Inhabiting complexity. Representation as an act of regeneration

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Abstract

How do technicians represent the complexity we are living in? Which are the processes for an appropriate reconstruction of this always-changing portrait? What they see and how they observe landscapes? What architecture must learn from other disciplines if it wants to get into the era of communication?

In a time of emergency, old examples and new ones will make visible how the traditional technicians would practice in a different and more concerned way if they want to play a more fruitful role in the regeneration of the living environment.

This work wants to show the transforming attitude of observation an architect experienced in his laboratory during last fifteen years, in order to bring all the technicians together in a more complex discussion about the future of the living beings and the ecosystems they transform everyday.

It wants to make visible how architecture could review its ways of representation if it wants to get into the future, the era of ecology.

Keywords

complexity, ecology, readymade, observation, representation, invention, collage, assemblage.

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This is a brief dissertation about the automatic process the whole society experience every day and night: the contradictions between what we see, what we want to see and of course, about what we don't want to see.

The relationships which connect observation and representation are not linear, they are not unique and as we know more than ever, they have just became a creative strategy to survive between necessities and desires, reality and fantasy. They are a unique process.

Nowadays, the intersubjective that connects the self and the outer space is under a deep redefinition. People are not passive actors anymore. After a whole spatial century – the old and abstract 20th Century – everybody experiment life and dreams "tridimensionally" into space, and more than ever, humans need to see energy as a prove of life, sometimes represented as love, sometimes felt as body heat.

In and out are sharing the same energetic void: the "inbetween" – a place where thoughts and dreams work together to assure the continuity of the human existence in itself. This is the place where inventors represent the real world as complexity. All is about new inventions to survive.

This text is about the necessity of a new sensibility dedicated to avoid the non-extendable lack between social and biological energies. It is about what technicians do to establish a new sense of balance between the community and precisely, about what they invent to reconnect the Society and the Environment as an indivisível binomial. It's about a romantic match: People and Nature living together in love again!

This text is about the dissatisfactions of the technicians and how they create -observe and represent- new inventions in their laboratories to deal with the visible lack of dialogue which is separating human beings and Nature. Dreaming ideas about reconciliation.

As Alison and Peter Smithson expressed ferociously their world as technicians in 1955:

Each generation feels a new dissatisfaction, and conceives of a new idea of order. This is architecture. Young architects to-day feel a monumental dissatisfaction with the buildings they see going up around them. For them, the housing estate, the social centres and the blocks of flats are meaningless and irrelevant. They feel that the majority of architects have lost contact with reality and are building yesterday's dreams when the rest of us have woken up in to-day. They are dissatisfied with the ideas these building represent, the ideas of the Garden City Movement and the rational Architecture Movement (...).¹

Dissatisfaction is a gear for creation, the everyday life of mind of the observer, the critical attitude of



Fig. 1 – Juan Cabello Arribas Reactivation 02, digital collage, 2020 (author copyrights).

the creator, the restless state of mind of each and everyone of us.

If this questions are still reverberating until the postwar world, what did technicians make during the past hundred years?

The whole community was very well educated under static rules of observation, interpretation and representation established by the old modern vanguardists, but reality has changed a lot since them. Change - a constant unit of time and the essential character of Landscape- must be faced and included into the technical process if we want to achieve the effective functions of the inventions we create everyday. We need to create new bridges, new connections, a new field of mediation, but everything changes constantly. It is time to review and study all again.

Cubism and Abstract Art - the exhibition held at

MoMA in 1936 – presented the world of the creative community as a disconnected field of experimentation, categorized, classified and reduced under determined rules of observation, interpretation and representation: non-geometrical and geometrical art. Both of them were understood as abstract procedures. Both tried to explain complexity from different points of view. Both tried to represent reality by complementar meanings but one of them won the battle: geometry survived over surrealism, basing its truth on the verifiable field of tridimensional laws. Dreams and poetry never could be measured by axis and complex equations.

These two worlds were part of a unique one, but only the geometrical representation made sense for the economical system.

The question is still alive: have we gave the chance to the non-geometrical abstract art? All was about



Fig. 2 – Cover-Page of the exhibition's catalogue *Cubism and Abstracta Art*, MoMA, 1936. Font: moma.org Fig. 3 – Bicycle Wheel, Marcel Duchamp, 1913 VS Villa Savoye, Le Corbusier, 1928.Fonts: moma.org I FLC/ADAGP (photo: Cemal Enden, 2015).

the "machine esthetic" but those machines never worked efficiently, meanwhile the surrealistic machines started to work and never stopped anymore. In 1913, Marcel Duchamp presented his first "readymade" which was mounted as a symbolic machine – with objects extracted from the everyday lifeto communicate movement, energy and change. In 1928, Le Corbusier built his first "machine for living" – based on the famous and un-reviewed "five points of architecture" – which was the representation of modernism and a futuristic prototype.

The big difference between these examples is the technique which produced both.

The first one was assembled, the second one was built. The wheel recycled symbols and put together different and complex meanings after a deep process of observation of the everyday life. The villa revisited the mediterranean life style and stated itself



as the symbol of a new era, proposing a new way of life. The anonymous technicians worked together on the wheel by the poetic rules of "assemblage"², a non-hierarchical creative process of reconstruction. In the other hand, the anonymous craftsmen worked together under the geometrical poetry of the architect.

The first one produced a light mechanism which could be un-assembled and be adapted and installed every time and everywhere. The second one, the villa was built to be maintained and get over the passing of time.

Duchamp's readymade recovered essential meanings of ancestral machines which were created to move through any geography and to be re-interpreted by anyone. The static villa never abandoned Poissy. The wheel is still spinning but the villa stopped in time.



Fig. 4 – *Principal mountains of ten continents*, Devèze de Chabriol, 1814 + *Atlas*, Nigel Henderson, c.1950. Fonts: An Atlas of Geographical Wonders: From Mountaintops to Riverbeds, Jean-Christophe Bailly, 2019 I tate.org.uk

Reviewing archetypes and techniques is fundamental for a new comprehension of the complexity we are immersed. As Max Bill expressed in the article *"The beginning of a new epoch in architecture"* (Architectural Design, November 1955, p.335-338), we need to review all again if we want to represent correctly our living landscape. Everything must be studied under the rules of the new epoch we need to achieve: the era of Ecology.

Observation, analyze, interpretation and representation are the stages of creativity which locates architecture in the correct place to participate as a living discipline. It must accept the challenge to fill the void – which is still vacant – between science and arts, reality and dreams, geometry and poetry. We need to build less and assemble more. We need real and convenient machines to put the World working together again. But how we can achieve this goal? We need to review how we observe -under the rules of science – and represent – using the creative techniques of non-geometrical abstract artists.

Far from Utopia – the imaginary island created by Thomas More in 1516 – science and art face complexity in depth to create a sharp representation of what have been seen. Every time they dive into the real world a new geography emerges as a new map, a meticulous and delicate representation of truth. As Lewis Mumford expressed in *"The story of Utopias"* (1922), the only way to face reality is which reconstruction traces in every representation. The process of reconstruction is the opposite of abstraction, the other side of escape, the smart decision to deal with complexity. But reconstruction is a kind of interpretation, the sense of sensation.

And precisely, reconstruction was the way chosen by Devèze de Chabriol and Nigel Henderson to reconstruct their living maps.

The first one observed mountains around the Planet Earth and analyzed every one in detail. Consequently – after a geobiological interpretation – he represented all together as a unique ecological system, connecting volcanos and rivers, forests and snowfields.

The second one, observed the surface of devastation from the plane he piloted during the Second World War. The photographic analysis from the air evolved to a conscious mechanism of interpretation and finally, an Atlas was assembled as a collage of fear and nature. In both cases, representation was an action of reconstruction in order to communicate different aspects extracted from the same reality. A technical synthesis. In both cases, the technique was the same: observation, analyze, interpretation and finally representation, as a whole act communication. Collages of reconstruction.

In the middle of Chabriol and Henderson -connecting science and art, nature and society- a new epoch was born: the time of an assembled architecture. Assemblage – as a multidisciplinary technique – brings information from all fields of knowledge together and it offers a real possibility to step forward to an ecological reconciliation.

The assembler – as a transdisciplinary technicianfeels freedom when he wants to represent their desires of regeneration and at the same time, as a concerned scientific inventor, he connects matter extracted from diverse laboratories and workshops to promote new possibilities of communication between humans and Nature.

Today, a new generation of architects felt dissatisfaction again and they are looking for a new sense of order, a new sense for their techniques. They want to make contact with reality again and they want to feel that their inventions – assembled as concerned machines – are the solution for a new ecological representation of the Planet, the biggest and more complex ecosystem. It was hard to know that all that they studied for, don't work anymore. Today, Architecture is an act of research and creation, a scientific art who wants to re-establish the dialogue between humans and their Environment. A new sense of freedom arises today and it is a font of satisfaction, but we need to study all again.

Far from the geometrical abstract Bauhaus, Làszlo Moholy-Nagy opened new ways to face complexity in "Vision in Motion" (Chicago, 1946). Nagy's laboratory manual was published to spread and promote a new sense of order between vision and representation. Walter Gropius building was left in peace in Dessau.

In this visual compendium, Moholy-Nagy opened the door for a new more functional and multidis-

ciplinary technique and he re-defined again "the function of art":

"Art is the most complex, vitalizing and civilizing of human actions. Thus it is of biological necessity. Art sensitizes man to the best that is immanent in him through as intensified expression involving many layers of experience. Out of them art forms a unified manifestation, like dreams which are composed of the most diverse source material subconsciously crystallized. It tries to produce a balance of the social, intelectual and emotional existence; a synthesis of attitudes and opinions, fears and hopes.

Art has two faces, the biological and the social, the one toward the individual and the other toward the group. By expressing fundamental validities and common problems, art can produce a feeling of coherence, This is its social function which leads to a cultural synthesis as well as to a continuation of human civilization.

Today, lacking the pattering and refinement of emotional impulses through the arts, uncontrolled, inarticulate and brutally destructive ways of release have become commonplace. Unused energies, subconscious frustrations, create the psychopathic borderline cases of neurosis. Art as expression of the individual can be a remedy for sublimation of aggressive impulses. Art educates the receptive faculties and it revitalizes the creative abilities. In this way art is rehabilitation therapy through which confidence in one's creative power can be restored".³

The Moholy-Nagy's review came to calm the dissatisfaction of a big amount of technicians. Art had to abandon the abstract world – geometrical or non--geometrical – and it had to work as a unified manifestation to face the complex existence of the humans, socially and biologically.

It could produce a "feeling of coherence" individual and collectively and also It could heal a lot of mental problems of misunderstanding. It could be a regenerative therapy for all.

After the Second World World the whole society needed a deep remedy to realize the destructive nature of many human beings. They needed an impulse to continue.



Fig. 5 – Anubis (332-30 B.C) and Ganesha (10th century) sculptures + Marcel Duchamp Studio (Man Ray, 1920). Fonts: metmuseum.org I toutfait.com

The reconstructive power of art had to get through humans to give back all to life again.

But since 1946 the complex world got more complex and the functions of art have to be reviewed again. This is not only about human rules anymore.

Dissatisfaction is not only about ugly buildings. One more time It is about the loss of contact with reality, as Alison and Peter Smithson claimed in their words. It is not also about social and biological necessities as Moholy-Nagy expressed but environmental too.

All is about the way artists and technicians envision the world.

Nowadays, the world is larger and more complex: it is a big ecosystem and it is in danger. Neither technical dissatisfactions nor artistic expressions will cure the environmental problems of the Spatial Mothership Earth. They must work together. It is time to act. It is time to get together.

Science and Art, technicians and creative inventors must produce not only a feeling of coherence but also an ecological synthesis to a continuation of all the living beings as a unique community. Transdisciplinary is needed.

102 What to do when a technician acts as an artist? How

can he express his concerns when he observes the real world as a scientist? Which is the best attitude to confront the lack of an ecological feeling and promote new solutions? Inventions are the answers for all of those questions.

But the only way to begin a career as an inventor -Max Bill could express - is to review and study all again. Lewis Mumford expressed this feeling as a technique state of consciousness in his book "Technics and Human development: The Myth of the Machine" (1971). This state of self recognition moved the new inventor to look for a multidisciplinary technique, trying to connect his inventions with the whole field of creation and knowledge to quiet his phantoms. Collage and Assemblage were both the solution. Observing, extracting and analyzing - pieces from science and industry, images from art and the everyday life, thoughts from philosophy and mathematical theories - the assembler finally felt himself in freedom to make a new interpretation of the real world. Immersed in a continuous and always critical process of research-while-creating, he finally felt a sense of coherence strong enough to express his ideals of ecological regeneration through a complex and more clear image: a 2d collage or a spatial assemblage.



Fig. 6 – Assemblage for an ecological installation: a creative process of an *Environmental Machine*, 2015 by . Juan Cabello Arribas (author copyrights). Fonts: machines extracted from Diderot et D'Alembert Illustrated Encyclopedia (1751) I living beings extracted from Nature.

In a world where everything are images, visual cuttings – extracted from a big data universe- were the basic matter not only to conceive new ecological mechanisms but also they traced the emotional way to make aware the big society about his disquieting concerns. New artistic representations could work as emotional impulses to sensitize the public with the alarming situation, making visible their essential necessities and ecological responsibilities.

The creative process had just begun, but how it would be effective enough to achieve such ambitious objectives? Three different strategies were the bases of this solo Odyssey whose geography projected a map of infinite possibilities of invention. The first one: *to review* the processes of reconstruction and regeneration within the own technique. Collage and assemblage were practiced and theorized simultaneously not only to recycle the spirit of the inventors but also to create new dialectic mechanisms to be installed between all the living communities.

The second one: to enlarge the visual world of architecture and dive into a new world of automatisms which were really designed to function as machines themselves. The third one: to analyze the Earth as a big complex ecosystem – under the rules of atmospheric conditions, biomatic interchanges and socio-environmental communities – working as a unique machine.

Collage and assemblage processes were understood as cultural techniques of creation which last from the early civilizations to our present. From Egyptian and Hindu deities – Anubis or Ganesha – to Marcel Duchamp readymades, those reconstructive abilities always arose to promote clear solutions and a new visual understanding of the world. They were always free techniques which work for all the creative disciplines: mythology, cinema, botany, literature, art, chemistry, hardware, architecture and of course, they were the perfect choice to assemble complex machines. Eureka!

Collage and assemblage were practiced as step-by--step processes, always giving the opportunity to go backwards and start again to move forward and invent. From the past to the future, the montage process was organized as an organic timeline based in four evolutive figures: *archetypes, artifacts, prototypes* and finally, *dispositives* to be installed within complexity. A matryoshka doll method of practice, design and conception.

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New inventions needed new methodologies to arise and it was the critical method chosen by the assembler. Everything could be reviewed and readjusted anytime and anywhere.

The visual universe of the assembler got bigger when he decided to explore "*as found*" real machines to compose new ones destined for reconnect people and their environment. *Diderot et D'Alembert Illustrated Encyclopedia* was chosen and reviewed in detail and the history of technicians and inventors got visible before his eyes forever. He wanted to connect himself with them all.

He discovered that every civilization is characterized by the inventors which caused little adjustments in old artifacts to create new ones as an impulse of continuation.

This new illustrated world also made visible that every chapter of everyday life was full of machines and detailed creations. The history of mechanisms and gears revealed "*a logic of sense*" to the technician and, at the same time, it submerged himself into the "*logic of sensation*" forever. Gilles Deleuze was a good friend during this period of technical evolution.

Collage and assemblage turned into an everyday life practice leading him to see complexity not as an indivisible melted-welded complicated world but as an assembled complexity with recognizable fragments ready to be recycle again as fundamental parts of new and more correct mechanisms: environmental machines.

In 2015, architecture turns into another thing in the hands of the assembler. New images arose over his long desk. Computer-aided design shared its space with cuttings from diverse complexities -art and architecture catalogues, specific botanical books, fashion magazines and newspapers- and the result was always the same: new images which could promote new architectures as well as new representations which could make visible new opportunities for an ecological reconstruction. Fake Modern machines for living were abandoned at the bookcase while industrial machines and equipments from all over the world arrived at the assembler workshop. Bernd and Hilla Becher were the promoters of this romantic chapter of invention and critical evolution to an age of ecological industry. Suddenly, Duchamp artifacts turned into "environmental readymades" – assembled from Becher's industrial imaginary – and the representation of complexity as a collective and assisted "*tecnosphe*-

re" arrived over the desk.

Humans continuing its civilizations in Nature surrounded by concerned automatic translators. Machines connecting humans and Nature in a suitable coherence for both.

A new feeling of order arose within this regenerative representation.

Collages and assemblages communicated the possibility of a new kind o eco-interchange which could be interpreted by anyone, any discipline, anywhere and anytime. Full of life, they were always establishing new systems of knowledge – to be discovered, changed and reviewed – in order to satisfy new necessities and lacks of motivation.

A strategy to face Complexity with more complexity where abstraction was substituted by responsible interpretations and clears representations for all the communities.

New studies on Planet Earth based on the theories developed by a big platform of scientific inventors -Sergio Bernardes, Pio Corrêa, Howard T. Odum, Carl Jung, Lewis Mumford, Aldous Huxley, Buckminster Fuller, Cedric Price, the Yanomamis, Stefano Mancuso, Reyner Banham, George Kepes, Eddie Wolfram, William Seitz, Sophia de Mello Breyner Andressenchanged the way to assemble machines forever.

Man and Nature didn't talk anymore and they needed new mediators to communicate and promise their continuation together. The traditional binomial human-nature have to be aided by new translators in order to preserve both in time.



Fig. 7 – Juan Cabello Arribas, Architecture is another thing, analogic collage, 70x50cm, 2015 (author copyrights).

From this moment, Humans and Nature walked together through this handmade path. But what did the assembler know about natural ecosystems and their behaviors? The Tropical Forest, Botanical Gardens and Natural History Museums designed a new map to be explored. Amazonia, Rio de Janeiro and Sergio Bernardes Archive accommodated his worries and desires of regeneration. Science and Art worked together in the hands of the assembler.

Let's back for a moment to Brussels, 1958. A "*New Humanism*" was the main theme of the International Exhibition which called all the committees and all technicians of the world to participate in the reinvention of a new world – a new sense of balance for all.

As Francine Latter expressed within the pages of the Belgian newspaper *Presence* in August 1958, this exhibition would be more "*universal and human*", a new geography for a deep review of the Big Community. It would bring together all the technicians and their technologies to think propose a "*trampoline for a new beginning*", a new possibility for the future.

Although the eyes of the "experts" kept focused on the jewels of the international fair – Le Corbusier's Phillips Pavilion, Egon Eiermann's German Pavilion, etc – the prize of the exhibition's best pavilion went to the Brazilian ecosystem assembled by Sergio Bernardes. An ancestral ceiling made of wires, concrete and eucatex plaques – extracted from the amazonian nomad settlements – , a flashy red balloon – extracted from Albert Lamorisse's movie *Le ballon rouge* (Cannes Prize,1956) – and four light towers -extracted from Alberto Santos Dumont and Gustave Eiffel inventions – where assembled as a new ecological machine which would take care a little portion of the tropical forest within.

The Brazilian Pavilion was installed in the middle of the exhibition as an environmental dispositive dedicated to provoque new questions about the universal relations between humans and Nature. It was not the result of a traditional act of construction but a new symbolic act of reconstruction. The legible process of the assembler followed by Bernardes during the conception of this strange artifact - extraction, observation, analyze, interpretation and representation – made visible the new opportunity for the "expected new humanism" under the image of a new automatic mechanism. Humans and Nature could establish more balanced relations for each other and the continuity of the Planet could be visioned again. Apparently, the pavilion was recognized as an example of a complex engineering process and as a model for those future architectures which wanted to catch a big amount of space under a light thin concrete bed sheet without intermediate supports.



Fig. 8 – Bernd and Hilla Becher, *Winding Towers*, , c.1960. Juan Cabello Arribas *Environmental Readymades: installing automatisms in Nature*, analogic collage, 100x50cm, 2015 (author copyrights).



Fig. 9 – *Brazilian Pavilion for the Universal Exhibition,* Brussels, Sergio Bernardes, 1957-1958. Font: Memoria Bernardes, NPD-UFRJ, Rio de Janeiro.



Fig. 10 – The Brazilian Pavilion as an ecological machine, reviewing drawing, Juan Cabello Arribas, 2017.



Fig. 11 – Juan Cabello Arribas, *Air Purifier*, Environmental Machines Series, analogic collage, 21x14,5cm, 2017 + *Reactivation 03*, digital collage, 2020 (author copyrights).



Fig. 12 – Proposal for the House of Sustainability Competition, model and machine diagram, 2016 (author copyrights). Fonts: Photo by Augusto Bartolomei I Model and drawings by FazemosArquitetura Studio.

It was published under the traditional interpretation of tectonics and space in many architectural magazines of its time (Domus 345, Aug1958; Módulo 9, Febr 1958; The Architectural Review 739, Aug 1958) but the Brazilian Pavilion was never shown as how it really was: an environmental readymade. Water, air and the sun worked together under the rules of this new ecological automatism in order to preserve the continuity of this little part of the Universe we usually call Planet Earth.

Assemblage - the ancestral technique - put Science and Art working together again. A new landscape of reconstruction was envisioned and also tridimensionally "represented". Under a powerful representation new machines are assembled everyday -as the writer creates his narratives- to get in contact with the reader. Extracted from the tactile complex world, images from Nature and Human's Civilization are re-organized under a new ideology to be reinstalled again as ideal environmental machines that work "correctly". Extraction, observation, interpretation and finally, montage representations enact the rules for new politics of regeneration. It is not about construction. but re-construction. Touchable matter is analyzed and interpreted to be installed again where it belongs with a new symbolic meaning. It is not about form but eco-functioning.

tridimensional and abstract representations because humanity needs to recover contact with Nature today. Everything must be recognizable and understood immediately.

That's the power of the assembler: he uses real images everybody can decipher – historical photographs, botanical illustrations, scientific portraits of landscapes – to express poetically the existence of a new possible coherence for all.

After installation, landscapes get regenerated and they achieve the desired balanced again.

Collage and assemblages offer the technician real images and tangible portraits of his dreams. Where everything is possible, creative processes take command and leads the technician to promote new programes of regeneration.

Extract, reconstruct and install again. After reviewing archetypes, artifacts and prototypes the assembler finally turns these genetics of creation into active and environmental dispositives to work under the rules of communication: the romantic dialogue of Ecology. All is about representation. Regenerative representations.

There is no turning back for the assembler. Once he recognized complexity as a decipherable geography full of responsible systems working together to ensure the continuation of all living communities, he is not going to come back. He just dreams about new

systems of regeneration and that's what he represents. Collage and assemblage are his ideological and epistemological techniques to reach his objectives.

Back in the architectural workshop, the assembler creates new artifacts and he expresses their eco--ideologies under the traditional techniques of representation to contact with the whole community of technicians. The new environmental narratives are not easy to be read but they always communicate and provoque at judges eyes the necessity to review all again.

The assembler still knows that today is not the time for his eco-dispositives but his romantic perseverance leads him everyday to face this lack of sensitivity as an impulse to create constantly and never give up. Massive productions run after an effective visual sensitization of all. Every architectural competition turns into a possibility to spread his unquiet feelings about Humans and Nature. Feasible architectures state new and more free techniques within the discipline. What he dreams is what he assembles and installs. All is possible and capable to be represented in the assembler studio. It is just about to go for it. Projects from the architectural workshops run after new ecological solutions with new practicable questions in order to achieve as soon as possible this new feeling of balance called future.

Collage and assemblage represent the possibility

for a new practice in architecture. They face the roughness of everyday life with new poetical and practicable representations. Dreams come true every morning when the assemblers open the door of their studios. Between Science and Art, architecture would arise as a new atmospheric creator. It is time for inventions. We cannot still repeating old models and references created as abstractions. We need to study and review all again if we don't want to do the same mistakes again. Dream more, invent more. Today, it is time for regenerative representations of tomorrow. It is time to inhabit complexity again.

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Endnotes

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² To know more about this creative process of reconstruction visit the catalogue of the exhibition "*the art of assemblage*", by William C. Seitz, held at MoMA in 1961. <https://www.moma.org/calendar/exhibitions/1880> (10/20).

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