

Ecolutive Systems

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Abstract

This document investigates about the hypothesis to create non-closed transformational processes which I call "Ecolutive", not confined inside the device and the language that has generated them.

Starting from some personal experiences, I analyse the peculiarities of this type-making process; I compare it with that systems which have the ability to "respond" to signals and values with metamorphic properties, have the ability to grow, adapt themselves and develop, but are born and limit themselves to "live" in the restricted area of the device or of the context for which they have been thought and implement themselves through the specific of the languages from which they originated, in specific realities where the rules are revealed and are generally accepted and shared.

I take into consideration examples of relationship between operator, environment and final-user with operative and conceptual esthetic, where the variables are broadened to the environment universe; and also where the rules of the game may be not shared and known.

In other words I analyse procedures which influence is extended and with evolutionary property. I evaluate the aspect of the conscience not as a pure reaction of astonishment in relation to the mimetic-simulative aspect, but as a part of the experience. I also estimate the graphic interface as an non impartial date of an experiment, a strong indication of field.

KEYWORDS :

Evolutive, non circumscribed , conscience, systems, environment, mimetic-simulative, influence.

Videoinstallation:

Signals for animals. A broadened system of relations in dynamic man-animal / animal-man context.

"La mentalità cinese antica contempla l'universo in una maniera paragonabile a quella del fisico moderno, il quale non può negare che il suo modello dell'universo è una struttura decisamente psicofisica. L'evento microfisico include l'osservatore proprio altrettanto quanto la realtà che forma il sostrato dell'I King comprende delle condizioni soggettive, ovverosia psichiche, nella totalità della situazione momentanea. Come la causalità spiega la sequenza degli eventi, nella mentalità cinese la sincronicità spiega la loro coincidenza"

*J.C.Jung, I Ching -Il Libro dei Mutamenti (Book of Changes) (1995).
A c. di R. Wilhelm e C.G. Jung. Milano: Adelphi.*

In the early Eighties, in various projects and works, I was

trying out things that I later discovered were of interest to many fields, although my approach was to do these things in a transversal way.

PREAMBLE

Authorship

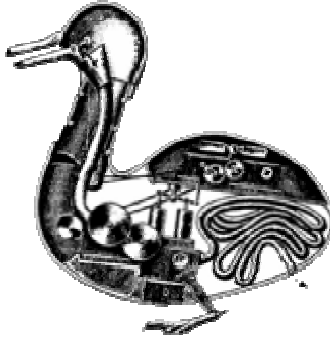
It seems that very little time has passed since Leonardo da Vinci argued with Botticelli about whether liquid paint thrown at a canvas would have been able to suggest countrysides, woods, crowds or the like. When the idea of authorship comes into doubt, it seems clear that this will be followed by a reaction of rejection. It is well known that Leonardo invented games for the imagination by interpreting stains as various forms. In Zen painting and the more recent Action Painting or in the wider *L'Arte e Vita* movement, we can see a constant struggle between intention and occasion, *chance and necessity*. A ceaseless bargaining between a closed operational approach, opposed to the open conception of certain methods, that are some of the diverse ways of accepting chance, divination, choosing between freedom within the project and controlled intention. Generative art has its origins in kinetic-Stochastic nature that can be seen in conceptual, cultural and material objects that are very different to each other. This clarification is necessary because this analysis tries to cross the boundaries of a purely perceptual reading of kinetic phenomena, as it is a development that mutates. This is because we can identify them in operations that extend their actions into reality. It should be clear that here reality is considered to possess the qualities that belong to cyberspace, even when it leaks out of the areas that can be more precisely considered 'virtual'. For us, 'material' is not simply 'non-virtual' and virtual' something other than 'non-material'. This is helpful, not so much as to study the fully-recognised historical roots and the importance of the phenomena of kinetic art, but rather to find links between the physical world and the simulated one.

Un organismo, o un automa, composto di solo hardware può esistere e conservare il proprio metabolismo, e vivere una vita indipendente, finché troverà nutrimento, ovvero numeri da macinare. Al contrario l'automa tutto software e niente hardware sarà per forza un parassita: funzionerà soltanto in un mondo che contenga altri automi, da cui prendere in prestito l'hardware, e replicherà se stesso solo se riuscirà a trovare un automa ospite cooperativo, come fa il batteriofago quando riesce a trovare un batterio disposto a collaborare.....

Freeman Dyson, origini della vita, bollati Boringhieri, Torino 1987

Artificial lives

Certain questions regarding the body, nature, artifice and language derive in particular from the coordinate system theory of Descartes, who tries to find the physical location of the conscience (then identified in the pineal body). This theory is fundamental for conceptions that deal with life. We should remember the anatomical theatres, fashionable for a period for their shows during which animals were dissected. There was a common tendency at the time to create often-surprising automatons, clearly inspired by that train of thought. These origins have cast many long shadows, representing in some respects an act of re-birth, but also a strongly distinctive mark for a long time. When talking about simulation, we seem to move over a single plane of related indissoluble impressions such as: it doesn't seem to contain any life, it isn't conscious, or : it seems alive and intelligent. These projections have been present in different historical periods and with diverse weight.



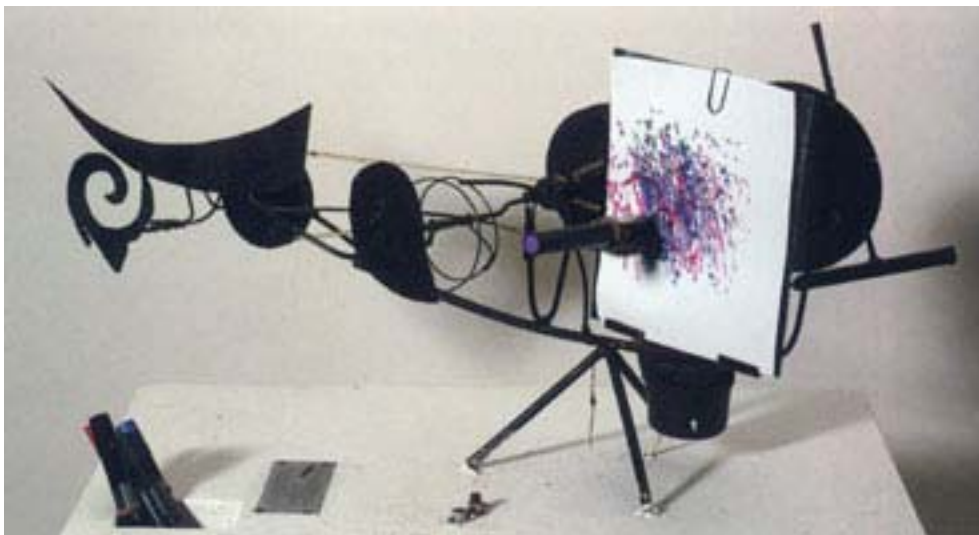
The automaton-duck by the French inventor and mechanic Jacques de Vaucanson (1709 – 1782).

During the last century, artists like Marcel Duchamp, Lazlo Moholy Naghy, movements like Futurism, Kinetic or *macchinica* art, and Bruno Munari, added a new horizon to art, with aspects that almost seemed to hide the importance of the author. Multiformal and vital, they flirt with existence.

E' la stessa esperienza di Cage quando suona il suo pianoforte "preparato". L'aritmia meccanica rende le macchine più "viventi", più interessanti, più piacevoli. Meno stupide e monotone.

Dall'intervista a Bruno Munari di Luca Zaffarano, 1987

In music, Iannis Xenakis is one of the first to use information technology and calculators to compose music. In the Sixties, Kinetic or programmed art considers these questions, even though Bruno Munari had already written a 'Manifesto of mechanism' in 1952. The movement conceives of the project as detached from the subjectivity of the artist who now becomes a *visual operator*.



Meta-matic, Jean Tinguely, 1959

Jean Tinguely creates machines that self-destruct, that disobey and do not respond to commands, such as the work *Meta-matic*, through which he creates interaction with the operator. It is a slot-machine that paints pictures automatically. In this context, Informatics is soon involved and the operation is controlled by a computational system. This work was a journey between the dimensions of reality and virtual reality, between automatism and the resolved, between open and closed systems, between art and life.

Trails that lead to the concept of *ecolutive*:

Noi dobbiamo considerare il tempo come ciò che conduce all'uomo e non l'uomo come il creatore del tempo.

Ilyia Prigogine, La nascita del tempo. Theoria Ed. Roma - Napoli 1991

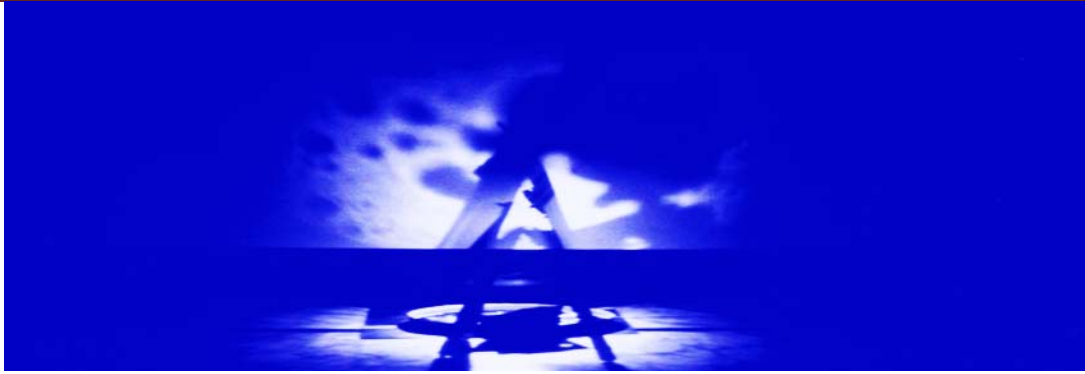
Teoria and Periodo

In 'Periodo' and 'Teoria' of 1983-89 and 1987-90, we already find the insertion of uncontrolled elements that are intrinsically 'interactive'; there is time and conscience insofar as there is the possibility of a relation between the 'operator' and the 'receiver'. There are elements that owe much to physics as they are liquid perturbations that relate to non-Euclidean geometry and are in rapport with the 'Roller' series, three-dimensional grid-drawings obtained by a non-manual process.

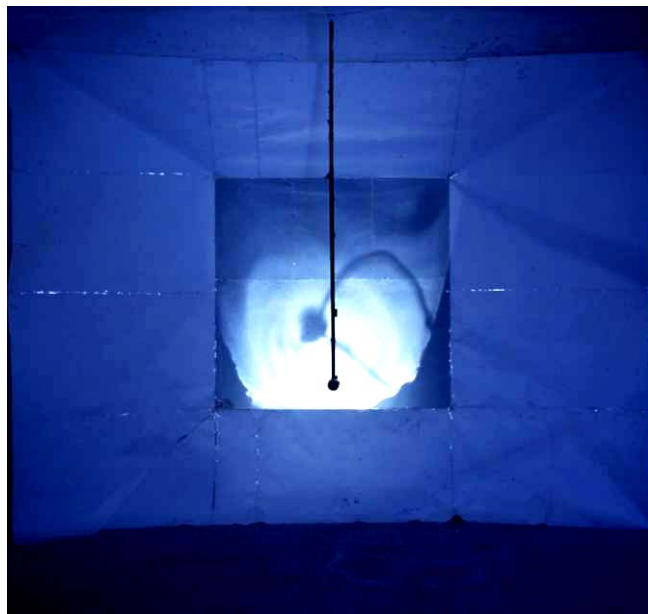


Teoria, 1987/90, Variable measurements. Electronic device and robotic system. From the catalogue of the Civic Museum of Gibellina "O generata" 1991.

These systems include the element of the complexity of forms that are never constant or equal, and that in addition include the quality of indeterminable. They have been created using a device with a small robotic, controlled by an electronic system. The idea was born during observation of natural and chaotic elements that produce casual structures to which the observer through various readings, can gradually tune in. the evolutionary range depends on the observer: these perturbations take on the value of the future in his conscience. Time is evolutionary because it bears the traces of the conscience of the user.



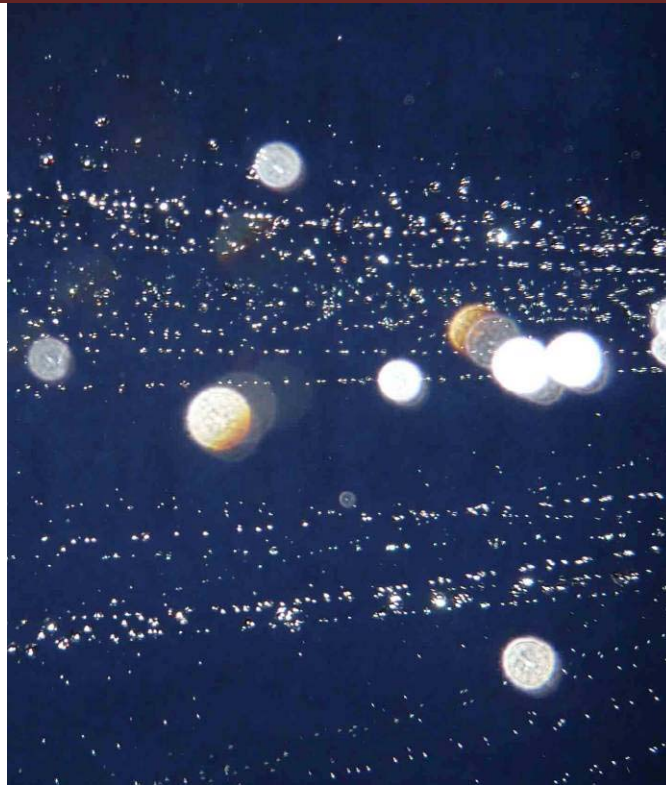
Periodo, 1983/87, electronic device and robotic system, screen. Variable measurements. From the catalogue of the Civic Museum of Gibellina "O generata", 1991.



TEST, 1998, electronic device, robotic system, electronic sounds. 500 x 300 cm. Salsomaggiore, International Prize 'Scritture D'Acqua' (literature, arts and science) 1998.

The clear and incontrovertible data of subjective and objective disappear if one doesn't accept as the initial certainty the existence of work and artist, user and work....

Extract from the press release of the exhibition of the International prize "Scritture d'acqua", Salsomaggiore, October 1998.



EXIT, 1997, Environmental measurements (particurlar) Hackmeeting 2002, TPO Bologna
In 'EXIT' we have a suspension that can be perceived through a tear in space-time (stopping the drops in mid-air). The gap that is created in this sensorial emptiness, where the perceptive fact is radically reduced to its fundamental, primary data, is violent and ecstatic. As in other occasions, there is an interest in the 'fusionality' of the autistic world... (from the press release)

Also These, conceptions of space and liquid time, are also fluctuations. These approaches do contain special 'generative' qualities. In the computerised simulations, the dichotomy between nature and artifice could sometimes end up being emphasised, even though the initial premise is exactly the opposite: *Look at the nice natural artifice that I have created*. The emulating of forms of nature can emphasise this component (objectivity, distance) of the creator, so it can then be projected. Often there is the tendency to consider *tout court* as generative only technological phenomena, and to think that only these can share these principles. But also the stasis of a real object becomes generative by repeating itself. Its "sameness" in time is a probable characteristic of its appearance, if this refers to the totality of the plane and universal time. A generative process is frozen at the moment in which we stop looking at it. It feeds itself and is implemented by our conscience. When I go back and observe it, it is true that it will be different but it will also be another phenomenon. An input of the evolutionary conception that leans towards introspection may be more fitting. The participation, the nature and the distance of the author/user, are strongly related to the profound quality of perception that is not distinguished from action: the act of doing and perception are simultaneous and inseparable, the quantity and quality of perceiving.

Ad esempio, il grande contributo scientifico alla fisica teoretica venuto dal Giappone dopo l'ultima guerra può essere un un indice dell'esistenza d'una certa relazione tra le idee filosofiche dell'estremo oriente e la sostanza filosofica della teoria dei quanta. Può essere più facile adattarsi al concetto di realtà della teoretica quantica quando

non si è passati attraverso l'ingenuo modo materialistico di pensare che prevaleva ancora in Europa nei primo decenni del secolo.

Werner Heisenberg, Fisica e Filosofia, il Saggiatore, 1994

I am working on the idea of the death of the public (not physical, not violent, not provoked), the extinction of the species insofar as complementary polarity. Art cannot be called art without considering the aspect of the experience. As this experience is conditioned by data relating to shared space-time relationships with the user, the 'necessary conditions' are by no means taken for granted, and in fact become the decisive factor. The establishing of a relationship with any perceptive fact becomes an act of conscience, so it is necessary to accept the plane on which we act, or even better, the shared planes of the states that have been culturally imposed on perception. 'Conscience' thus becomes for me a place of work...

"Arte per corpi", 1993. Extract from the participation at the Neon Gallery, Bologna, Mal di testa, 2003

From mutation within the system to circular action (ecolutive)

Mappe Immaginarie - Solarium

The series of *Imaginary Maps* begun in 1983 with geographical maps as satellite readings, and the intervention-installation *Solarium* of 1984 on terraces and among antennae, are fundamental stages for the origins of the idea of *Signs for Animals* of 1986, and for the consequent meditation on the concept of 'ecolutive'. These moments were introduced by an interest in satellite surveys and the notion of transmission of energy-information via ether.

Solarium

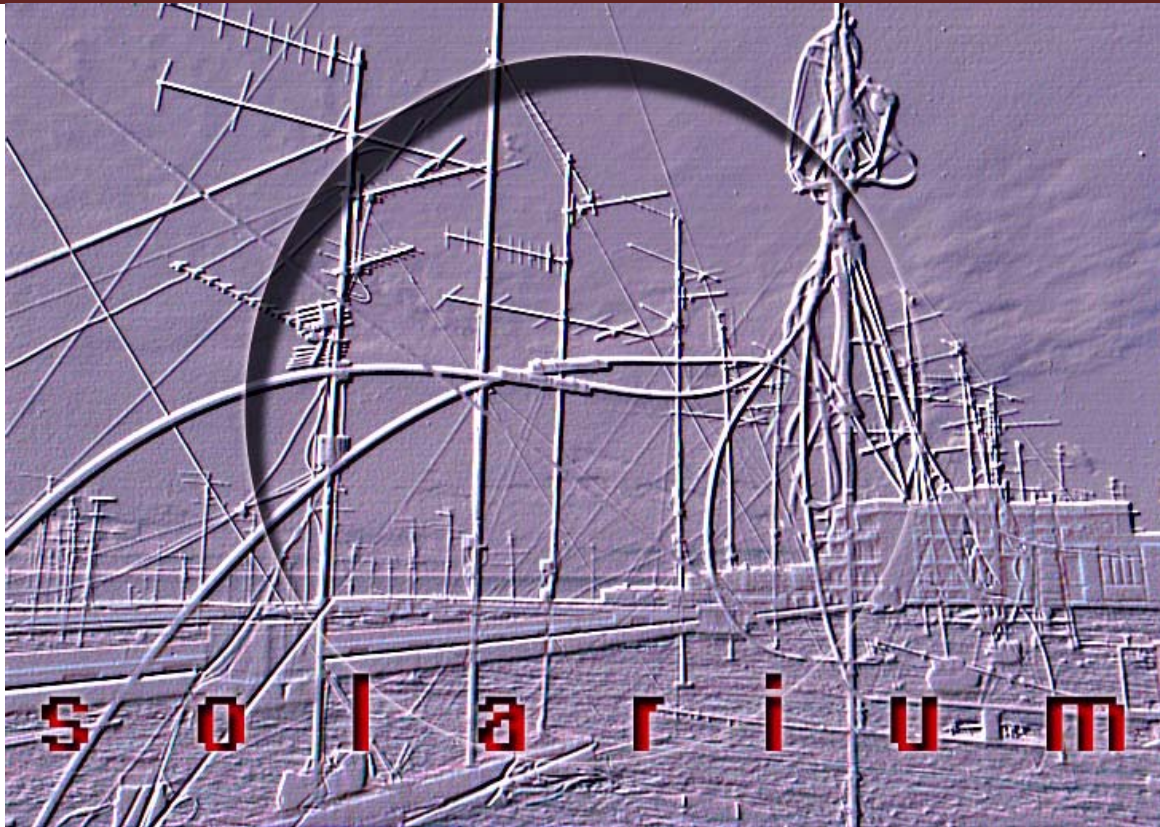


1983, Poster for the event using an imaginary map



Solarium, 1984. Intervention, grouping, observatory, Environmental dimensions.

Solarium



Solarium, 1984- 2002

The highest point of a building is the extreme extension towards the sky, towards space, a place populated with antennae and delegated to reception and transmission. It is fundamentally from here that the many signals leave and arrive, signals that influence our daily perception, with information that is not just visual, but that determine the mapping of our planet, even influencing the less predictable politics of the geography of daily living that expands across the ether. Like an eye that has imposed itself on all, on the possibility of seeing, not just objectively, and it has created reflections, including the hypothesis of an external extension, the satellite...

Extract from the Presentation-poster for FreaknetMediaLab Catania 2002, and Warm Up, at Neon Gallery, Bologna 02-2003

Ecolutive systems : a definition

By *ecolutive*, we mean systems that produce effects in macroscopic areas that are not limited to material and immaterial devices of physical origin and substance. They are systems capable of generating tangible effects on the environment, on man, on living organisms interconnected by these processes, modifying behaviour, language, genetic structure, in the sense of adapting-evolving it.

Comparisons with other typologies

The term *ecolutive* makes sense if compared to other systems that foresee a certain degree of self-adaptation or interaction, but whose action doesn't produce tangible effects beyond that system. It must be made clear that evolution is obviously always taking place in nature, but the specific nature of the *ecolutive* device consists in the capacity in which it can contribute specifically to evolution, insofar as it is a programme that works by inserting a finalised novelty into the ecosystem. In the project *Signs for animals*, for example, the organism that perceives the signal as danger and adapts, has more possibilities of survival by transmitting, could be triggered as a selective action

Si può a priori sostenere che tutte le percezioni e tutte le risposte, tutti i comportamenti e tutte le classi di comportamenti, tutto l'apprendimento e tutta la genetica, tutta la neurofisiologia e l'endocrinologia, tutta l'organizzazione e tutta l'evoluzione, insomma tutto un vasto campo dev'essere considerato come avente natura di comunicazione. Ed è pertanto soggetto alle grandi generalizzazioni o "leggi" che valgono per i fenomeni di comunicazioni.

Gregory Bateson, Verso un'ecologia della mente. 1976 Adelphi Edizioni, Milano

There are many projects in which a device interacts with man and man with it, stimulating behaviour, reactions, considerations, gradations and different shades of these options. These devices do not have the aim and to capacity to act on a deeper level. They are limited to sensorial, behavioural or conceptual levels. They interact with reality but at an immediate level. The *ecolutive* system, when compared to these others, tends to provoke a profound and selective modification of the organisms on which it has effect. For devices with immediate interaction, the action ceases when the effects of the direct contact with the device are interrupted.

Ma che cosa dire in relazione al compito successivo di comprendere la vita psichica animale, di portarla a un'esperienza progressivamente sempre più perfetta, di procurarsi anche solo un'intuizione delle sue possibilità vitali e un'intuizione del mondo in quanto tale per la vita animale , o ancora intuizione dei suoi interessi vitali, dei suoi scopi e obiettivi, e così via? Se falliamo in questo compito il nostro mondo non ha dunque, e in definitiva in modo essenziale, un orizzonte di indeterminatezza?

Edmund Husserl, Metodo fenomenologico statico e genetico. Il Saggiatore, Milano 2003

Signs for animals, 1986. man/animal/animal/man

Born in 1986, this work is intrinsically linked to my Solarium project of 1984, as it takes up the problem of topography and telematics; here however, the urban and extra-urban spaces are imagined as an extension of language, no longer directed from man to man, but from man to animal and animal to man. Art changes its reference point, no longer thought of as communication between humans. Communicating devices, using satellite tracking systems shift the possibility of immediate interaction between man and animal onto the road-network, where the experimental project becomes the inverted extension of language that is no longer restricted to galleries and between men. Devices with sensorial and acoustic actions, visual and electronic impulses, are installed in the urban and extra-urban road-network, in air and sea communication via satellite, between the normal road-signs and tracks and inserted into vehicles in order to avoid the accidents caused by the 'inevitable' collisions with animals in the relative contextual environments. But it is also and above all an urban and spacial possibility, where the project is extended to possible relationships between man and other species. A broader interaction, obtained not only through technological devices, sensors and the like, but also a study of the links of perception and communication-language between man and animal, technology and vehicles.

Extract presented at the FreakNetMediaLab, Catania 2002, at the Civic gallery Montevergini, Siracuse 2006.

The starting point is the idea that it shouldn't be taken for granted that animals should be left dead along the roadsides. The problem has never been adequately considered. So the hypothesis was to create an art of extended systems, a process of change that shifts the interest to contextual environments imagined with a greater complexity of relations between environment, man, maps, language and space.

Diverse levels of action

This level of the project is still basically linked to the devices. It doesn't affect the deeper quality that makes up the *ecolutive* principle. This plane is affected when we go beyond the strictly material characteristics and the direct sphere of influence of the device. This still concerns the immediate action that it has on the organisms which are reached by the signals and the short term effects; that is, the presence of signals as 'warning'. This could still be confused with simple conditioning. The moment strictly defined as *ecolutive* is concerned with behaviour, communication, language, learning, transmission, mutation and space. Here, the animals affected by the device, due to a reasoned choice per area, according to the species present and exposed to the context involved, receive specific signals that have been studied with the collaboration of etiologists. On the same level, a man in his car using a GPS system, is reached by a signal that corresponds to the position of the animal. This 'short circuit' contains a very important element: both subjects involved are simultaneously aware of the others presence.

Telematics, maps, GPS

The distinction between model and reality made by Alfred Korzybski in his book 'Science and sanity' of 1933 is well-known. Our mental representations, our descriptions are not reality and the map is not the territory. There are representations

of maps of cyberspace, of the development of projects for 3D visualisation and maps of the analysis of Internet use in real time. Apart from military use, there are various approaches that use the surveying of territory and its mapping using GIS satellite systems. Moreover, a sociological reading has been done with an analysis of cross-referenced data, that aimed to study migration routes, environmental factors such as de-forestation, pollution, social behaviour, settlements etc using diagrams, statistic flow-charts applied to maps.



Solarium/4, 2005. Video-installation 3d, video frame. Environmental dimensions. Montevergini Civic Gallery, Hypogeum of piazza Duomo, Syracuse. Seconda giornata del contemporaneo, 2006.

In systems of road navigation and in a different way, naval navigation, virtual visualisations are created, the map is modified by the software and the data is updated periodically to give information about navigation on the screen. They are therefore basically 'virtual' maps that are more precise, up-dated and diverse, without going far from the usual criteria of application, even though the satellite system controls the movement in real time. Studies for meteorological use as we see them are like *video frames* and are up-dated much more frequently, so the evolution is a continual succession of diverse images of the weather situation in various moments. The projections or forecast for the future developments are obtained through instruments for calculation.



Image of a meteorological system at a given time

This presentation doesn't presume to be a complete and circumstantiated analysis of the technology applied to the project, but a short preamble to the application of a diverse philosophy of approach to the reading of the territory and behaviour at the level of language and communication between species, behaviour which is today surprisingly fortuitous. What the project does is to associate telematics to a typology of design-sign articulated with a dynamic-plastic and linguistic quality.

Animals:

The language level:

This point would require a very careful analysis, but would open discussions too vast for consideration here.

It seems that we will be able to understand what animals are thinking within fifty years. According to a projection by the 'New Scientist', an instrument capable of gathering, amplifying and transmitting the emotions and thoughts of animals will be created.

Scheme of circular relations

In effetti, vi sono importanti differenze tra il mondo della logica e il mondo dei fenomeni, e queste differenze devono essere tenute presenti ogni volta che basiamo le nostre argomentazioni sulla parziale ma importante analogia esistente tra i due mondi.....Proprio nel campo della comunicazione tra animali e tra macchine deve valere qualcosa di simile alla teoria dei tipi

Gregory Bateson, Verso un'ecologia della mente. 1976 Adelphi Edizioni, Milano

The origins

The considerations that such a project stimulated at the beginning, above all because it was conceived of as an art project, were quite representative; ranging from the Franciscan idea to an animalist ecology, to a Disney-style projection into the world. Or it was seen to be the intention to equip oneself with a simple safety device designed to improve driving standards, like the many that exist today to protect against the dangers of mist, obstacles, traffic-jams, to simplify the hunt for streets or addresses. As if the communication interface between different species was less significant than imagining cars with a conscience. Seeing that the evolutionary state

of the species is a quality that is polarised by the thought of the other, tied to the relative weight between entities that are part of a communal habitat, this cannot but proceed simultaneously.

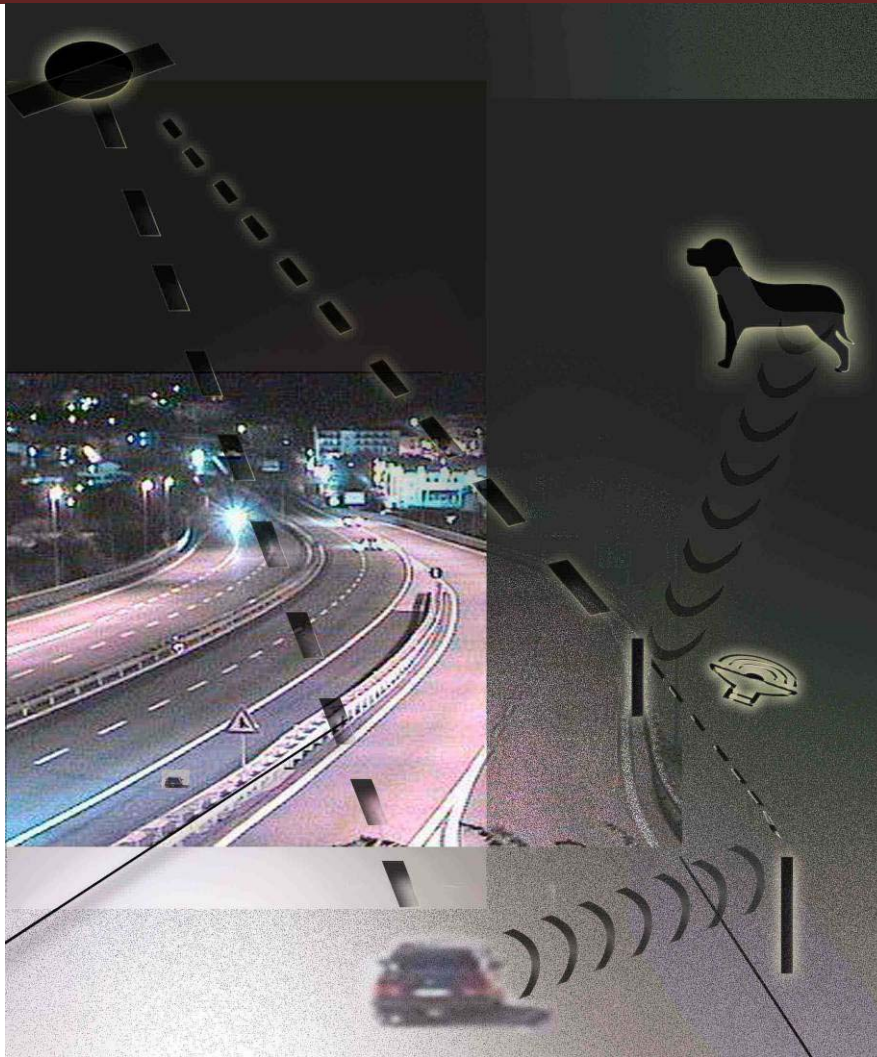
È sorprendente cosa possa fare il principio di selezione ad opera dell'uomo, cioè scegliere individui con una qualsiasi qualità desiderata, farli riprodurre e poi di nuovo operare una scelta. Gli stessi allevatori si sono meravigliati dei loro risultati.....La selezione è stata metodicamente esercitata in Europa solo nell'ultima metà del secolo ma era stata praticata occasionalmente, e in certo grado, anche metodicamente nelle ere più antiche.....L'uomo, per mezzo di questa facoltà di accumulare variazioni, adatta gli esseri viventi alle sue esigenze - si può dire che faccia in modo che la lana di una pecora sia adatta per i suoi tappeti, quella di un'altra per i vestiti e così via.

Charles Darwin, L'evoluzione. 1994, Newton Copton editore, Roma

One could object that these evolutionary leaps should have taken place already: one or more cars make noise, they have a strong visual impact and above all they kill. Probably there has already been an evolution, but vehicles are also a problem for man, who is their inventor. The change has been too complex, advanced and rapid for man too. Man's perceptive system has not managed to evolve the capacity of evaluation to respond adequately to certain stimuli. Road-signs are designed to fill this gap, but only for man.

Non vi è dubbio che nel corso di milioni di generazioni siano casualmente nati individui con qualche lieve variazione, utile a qualche settore della loro economia. Questi individui avranno una migliore probabilità di sopravvivere e di riprodurre la loro struttura nuova e leggermente diversa; la modificazione potrebbe venire lentamente accresciuta dall'azione complessiva di una selezione naturale in un certo grado utile.

Charles Darwin, L'evoluzione. 1994, Newton Copton editore, Roma



Scheme for circular action of device for Segnaletica per animali

The vehicle is tracked by sensors at the road-side; the signal is transmitted further ahead, depending on the speed of the car. If the presence of an animal has been noted in the area, then a (specific) alarm signal goes off to warn the animal of imminent danger. At the same time, a signal is transmitted from that spot to the satellite system, which then transmits it to the driver on his car's navigation system.

As concerns the survey systems for tracking animals, the most suitable device is a system of artificial vision with an interface with neural network software, capable of tracking situations at the limit of normal conditions in a given area. A notable series of system behavioural parameters can be identified.

Per It is a circular relationship, an interaction between various levels and factors. The *seganletica per animali* system has a technological level made up of sensors, transducers, transmitters, programmed software, with flexible qualities that can respond in different ways according to the behaviour of man and animal. It begins with a device programmed with algorithms, which reaches the environment, reacts strongly, send back signals to the device and regulates itself with the feedback.

To conclude, this sort of action can be considered to be a communicative quality that adapts, modifies and evolves, with characteristics that can be defined as *generative*. The levels of the generative aspect are established to begin with by the operator with a totally arbitrary act; it is the knowledge, history and culture that define the object,

entity, dimensions and quality of the observation. All in all, science and art do nothing other than always and only define various levels of 'generative' openings of action and thought; what a week ago was mere coincidence is intention today. This is determined by the catalogue of past operations that have become literature.

References:

- [1] Charles Darwin, "L'evoluzione" Newton Compton editori, Roma, 1994
- [2] Edmund Husserl, "Mondo fenomenologico statico e genetico" Il Saggiatore, Milano, 2003
- [3] Werner Heisenberg, "Fisica e filosofia", il Saggiatore, Milano, 1994
- [4] Gregory Bateson, "Verso un'ecologia della mente" Adelphi edizioni, Milano 1976
- [5] Ilya Prigogine, "La nuova alleanza" Longanesi, Milano, 1979
- [6] Ilya Prigogine, "La nascita del tempo" Bompiani, Milano, 1991
- [7] Freeman Dyson, "Origini della vita" Bollati Boringhieri, Torino, 1987