> all- inclusive, and indisputable. We are no longer capable of relativizing it; the view that the computer gives us of the world we are in strikes us as more true than the reality we live in. Over there, at least, we hold something indisputable and we refuse to see its purely fictive and figurative character.[56]

Within this framework, the human brain itself is conceived as a computer: its learning ability is explained on the basis of a feed-back system – on the basis of *artificial intelligence*.

The entanglement of images in *Naqoyqatsi*, the overlapping and integration of data on the surface of the screen, suggests the collapse of space and time that characterize tele-technologies, their *simulation of proximity*. While the first technological revolution, according to Virilio,[57] was the revolution of transportation (fostered by the industrial revolution), the second is that of communication. Virilio identifies the discontinuity between past societies and contemporary society in the fact that the former experienced *relative speeds*, the latter experiences the *absolute speed* of electro-magnetic waves, the ubiquity and immediacy of *live broadcasts*. The tele-activity, or inter-activity, as driving force of the integration of technological subsystems, gives rise to a unified world, to a global space-time that replaces real space-time. In *Naqoyqatsi* Reggio also shows what Virilio calls the third technological revolution, the revolution of biotechnologies: micro- and nanotechnologies take hold of the human body and transform flesh and blood in an artificial product. The segmentation of motion in Eadweard Muybridge's chronophotography, the use of dummies for crash tests, the duplication of celebrities in Madame Tussaud's Wax Museums, the age-old dream of the construction of the Machine-Man (or, as we would say today, of a cybernetic organism, or cyborg) – all lead to a translation of human corporeality in information, schemes, measurable *performances* (hence the crucial role of the spectacle of sports, and the ultimate goal of competition: setting *records*). Technology, in the end, transforms the relationship with reality, it triggers a wide-ranging *de-realization*, that in the film is epitomized, for example, by the insistence on videogames. This de-realization takes the form of a *symbolic exchange*, in which simulacra and simulations become paramount (Baudrillard),[58] and of *spectacle*, which is "a concrete inversion of life, an autonomous movement of the nonliving" (Debord).[59] According to Debord, the mediations introduced by the hypnotic spectacle of technology bring about the "generalized abstraction of present-day society."[60]

*Naqoyqatsi* (literally, "life as war", "civilized war") insists on the military-industrial-technological complex even more than *Koyaanisqatsi*. In the course of the XXth century, war needs are at the origin of the most portentous technological accelerations.[61] As Virilio has noticed, the increasing importance of the *control of perception* has led to a substitution of the "war of objects"

with a "war of pictures" – substitution that reveals, much like in Bentham's *panopticon*, the drive for "a general system of illumination that will allow everything to be seen and known, at every moment and in every place", "a technicians' version of an all-seeing Divinity, ever ruling out accident and surprise."[62] If weapons of mass destruction give up their strategic primacy in favor of *weapons of mass communication* designed to strike people's minds, it is because "the audio-visual impact (in real time)" outstrips "by a long shot, through its globe-spanning propagation velocity, the material impact, precisely targeted, of precision-guided explosive missiles."[63] With the *infowars* the weapons of mass communication carry on a derealization based on the "*speeding up of reality*", a "panic-induced movement that destroys our sense of orientation, in other words, our view of the world."[64] This is the backdrop of Virilio's assessment that, after the global integration established by interactivity, the eso-colonization of the empires of the past has been replaced by the "endo-colonization of the final empire," in the framework of which the "synchronization of emotions of the information age" completes the "standardization of behaviours of the industrial age."[65] With the rise of the global inter-active state, power becomes decentralized, "fractalized," so that the structure of conflicts changes: conflicts are no longer the prerogative of nation-states, but (in cyberwars, for example) undergo a deterritorialization,[66] thus evolving into a *world civil war*[67] characterized by widespread, pulverized, liquid, pervasive confrontations, that involve all aspects of life. "Life as war" can be seen, for example, in athletic competition: the constant effort to overcome one's limits finds a logical continuation in the making of the cyborg. There is also a product-war that is fought through *advertising* (hence the presence of spots and logotypes of multinational corporations in *Naqoyqatsi*) and a political war that is fought through *propaganda*.[68] As far as the latter is concerned, it is interesting to note that, much like Ellul, Reggio goes on equalizing all the main ideologies and political visions of the XXth century. Ellul's idea is that technology is not ruled by politics, but rather it is politics that has to technify itself.[69]

## 4. CONCLUSION: *LIFEWORLD* AND COMPUTER LANGUAGE

Reggio's meditation on technology hardly offers any "solution." Offering "solutions" to "problems" would obviously be a *technological approach*, whereas the director is trying to question the technological system itself. The possibilities for rethinking technology can therefore come up only *ex negativo*. This rethinking goes hand in hand with the identification of the *structural limits* of the technological system. And Ellul is yet again helpful. While it is true that the *feed-back* mechanism at the basis of the technological system always allows for a determination of the best reaction to changing conditions, it is also true that this mechanism can only work where the

*lifeworld* is translated in computer language. The *feed-back* is undoubtedly foolproof when it has to cope with numbers and quantities, but it doesn't have any hold on what is refractory to that reduction. In this dimension, it is incapable of any self-regulation: it goes straight ahead, blind and deaf, fueling its automatic growth. What is the dimension that the technological system can't totally embed? "The technological environment – writes Ellul – could not exist if it did not find its support and resources in the natural world (nature and society)."[70] Nature and society remain the precondition of technological effectiveness, the background from which the codification of computer language rises, but that cannot be reduced to it. "It is quite fundamental to realize first," adds Ellul, "that the functioning of the human brain is essentially *of a nonformal type*."[71] The more the technological system tries to become universal, the more it makes the divergence grow between what it is able to absorb and what remains alien to it. The more it causes imbalances to explode, the more it needs to be challenged. Questioning technology does not necessarily mean to embrace a form of neo-Luddism, but rather to avoid accepting it as a religion ("Life unquestioned is life lived in a religious state", says Reggio). The point is to acknowledge that not everything can be quantified and automatized; that some aspects of life – and usually the most radically human ones – escape the half-heartedness of standardized procedures and, instead, require full personal participation, responsibility and decision making. To become aware of this means to establish a freer relationship with technology and to stop living in the trance-like state described in *Visitors*.

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[1] Marco Bertozzi, *Documentario come arte. Riuso, performance, autobiografia nell'esperienza del cinema contemporaneo* (Genova: Marsilio, 2018), 8. Among the recent, most interesting studies on the topic see B. Nichols, *Introduction to Documentary* (Bloomington: Indiana University Press, 2010[2]); David LaRocca (ed.), *The Philosophy of Documentary Film: Image, Sound, Fiction, Truth* (London: Lexington Books, 2017); Daniele Dottorini, *La passione del reale. Il documentario o la creazione del mondo* (Milano – Udine: Mimesis, 2018); Dario Cecchi, *Immagini mancanti. L'estetica del documentario nell'epoca dell'intermedialità* (Cosenza: Pellegrini Editore, 2016).

[2] This is also the topic of Reggio's last feature film, *Visitors* (2013).

[3] On La Gente and YCFA [Young Citizens for Action], see Reggio's biography at (http://www.koyaanisqatsi.org/aboutus/godfrey.php).

[4] A translation of the titles is offered to the viewer at the end of each movie. Professor Ekkehart Malotki has performed the linguistic research on the Hopi language for the films (he is credited in all three of them).

[5] In the end credits of *Koyaanisqatsi* an English translation of the prophecies is offered.

[6] The authors are mostly tied to one another (Ellul, for example, makes extensive use of Illich and Debord).

[7] See Francesco Casetti, *Eye of the Century. Film, Experience, Modernity*, trans. by Erin Larkin with Jennifer Pranolo (New York: Columbia University Press, 2008).

[8] Ellul draws a distinction in French between "*technique*" and "*technologie*", the latter being a discussion (*logos*) of "*technique*". At the same time, he acknowledges, on the basis of Maurice Daumas' *Histoire générale des techniques*, that "technology" can be used as the name for the interaction between science and "*technique*". Daumas "shows in detail that today *technique* promotes scientific development; and he calls technology the science assuring the double mutual relationship between science and *technique*: it is

a scientific *technique* or a science of *technique*" (Jacques Ellul, *The Technological System*, trans. Joachim Neugroschel [New York: The Continuum Publishing Corporation, 1980], 266, note 10). Alexandre Koyré also uses the term "technology" to designate the merger between *technique* and modern science, that cause the transition from the "world of more-or-less" to the "universe of precision" (Alexandre Koyré, "Du monde de l''à-peu-près' à l'univers de la precision", in *Études d'histoire de la pensée philosophique* [Paris: Éditions Gallimard, 1971], 341-362).

[9] The interview is available here: https://www.youtube.com/watch?v=Xj0XL-5S-Ew.

[10] Ellul, *The Technological System*, 34.

[11] Ellul, *The Technological System*, 79. Ellul had first discussed the concept of "technological phenomenon" in *The Technological Society*, trans. John Wilkinson (New York: Vintage books, 1964).

[12] Ellul, *The Technological System*, 35.

[13] Ellul, *The Technological System*, 35.

[14] René Descartes, *A Discourse on the Method*, trans. Ian Maclean (Oxford: Oxford University Press, 2006), 51.

[15] Ellul, *The Technological System*, 129.

[16] Ellul, *The Technological System*, 100.

[17] Ellul, *The Technological System*, 98.

[18] Ellul, *The Technological System*, 45.

[19] Ellul, *The Technological System*, 45-47.

[20] Ellul, *The Technological System*, 90.

[21] Ellul, *The Technological System*, 90.

[22] Ellul, *The Technological System*, 90.

[23] Ellul, *The Technological System*, 89.

[24] Ellul, *The Technological System*, 88.

[25] Ellul, *The Technological System*, 88.

[26] Ellul, *The Technological System*, 88.

[27] Ellul, *The Technological System*, 87.

[28] Ellul, *The Technological System*, 59.

[29] Ellul, *The Technological System*, 59.

[30] See Martin Heidegger, "The Question Concerning Technology", in *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York – London: Harper & Row, 1977); Martin Heidegger, *Letter on "Humanism"*, in *Pathmarks*, edited by William McNeil (Cambridge: Cambridge University Press, 2014); Martin Heidegger, "Traditional Language and Technological Language", *Journal of Philosophical Research*, 23 (1998).

[31] See Gary Matthew Varner, "*Koyaanisqatsi* and the Posthuman Aesthetics of a Mechanical Stare", in *Film Criticism*, 41, no. 1 (February 2017), who poignantly explores this topic through the work of Rudolf Arnheim. This article is very helpful also as far as the posthuman dimension of the mechanical sight of the machine is concerned.

[32] "The sole utopia is a technological one" (Ellul, *The Technological System*, 20). On technology as utopia see also Paul Virilio, *Ce qui arrive*, (Paris: Éditions Galilée, 2002), 24-25. This utopian approach can be acknowledged, for example, in modernist, functionalist architecture, and particularly in the work of Le Corbusier.

[33] See Steve Redhead, *Paul Virilio. Theorist for an Accelerated Culture* (Toronto – Buffalo: University of Toronto Press, 2004), 157-158.

[34] Virilio, *Ce qui arrive*, 24.

[35] Michael Dempsey, "Quatsi [sic!] Means Life: the Films of Godfrey Reggio", *Film Quarterly*, 42, no. 3 (Spring 1989): 2. As far as this "terrible beauty" is concerned, I would like to point out the photographic works of Josef Koudelka and, more recently, of Edward Burtynsky, in which the industrial landscapes are grandiose and breathtaking as much as they are irreversibly destructive and toxic.

[36] Ellul, *The Technological System*, 82.

[37] Paul Virilio, *War and Cinema. The Logistics of Perception*, trans. Patrick Camiller (London: Verso Books, 2009), 1-2.

[38] Dempsey, "Quatsi [sic!] Means Life: the Films of Godfrey Reggio", 8-9.

[39] See Leopold Kohr, *The Breakdown of Nations* (London: Routledge & Kegan Paul, 1986).

[40] Ellul, *The Technological System*, 190.

[41] The opening image of *Naqoyqatsi* significantly is Pieter Breugel the Elder's painting *The Tower of Babel* (1563).

[42] Ellul, *The Technological System*, 189.

[43] *Powaqqatsi* shows us the astonishing variety of techniques deployed by societies of the South of the world. The adaptation to the *technological system*, however, is a totally different process.

[44] Ellul, *The Technological System*, 182-183.

[45] Ellul, *The Technological System*, 190-191.

[46] Ellul, *The Technological System*, 195.

[47] Ellul, *The Technological System*, 195.

[48] Ellul, *The Technological System*, 195.

[49] Norbert Wiener, *Cybernetics or Control and Communication in the Animal and the Machine* (Cambridge: The MIT Press, 1948[1], 1961[2]).

[50] See Heidegger, "Traditional Language and Technological Language", where Heidegger speaks of *Eindeutigkeit*, *Sicherheit* and *Schnelligkeit*.

[51] Ellul, *The Technological System*, 105.

[52] On this process see Giovanni Gurisatti, *Scacco alla realtà. Estetica e dialettica della derealizzazione* (Macerata: Quodlibet, 2012).

[53] Ellul, *The Technological System*, 100.

[54] It is interesting to notice the constant, symbolical presence of *water* in *Naqoyqatsi*: everything melts down, becomes *liquid*.

[55] Guy Debord, *The Society of the Spectacle*, trans. Ken Knabb (Berkeley: Bureau of Public Secrets, 2014), 4.

[56] Ellul, *The Technological Society*, 104-105.

[57] See this interesting interview: http://www.raiscuola.rai.it/articoli/virilio-la-terza-rivoluzione-tecnologica/5098/default.aspx.

[58] See Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Faria Glaser (Ann Arbor: University of Michigan Press, 1994).

[59] Debord, *The Society of the Spectacle*, 2.

[60] Debord, *The Society of the Spectacle*, 6.

[61] Ellul writes: "We realize that self-augmentation occurs only if there can be experimenting. That is why wars are so useful within this framework: at such times, all experiments are possible" (*The Technological System*, 222).

[62] Virilio, *War and Cinema*, 5. This "eye of God" is able to see the earth from space, reducing it to a computable planet.

[63] Paul Virilio, *City of Panic*, trans. Julie Rose (Oxford – New York: Berg, 2005), 32.

[64] Virilio, *City of Panic*, 34.

[65] Virilio, *City of Panic*, 32.

[66] See Carlo Galli, *Political Spaces and Global War*, trans. Elizabeth Fay (Minneapolis: University of Minnesota Press, 2010).

[67] Virilio, *City of Panic*, 33.

[68] Ellul, *The Technological System*, 251. For an analysis of propaganda see also Jacques Ellul, *Propaganda. The Formation of Men's Attitudes*, trans. Konrad Kellen and Jean Lerner (New York City: Vintage Books, 1973).

[69] See, for example, Ellul, *The Technological System*, 141.

[70] Ellul, *The Technological System*, 44.

[71] Ellul, *The Technological System*, 97. On this point see Heidegger, "Traditional Language and Technological Language", especially where Heidegger quotes Carl Friedrich von Weizsäcker's essay *Sprache als Information*, and in particular the passage expressing the ideat that "any attempt to make a part of language clear (through its formalization into a sign system) already presupposes the use of natural language, also there where it is not clear". For Heidegger through this statement it becomes clear that so called "natural language" represents a limit to all the attempts aimed at a technological manipulation and transformation of the essence of language. A broad and original discussion of the problem of a technological substitution of nature is offered in Eugenio Mazzarella, *L'uomo che deve rimanere. La "smoralizzazione" del mondo*, Quodlibet, Macerata 2017 (see in particular the chapter devoted to Philip K. Dick's novel *Do Androids Dream of Electric Sheep?*).