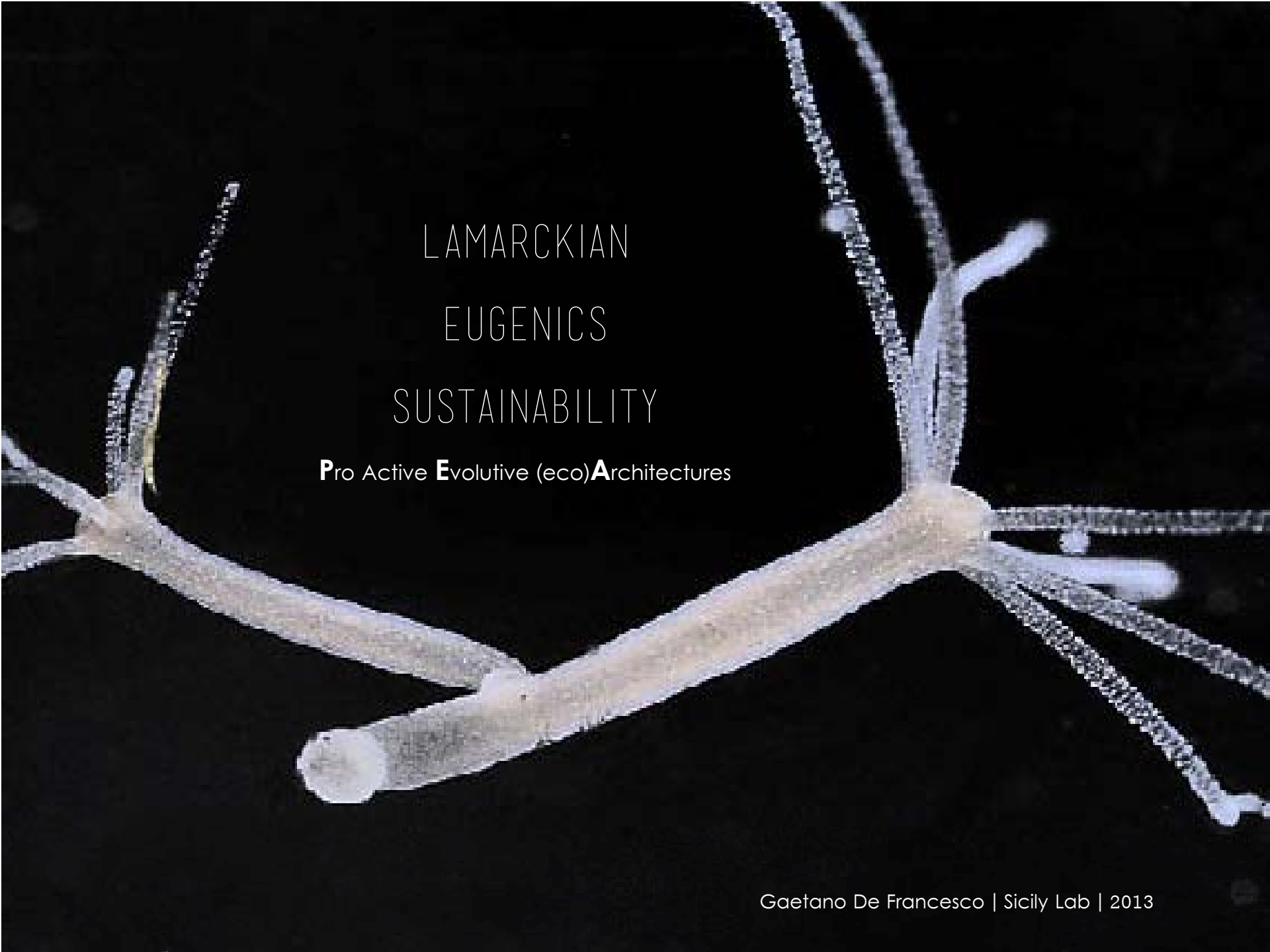


LAMARCKIAN EUGENICS SUSTAINABILITY

Pro Active **E**volutive (eco)**A**rchitectures

Gaetano De Francesco | Sicily Lab | 2013

3 billion of people over the next 20 years will need the new homes.
One of the three people today live in the slums: 1 billion of people.
100 millions of people are homeless.

WORLD HOUSING NECESSITY

3 BILLION PEOPLE

40% OF THE WORLD

CO2 EMISSION

47% BUILDINGS

50% TRANSPORTATION

19% INDUSTRY

Buildings are responsible of 47% of carbon dioxide emission.
City are built principally in two materials: steel and concrete. The grey materials of last century. But the also materials with very high energy in very greenhouse gas emission in their process.
Steel represents the 3% of greenhouse gas emission and concrete 5%. for a total of 8% of greenhouse gas contribution.

In 2040 is provided an urbanization of 40%. Today is 50%.

URBANIZATION

75% 2040

50% TODAY


CONSTRUCTIONS
ENVIRONMENT

The architectural sustainability as is today conceived represents a passive connotation, implying stability, persistence and balance.
The principle idea is the construction of carbon neutral buildings which merely propagate the apocalyptic status quo.
On a planet that has no more square inches of untouched environments, the new wave of ecological architecture cannot be solely directed to the ethics of the world's salvation and the rhetoric of confinement.

SUSTAINABILITY

Sub – Tenere

TO UPHOLD

It is clear that the discourse around architectural sustainability today hails from a premodern romantic notion of nature. Aiming towards balance, harmony and health, this premodern, even romantic, understanding assumes a healable and – when properly managed – harmonic interaction between an organism and its environment. Yet, unknowingly or not, this approach dismisses a pressing body of biological and evolutionary knowledge built from the works of the French naturalist Georges Leclerc Buffon (1707–88), his disciple Jean Baptiste Lamarck (1744–
1829), Charles Darwin (1809–82) and others. This conception dismisses an evolutionary and systemic approach.

Caspar David Friedrich: Die Kreidefelsen auf Rügen (Chalk Cliffs on Rügen), 1818

Tthree characters can represent three different ways of reacting to nature: the man at the center bows, overwhelmed, at the sight of nature, it seems as if he wanted to kiss the ground. The man on the right prefers to observe the endless sea in silent contemplation, while the woman on the left looks surprised and concerned by the act of man in the middle thatobviously can not control his emotions. She is perhaps less affected by the majestic natural setting.

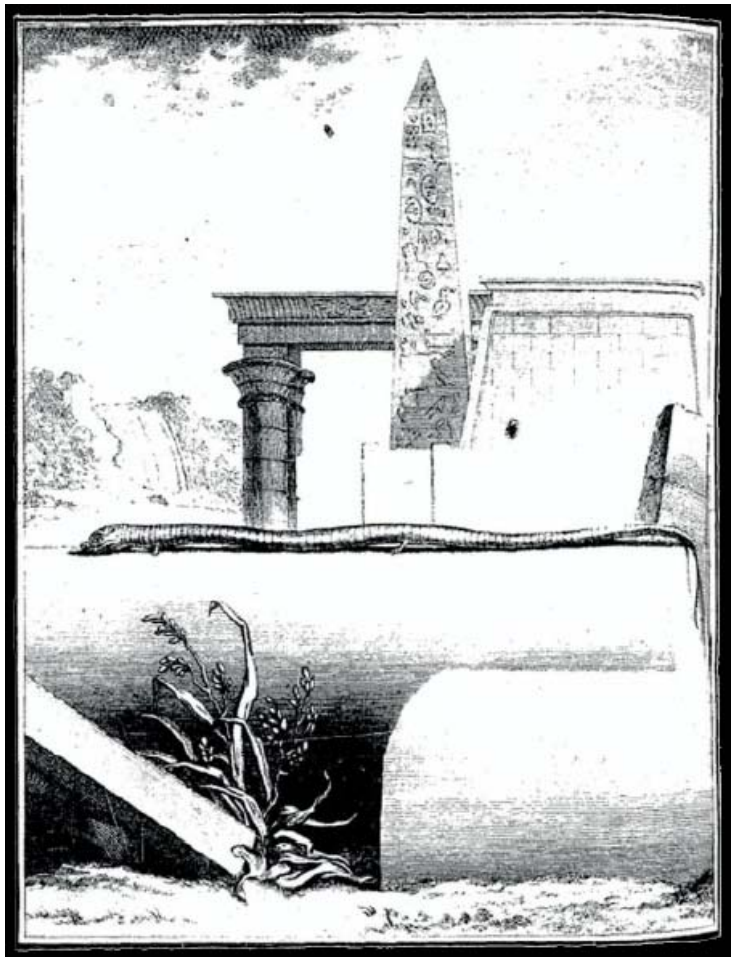
A CONTEMPORARY SUSTAINABILITY REQUIRES AN EVOLUTIVE OVER THAN SYSTEMIC APPROACH

The notion of milieu was first introduced by Sir Isaac Newton to the field of physics, but the term itself, in its mechanical meaning, first appeared in the mid-18th century in Denis Diderot and d'Alembert's Encyclopédie.

MILIEU (in Denis Diderot and d'Alembert's Encyclopédie).

S. m. (Méchan.) dans la Philosophie méchanique, signifie un espace matériel à travers lequel passe un corps dans son mouvement, ou en général, un espace matériel dans lequel un corps est placé, soit qu'il se meuve ou non .

It simply signified a material spaces wherein bodies could move.



Drawing from Newton, Georges Leclerc Buffon depicted this notion in a series of prints published in his Histoire naturelle, générale et particulière (1749–89), completed by Bernard-Germain-Étienne de La Cépède (1788–90)

Le Cannelé and *Le Chalcide*, Plates XLL and PLXXXII
These two reptiles, portrayed by La Cépède, illustrate the impact of the environment on species development. *Le Chalcide*, living in the 'right' classical environment, represents the original type, while *Le Cannelé*, living in the 'new' world, represents the degenerated species.

From the field of mechanics, the naturalist Lamarck, drawing precisely from Buffon's work, imported the notion and the term milieu into the newly emerging field of biology.

JEAN - BAPTISTE DE LAMARCK 1744-1829

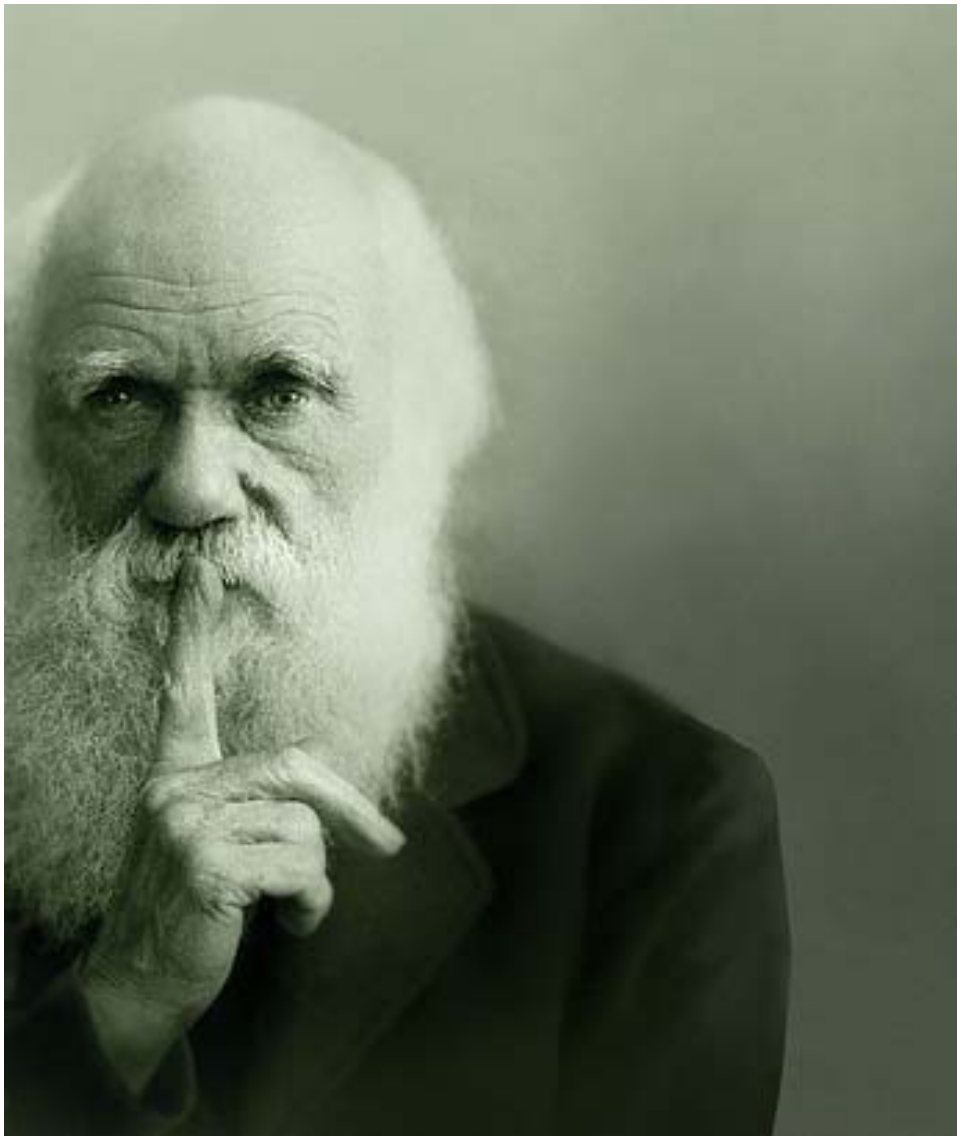
The milieu became a medium, not just a mechanism, wherein an organism transforms and is transformed by its environment, in a constant process of adaptation.

Through these illustrations, it seems Buffon's understanding of milieu forecasts what Michel Foucault said in one of his lectures at the College of France in 1978…
For the sociologist and philosopher Foucault, the milieu is in fact a 'field of intervention' where population change is the target.

MICHEL FOUCAULT 1926-1984

The environment as milieu is not only constituted by 'natural givens' such as climate, trees, mountains and rivers, but by 'artificial givens', as in architecture, engineered infrastructure and the agglomeration of individuals.

CHARLES DARWIN 1809-1882

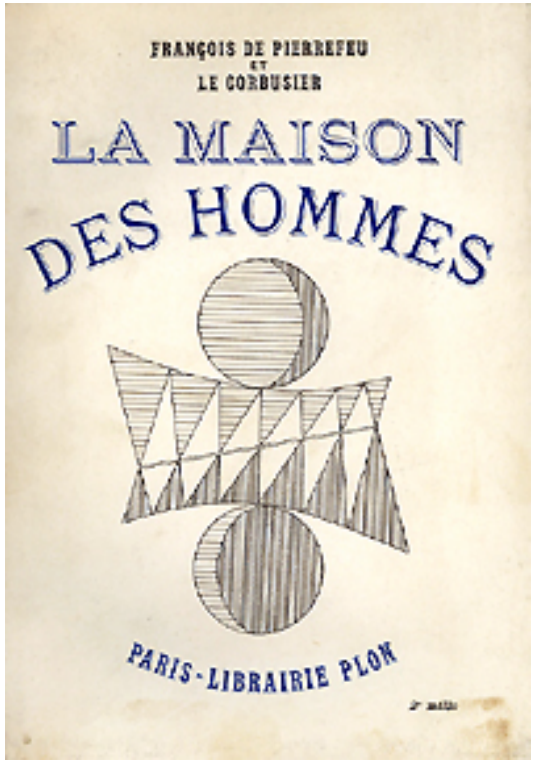


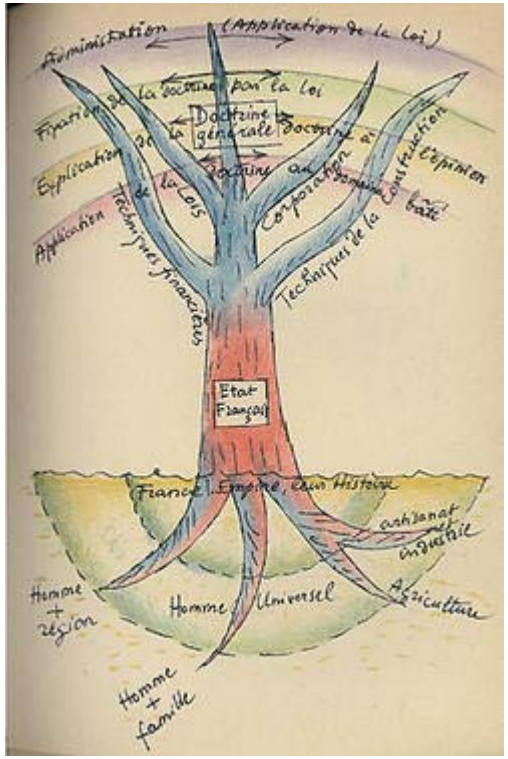
It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.

This our earth, which once seemed infinitely large, must be considered in its smallness. We live in a closed system, depending on each other and all depending from the earth itself. Anything that divides us is infinitely less important than the danger that unites us.

ANTROPOGEOGRAPHIE

Plants, animals but also the human are a malleable entity capable of being transformed together with the environment.





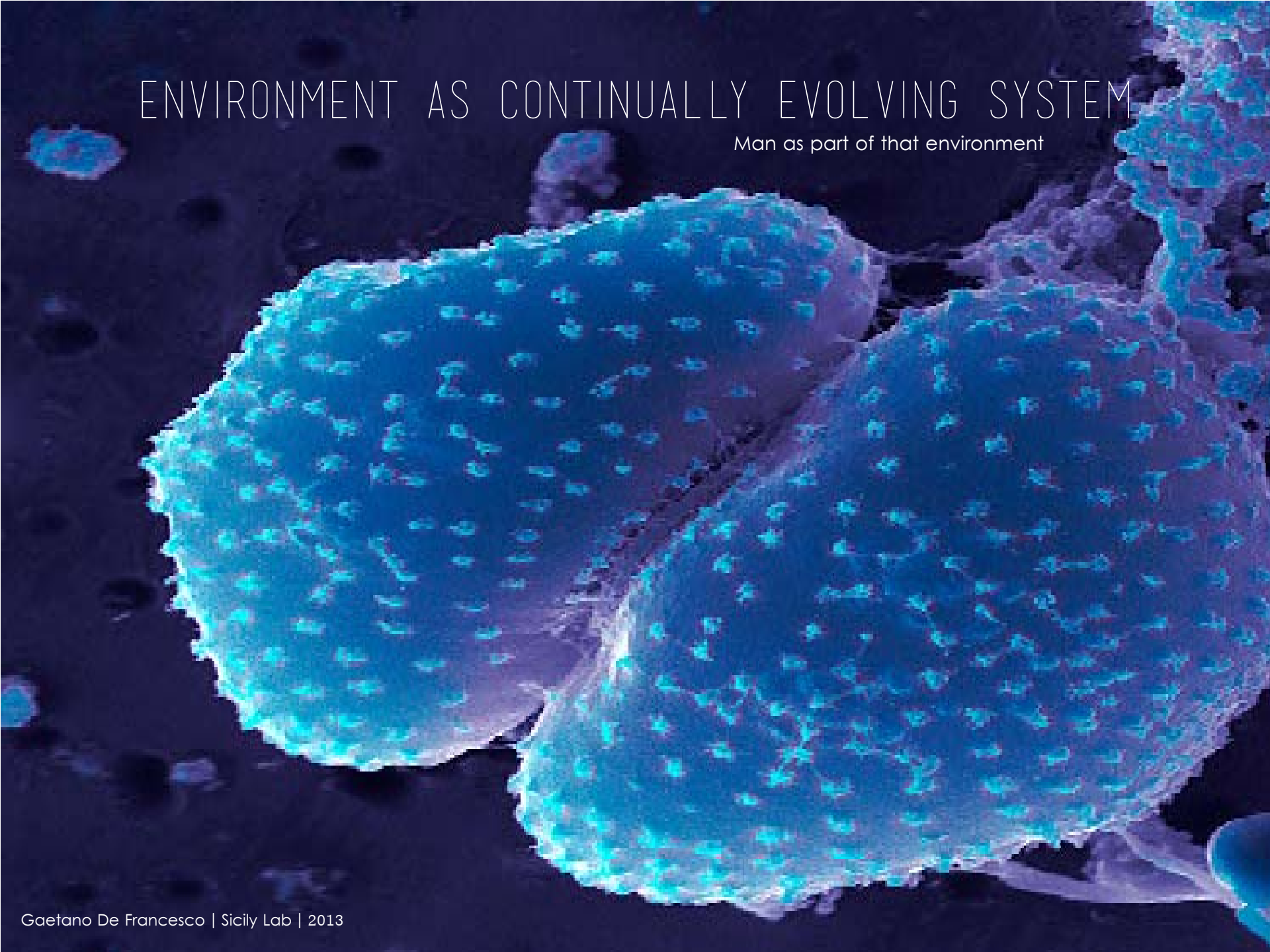
When formulating his notion of milieu, it is important to note that Buffon combined Newton's mechanical worldview and a specific French tradition of understanding geography, that of the so-called 'anthropogeographers'.
Derived from Hippocrates and all through the work of Montesquieu, anthropogeographie – the study of man in his relation to the milieu – sought to understand 'how physical and biotic conditions were reflected in mankind's social life'.
Le Corbusier as well as other modern French architects, looked to the tradition of anthropogeographie as a way to re-establish the balance between man and environment.
In the 1940s, Alexis Carrel, the French eugenicist and Nobel Laureate in medicine, created the French Foundation for the Study of Human Problems and charged it with a dual mission: first, to study 'all possible means of safeguarding, improving and developing the French population', and second, to develop the 'science of man'.
To articulate this vision, Le Corbusier produced a tree diagram (1942) illustrating the doctrine and function of the one he called the architect-law giver.

Le Corbusier, *Arbre domaine bâti (The Tree of the Built Domain)*, 1942
Embedded in the ideology of progress (effi ciency and production) and drawing on the two tenets of Lamarckian eugenics (heredity and milieu), Le Corbusier
emphasises the inseparable roles of architecture and the state in this tree diagram, drawn for *La maison des hommes*.

An idea of race and world evolution

ENVIRONMENT AS CONTINUALLY EVOLVING SYSTEM

Man as part of that environment



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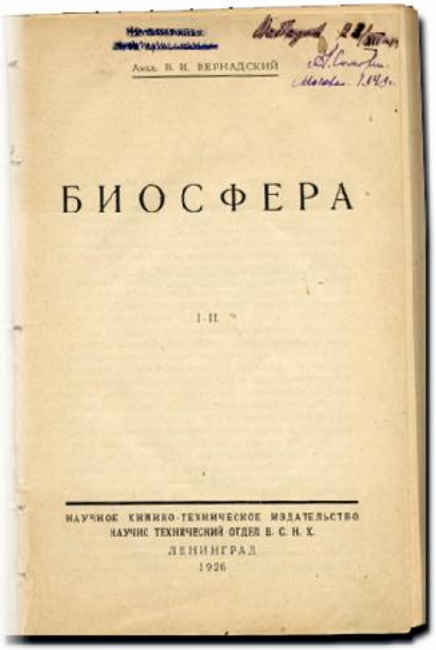

VLADIMIR I. VERNADSKY 1863-1945

The earth is a giant organism in evolution. It is a complex system in which geological, ideological, atmospheric and human phenomena represent an interactive set of forces and forms.

The systemic conception of the environment belongs to modern ecology and was theorized by the English ecologist Arthur Tansley in 1935. The first scientist, however, to theorize that the earth was a giant organism in evolution, in his book *The Biosphere*, was the Russian mineralogist, radiogeologist, geochemist Vladimir I. Vernadsky in 1926.

.

All modern history has been characterized by an anthropocentric vision of reality according to which man is above nature. A mistake that is often still made today and that led man to exploit the resources of our the planet unlimitedly.

As regards this, human habitat has to be considered as an extension of the Gaia conception moving the mechanistic paradigm towards the systemic one: "*from a conception of architecture as a machine to live in to another that sees architecture as a living organism immersed in a network of relations able to influence it*".

ARTUR TANSLEY 1871-1955

Our planet is a network, an extraordinarily complex and interlinked set of phenomena in continuous evolution, of elements and/or subsystems, that cooperate by means of reciprocal relations and behaves as a whole, according to its own general rules . To vary an element means to vary the whole system.

GROUP 2 1956

Reflection on the future

In 1954 the sociologist John McHale joined with Lawrence Alloway to reconvene the group.

The IG came to wider public attention with its participation in the exhibition *This Is Tomorrow*. the most telling image was *Just What Is It That Makes Today's Homes So Different, So Appealing?* , a collage of group 2 formed by Richard Hamilton, John Voelcker and John McHale.

In a grand gesture McHale show a newfound sense of the social and natural world. He placed on the ceiling of the home a cutting from Look magazine illustrating the first photograph of the half earth from a mile-high rocket.

But it was in the gradual cataloguing of world resources that his interest in global ecology was forged, as represented most powerfully in his last two books: *The Future of the Future* (1969), and especially *The Ecological Context* (1970).13 Both books read as if written today, carefully tracing the implications of global warming, of the exhaustion of resources, of the mapping of energy use, population spread and the fate of the world.

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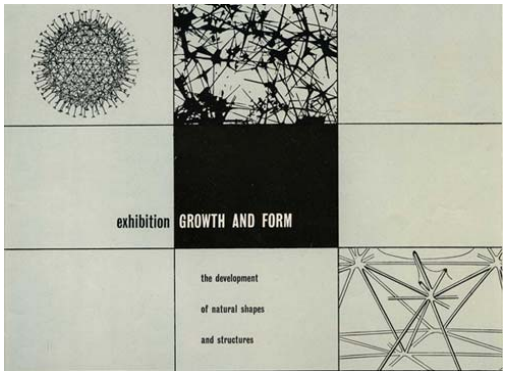
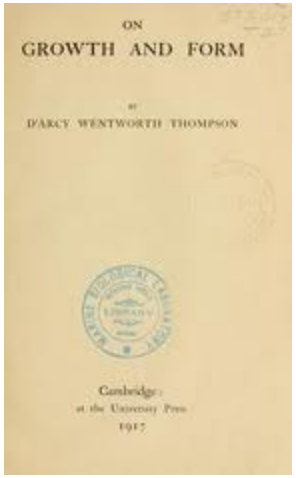
RICHARD HAMILTON & CO 1950

Parallel between art and nature

The artist Richard Hamilton with the support of sculptor and artist Eduardo Paolozzi and photographer Nigel Henderson plan the exhibition '*Growth and Form*' at the ICA (Institute of Contemporary Arts) in the 1951, the title of which signalled its affiliation with D'Arcy Thompson's celebrated book On Growth and Form and the intent to explore the formal properties of nature in a way that was less analogical than proposed by the abstract architects of the Modern movement.

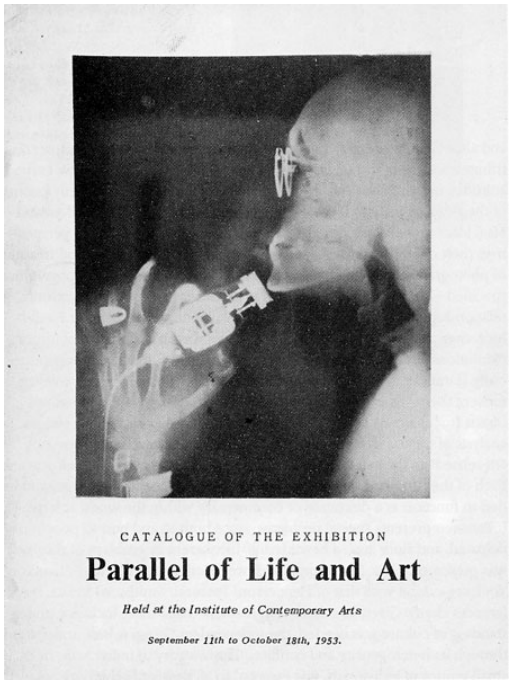




YOUNG INDEPENDENT GROUP 1952

Parallel between life and art

A second moment was marked by the gradual coalition of young artists and architects – the 'lost generation' as they were to call themselves (including Alison and Peter Smithson) – who formed a loose collaboration that came to be known as the Young Independent Group, convened by Banham in the summer of 1952. The following year, Henderson, Paolozzi and the Smithsons staged '*Parallel of Life and Art*' at the ICA. At this point the question was largely aesthetic.



CATALOGUE OF THE EXHIBITION

Parallel of Life and Art

Held at the Institute of Contemporary Arts

September 11th to October 18th, 1953.

Installation shot of the exhibition, *Parallel of Life and Art,* 1953 and catalogue

ARISTID LINDENMAYER 1968

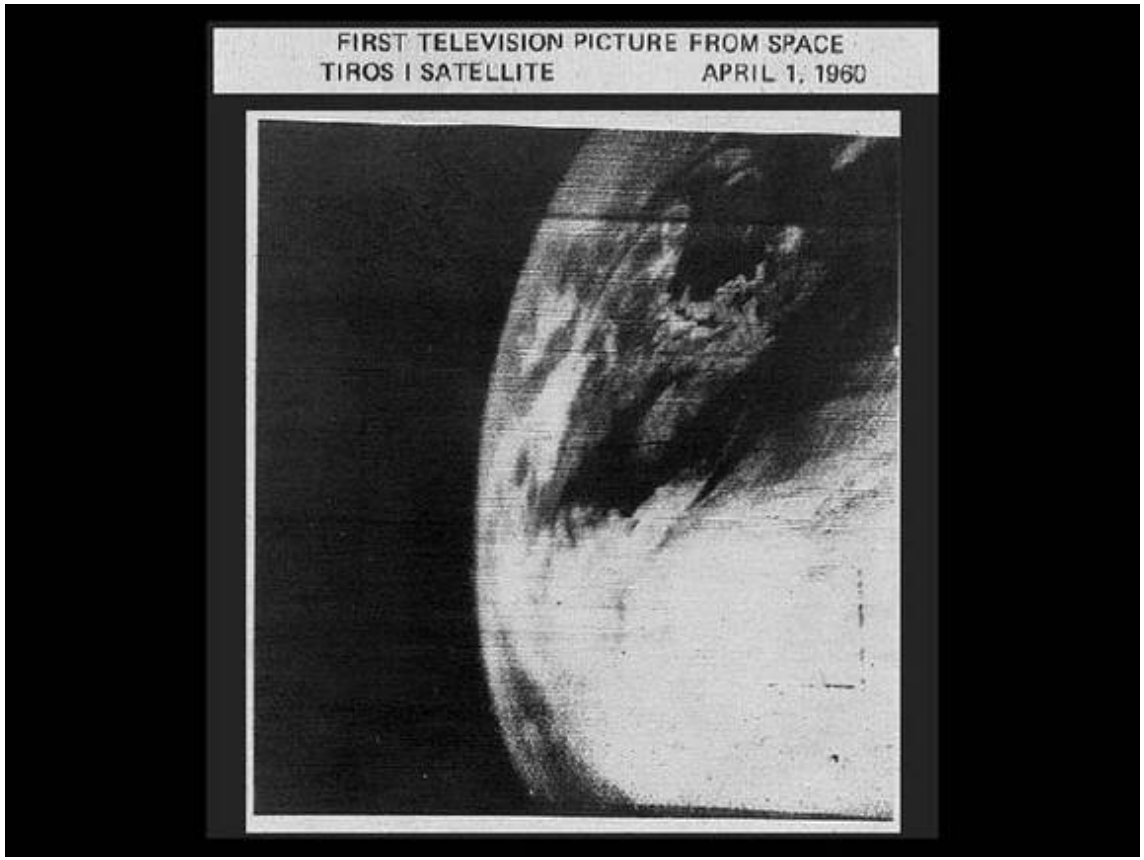
researched the growth patterns of different, simple multicellular organisms.

In 1968, the Hungarian biologist Aristid Lindenmayer researched the growth patterns of different, simple multicellular organisms. The same year he began to develop a formal description of the development of such simple organisms, called the Lindenmayer system or L-system.


NATURE AS PERFECT PARADIGM

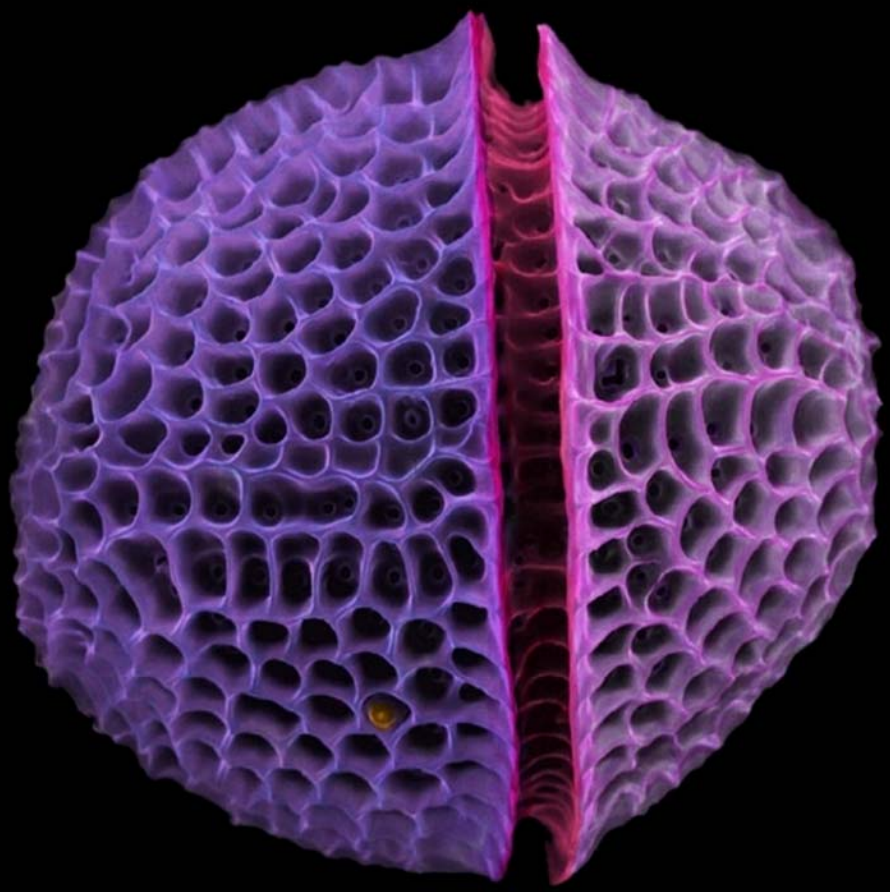
NEW INSTRUMENTS 1960's

These new methods and instruments contribute in rethinking approaches to design



Over the last few decades, visualisation of our environment has profoundly shaped our understanding of it and has yielded entirely new sensibilities. Photos of the earth from outer space enhanced the awareness of climatic and tectonic dynamics and a feel for the planet's fragile balance of flows.
Microphotography revealed the most exquisite details of even the smallest organisms and the fine calibration of their sizedependent performance capacities in relation to a specific environmental context.
The advent of computer and personal computer leads to new simulation techniques that focus on self-organisational processes.

DISCOVERY OF A COMPLEX WORLD



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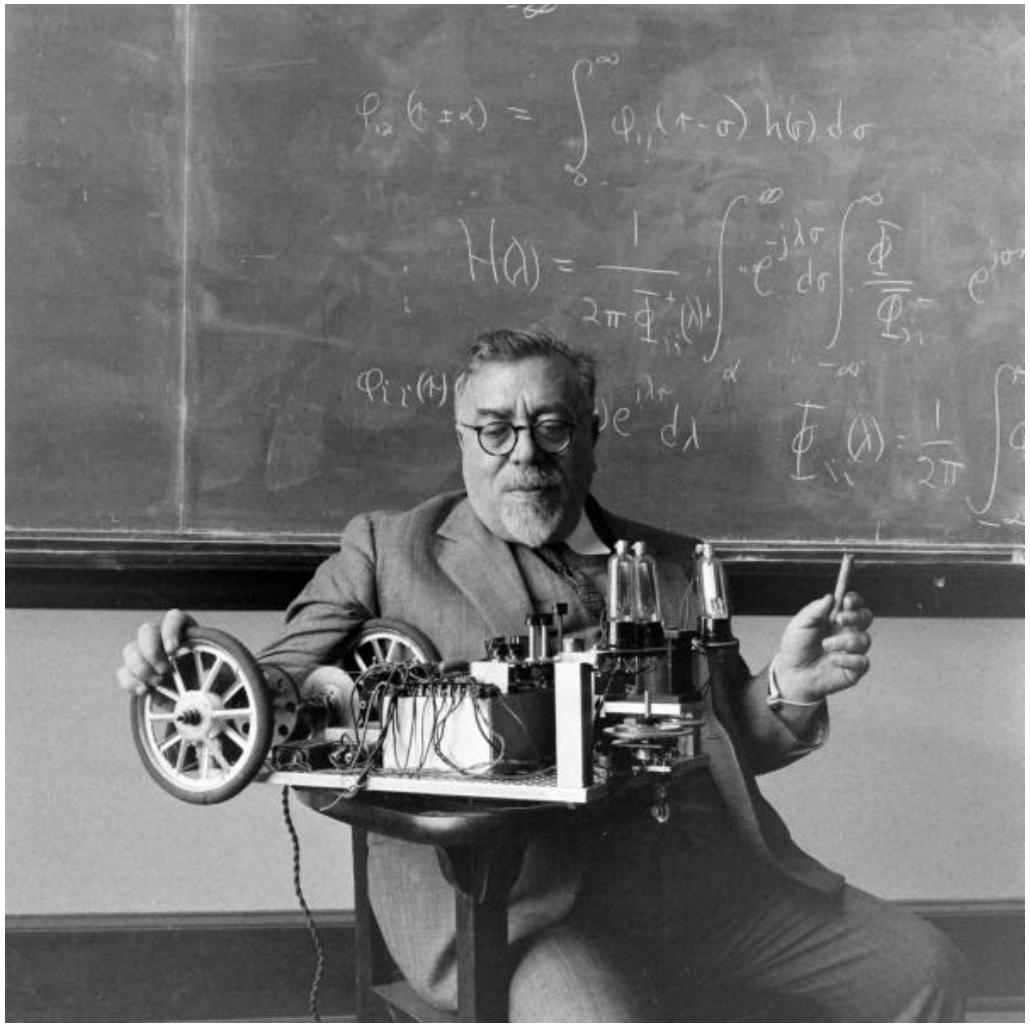
CYBERNETIC 1940's 1950's

Reflection on the self-organization mechanisms in animals and machines.



Norbert Wiener in the second half of the forties shooted the term cybernetics to describe the science of control and communication in animals and machines.

John von Neumann, Claude Shannon, Heinz von Foerster and Gregory Bateson, Wiener and the biologists Humberto R. Maturana e Francisco J. Varelastudied the mechanisms that allowed a living organism to regulate itself, to be an autonomous system and to exchange information between its parts through the feedback mechanism or feedback.

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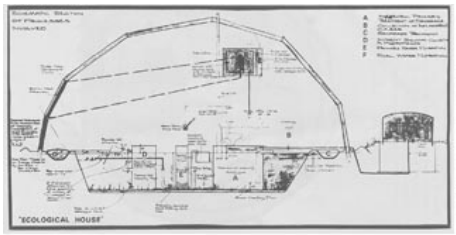
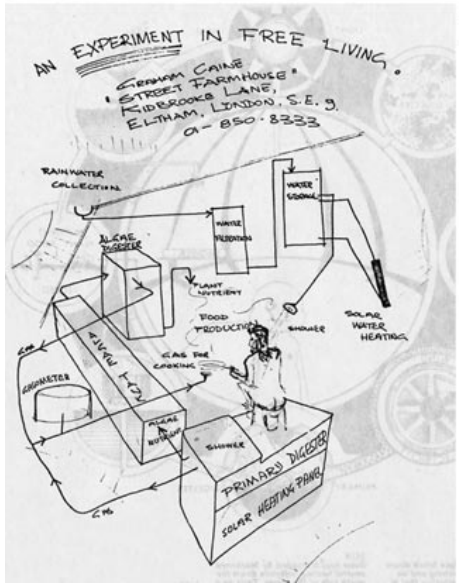
In 1950s and 1960s John Summerson, Reyner Banham and Colin Rowe were the first line of defence for an architecture determined to resist the implications of ecology in favour of representation. Their common call was for a ‘language’ that would begin to express the new ‘nature’ described by Moholy Nagy or by biophysicists; that is, a formal expression of natural knowledge rather than one that sought this language in the already clearly understood determinants of environmental balance.

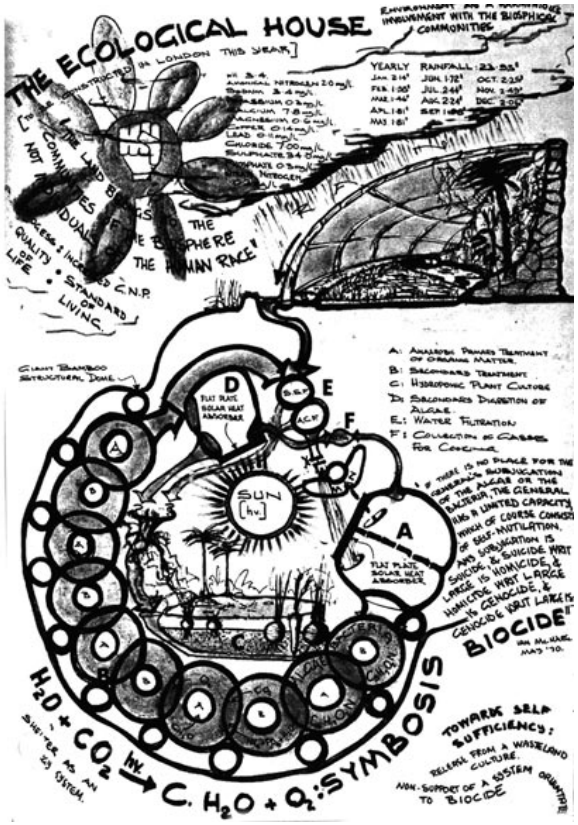
The critic Manfredo Tafuri professed independence of the object from the context. Tafuri refused to integrate the buildings into the environment.

OBSTRUCTIONISM IN ARCHITECTURE

ECOLOGISM IN ARCHITECTURE 1960's 1970's







In the postwar period concepts of nature's preservation and conservation gave rise to a novel naturalism of 'artificial ecology', where the functions of operations of nature were copied as precise analogues, in manmade systems. This period witnessed numerous projects where the main idea was to create microcosms of the earth as a whole and performative buildings. Ecological buildings were in many cases surveyed as cybernetic machines and have been the object of intense transdisciplinary alternative technology debates, attributing to the building a living agency instrumentalised in terms of input and output. Equipped with digesters, hydroponic gardens, solar panels and other apparatuses, an ecological building at the time was a productive device that executed more functions than simply to shelter. The emergence of ecological awareness in the 1970s has been closely linked to a novel perception of the built unit being interconnected to global currents and flows.
But these studies have been largely underestimated in those years.

Courtesy of Grahame Caine

William Katavolos: a city of liquid villas that would float on the sea

NASA 1960's

NASA creates a promotional educational motion picture for television titled Living in Space: The Case for Regeneration.

At this time, the space program played a fundamental role in the reformation of the building industry, effectively adopting, rationalizing and simulating nature's operations in the cautious cycling of provisions. The potential for convergence of all waste materials into useful ones became eminently important, as a means of survival within the enclosed space of the spacecraft. Recycling, rebreathing, restoration, and other words indicating the regeneration of human output into viable input, are essential mechanisms that warranty the travel of the living organism into nonliving conditions.
However, NASA's experiments were not only emoting unearthly fictions; they were a catalyst for re-thinking transformed social and technical relationships as architectural problems, particularly in the domestic sphere. The space program, as a paradigm of reinventing habitation in extreme physiological conditions and instrumentalizing human agency in terms of input and output invoked an ecological sense of inhabiting the world, as seen in houses equipped with digesters, hydroponic systems, composting devices, solar components and wind generators.

P/A in October

Needed— life support systems for a dying planet

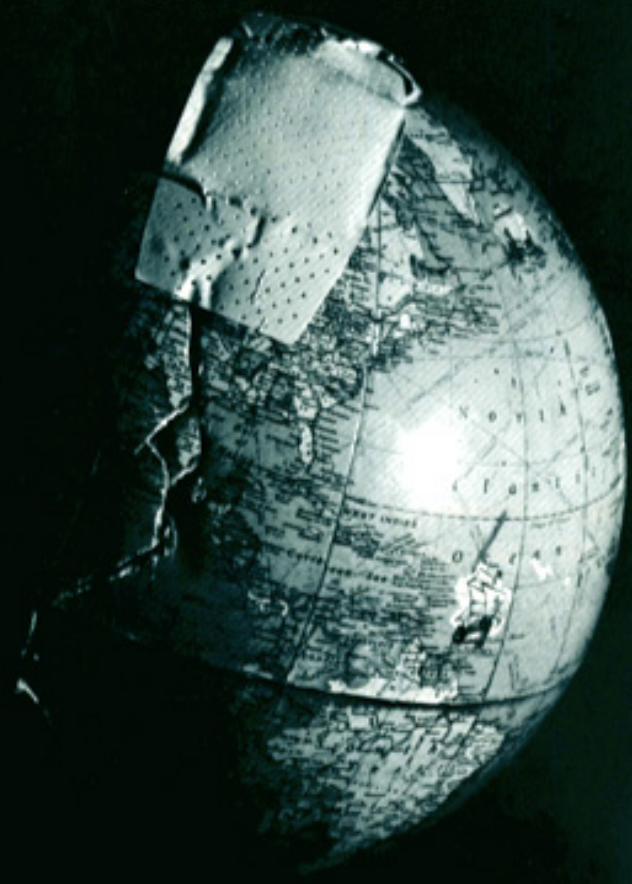
Systems and equipment
Consulting editors Dubin, Mindell & Bloom, on immediate systems and equipment needs and refinements . . . in other words . . . what we can do with what we've got.

The power bank
How much heat and light and power are left on Earth . . . in terms of years and population . . . and the new ground rules of construction for the conservation of energy — evaluation of structures in terms of function.

Wrap up
The fallout of free technology from NASA . . . Federal legislation; passed and pending, on the new environmental architecture . . . a European energy-producing system based on sewage.

Tomorrow's architecture will operate for the conservation of heat, light, energy and materials. It will be as functional as your skill can make it. Because you, the architectural professional, will be the man at the center of the effort. It will be your skill and judgment in use of the available systems and technologies and equipment that will determine whether man can survive his mistakes.

You'll be interested . . . As an architect . . . As an air breather.



Progressive Architecture: October

RICHARD BUCKMINSTER FULLER 1895 1983

The predecessor ecologist architect with a global approach, the prophet of one very small world with limited resources

In the field of architecture, the question of ecology was first introduced with any seriousness by the biologist and educatorturned-planner Patrick Geddes between the 1890s and the First World War. It was developed through the 1920s and 1930s, primarily in Germany, following the lead of Ernst Haeckel, but with a decidedly unfortunate connection with the Blood and Soil movement that led to a strong 'ecofascist' movement in the 1930s and 1940s, led by 'Germany's Gardener' Alwin Seifert. But it was also in the 1920s that a new voice began to be heard from the US – that of a young Harvard drop-out, entrepreneur and inventor,

Buckminster Fuller is generally known over world as an inventor or famous builder of Geodesic domes but he is also one of key characters in propagating ecologic comprehensive thinking in architectural discourse in 1950s and then in 1960s.

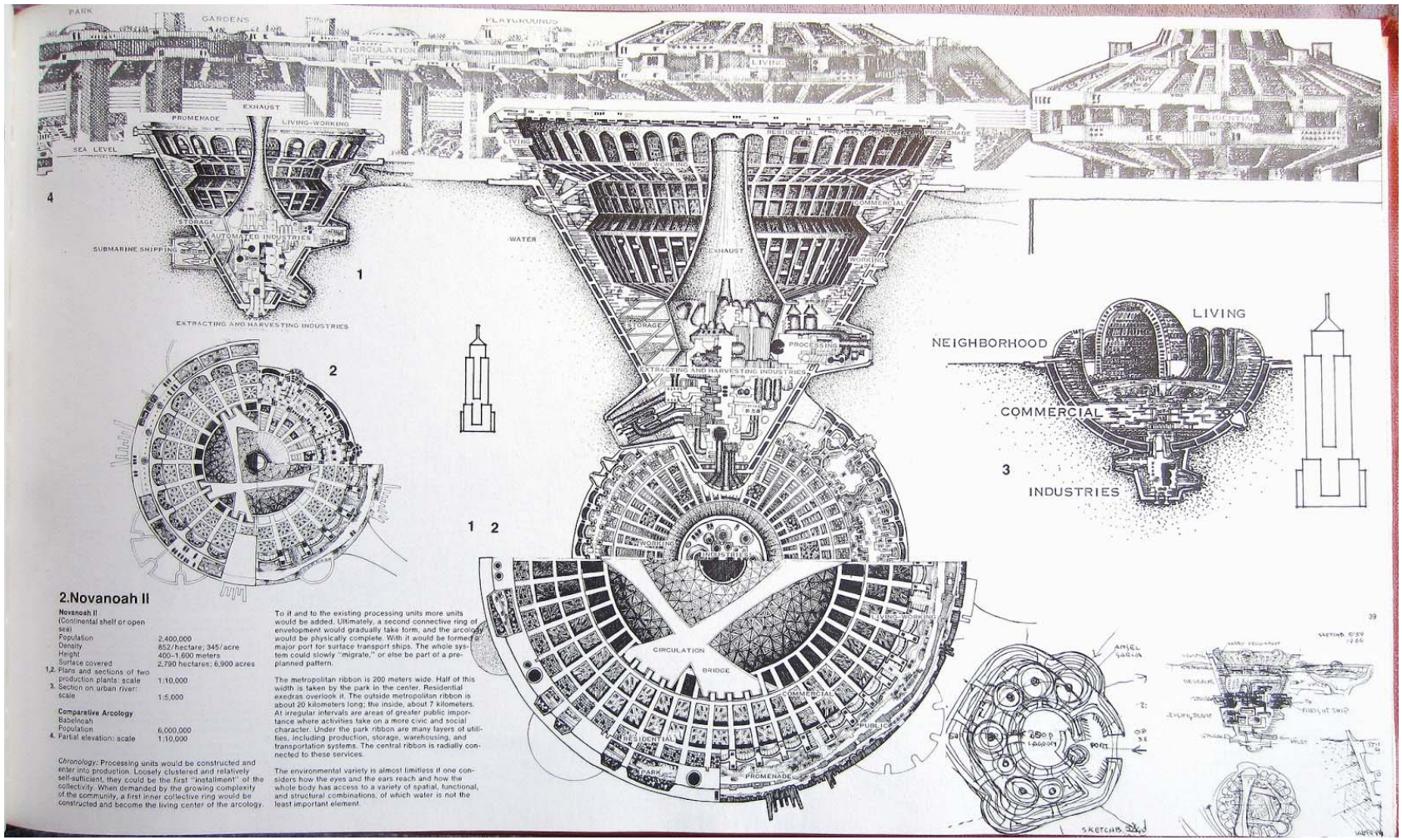
In the 1960's Buckminster Fuller proposed a "great logistics game" and "world peace game" (later shortened to simply, the "World Game") that was intended to be a tool that would facilitate a comprehensive, anticipatory, design science approach to the problems of the world.

World Game started new era of World planning, thinking about consequences of human behavior and prepared ground for computer driven world models.

PAOLO SOLERI 1919 2013

combining "architecture" and "ecology

Within a philosophical system, Paolo Soleri was the father of Arcology. Combining "architecture" and "ecology", Arcology is a set of architectural design principles for enormous self-contained and economically self-sufficient habitats that minimize individual human environmental impact.



2.Novanoah II

	Novanoah II	
	(Continental shelf or open sea)	
	Population	2,400,000
	Density	852/hectare; 345/acre
	Height	400–1,600 meters
	Surface covered	2,790 hectares; 6,900 acres
1,2.	Plans and sections of two production plants: scale	1:10,000
3.	Section on urban river: scale	1:5,000
	Comparative Arcology	
	Babelnoah	
	Population	6,000,000
4.	Partial elevation: scale	1:10,000

Chronology: Processing units would be constructed and enter into production. Loosely clustered and relatively self-sufficient, they could be the first "installment" of the collectivity. When demanded by the growing complexity of the community, a first inner collective ring would be constructed and become the living center of the arcology.

To it and to the existing processing units more units would be added. Ultimately, a second connective ring of envelopment would gradually take form, and the arcology would be physically complete. With it would be formed a major port for surface transport ships. The whole system could slowly "migrate," or else be part of a pre-planned pattern.

The metropolitan ribbon is 200 meters wide. Half of this width is taken by the park in the center. Residential exedras overlook it. The outside metropolitan ribbon is about 20 kilometers long; the inside, about 7 kilometers. At irregular intervals are areas of greater public importance where activities take on a more civic and social character. Under the park ribbon are many layers of utilities, including production, storage, warehousing, and transportation systems. The central ribbon is radially connected to these services.

The environmental variety is almost limitless if one considers how the eyes and the ears reach and how the whole body has access to a variety of spatial, functional, and structural combinations, of which water is not the least important element.

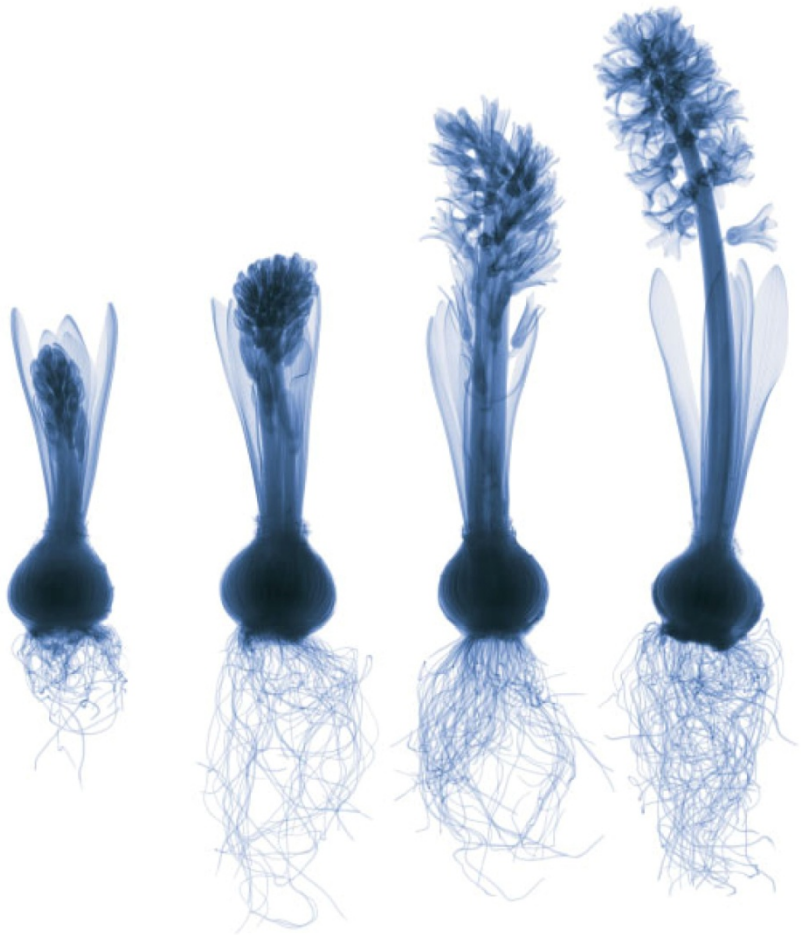
Biosphere, John Allen, Oracle, 1987, Arizona

WHAT ARE THE CONSEQUENCES IN CONTEMPORARY ARCHITECTURE

?

CHANGE THE PARADIGM

From Le Corbusier's past metaphor of a 'machine for living' to the adaptive evolutionary machine' foreshadowing a new contemporary ethos.



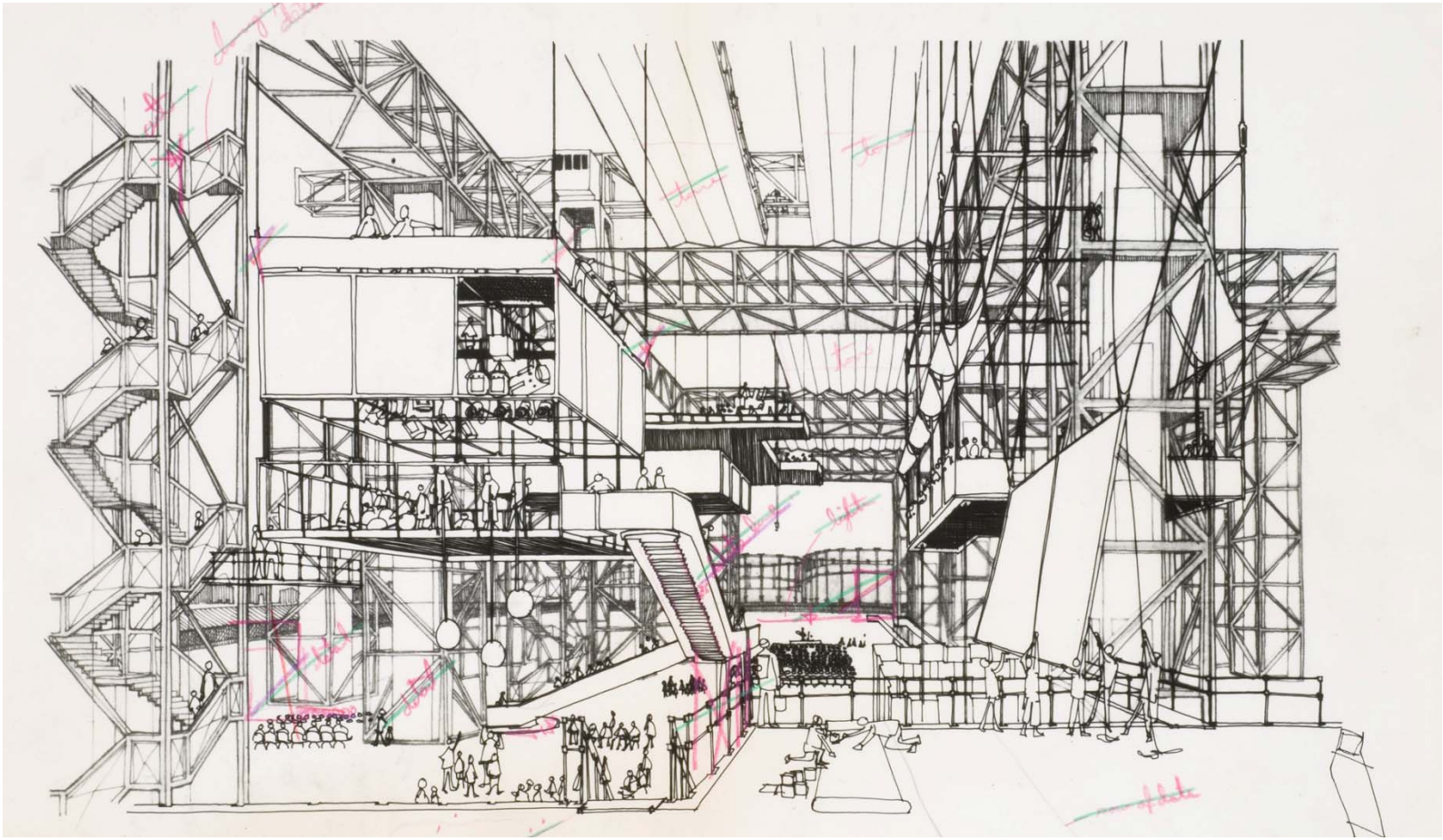
Evolution can be understood in some way as a process of optimisation of functionality and performance capacity.
On a planet that has no more square inches of untouched environments, the new wave of ecological architecture cannot be solely directed to the ethics of the world's salvation and the rhetoric of confinement.

Buildings can to be conceived as performative adaptive cybernetic machines and as synecdoches of the earth as a whole.
The aim of an evolutionary architecture is to achieve in the built environment the symbiotic behaviour and metabolic balance found in the natural environment.
The role of the architect here, I think, is not so much to design a building or city as to catalyse them: to act that they may evolve themselves and surrounding environment.

ADAPTIVE SYSTEM

Adaptability is the quality of a space and structures that can be easily modified in harmony with the changes of different parameters

This transformation applies both to their morphology (form) and their metabolism (including all energy expenditure)
The English architect Cedric Price proposed in the 1960's a time-based technocratic approach to architecture conceived as a series of interventions that were both adaptable and impermanent.
The unrealized Fun Palace of 1961 is an example.



Media ICT , Barcelona by Enric Ruiz Geli

Eco-Boulevard, Barcelona by Ecosistema Urbano

MUTABLE CONCEPTION

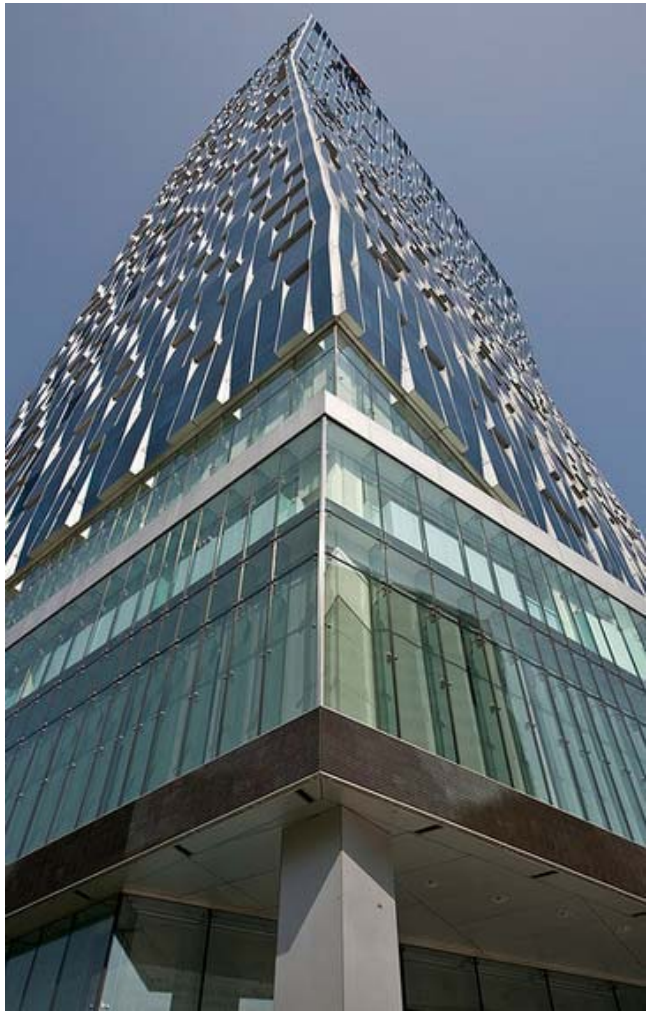
Architecture as a changing entity.
Disappearance of the object in favor of a project that is "pure behavior“

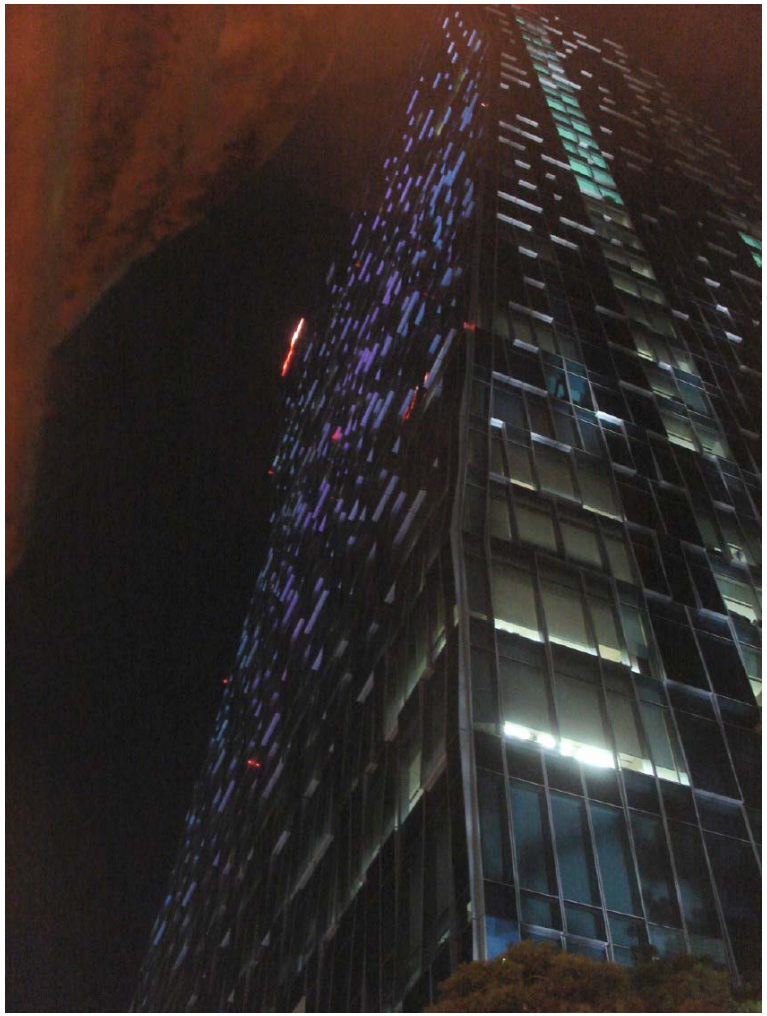

Diller & Scofidio, Blur, Yverdon-Les-Bains

INTERACTIVE CONCEPTION

Architecture is considered a reactive machine that interacts with material and immaterial entities.

Architecture as the means for setting conditions for interaction, as opposed to imposing the formal will of the designer.



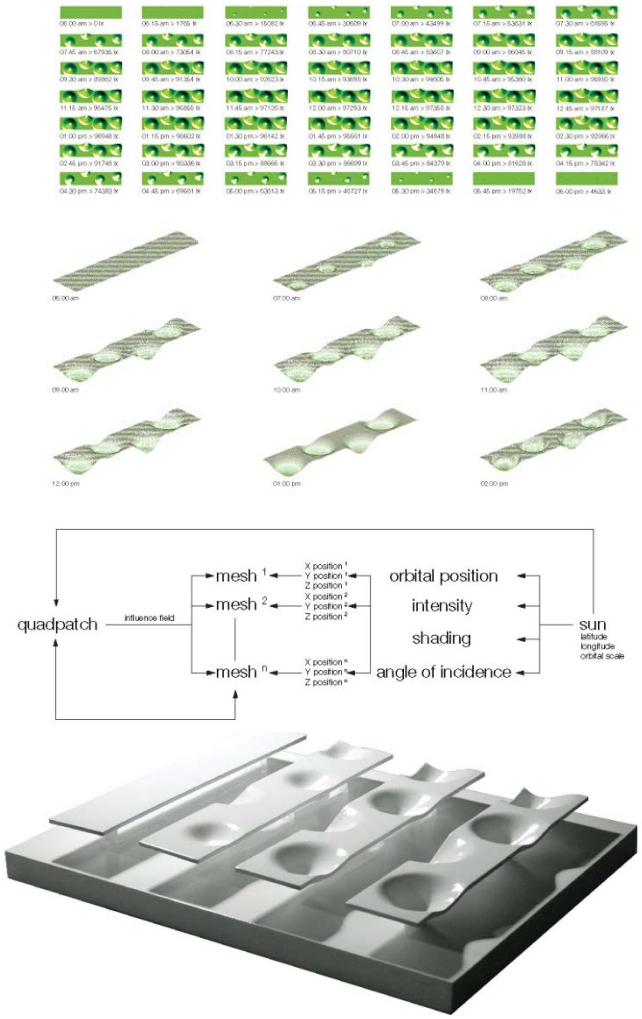


PARAMETRIC CONCEPTION

A different way of thinking in relative rather than in absolute terms. To define geometry as a system of relationships rather than fixed dimensions.

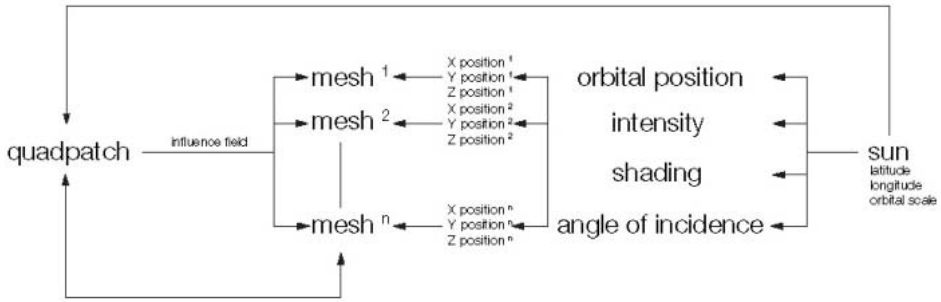
The architect's work must be designed through multiple geometric and relational nets - different elements appear as to influence each other - in order to develop this and overcome a purely sculptural or typological outcome.

Ecoscape, centro di ricerca in California



IT CONCEPTION

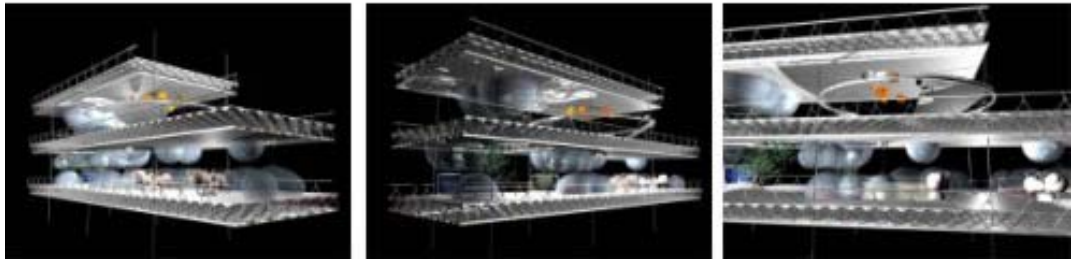
Information as a raw material of architecture.

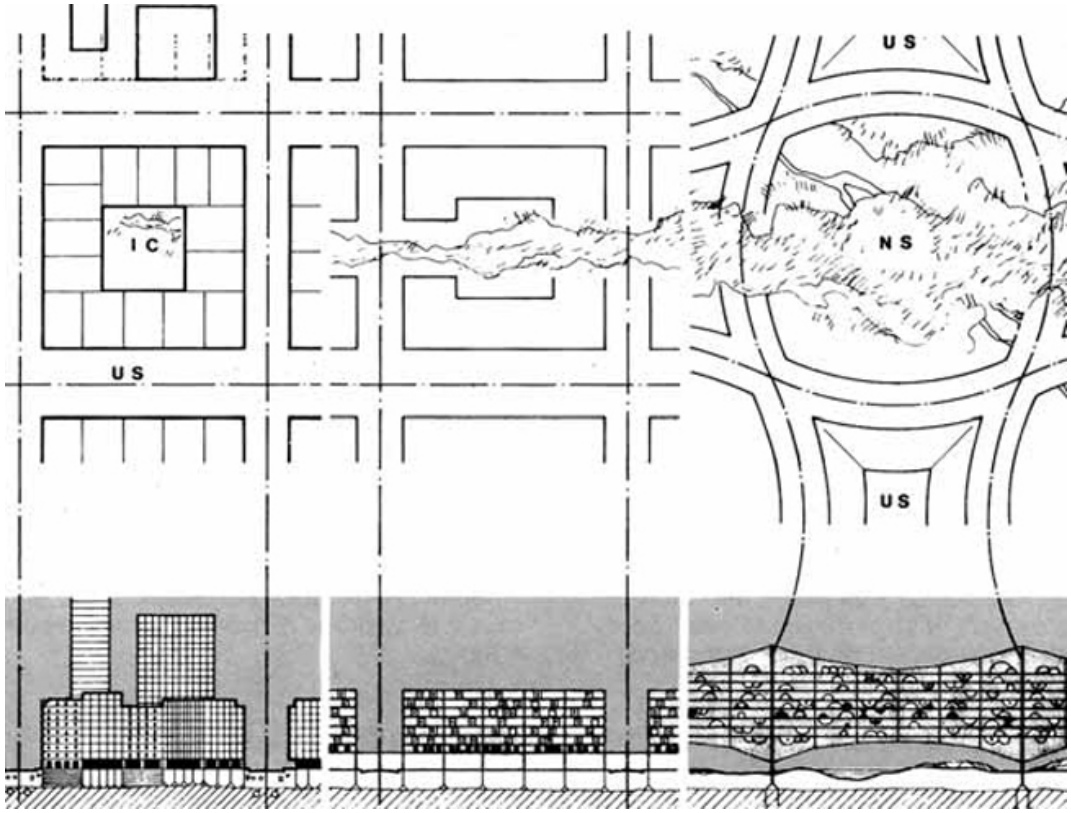


Ecoscape, centro di ricerca in California

TEMPORARY CONCEPTION

A chronotypical approach.





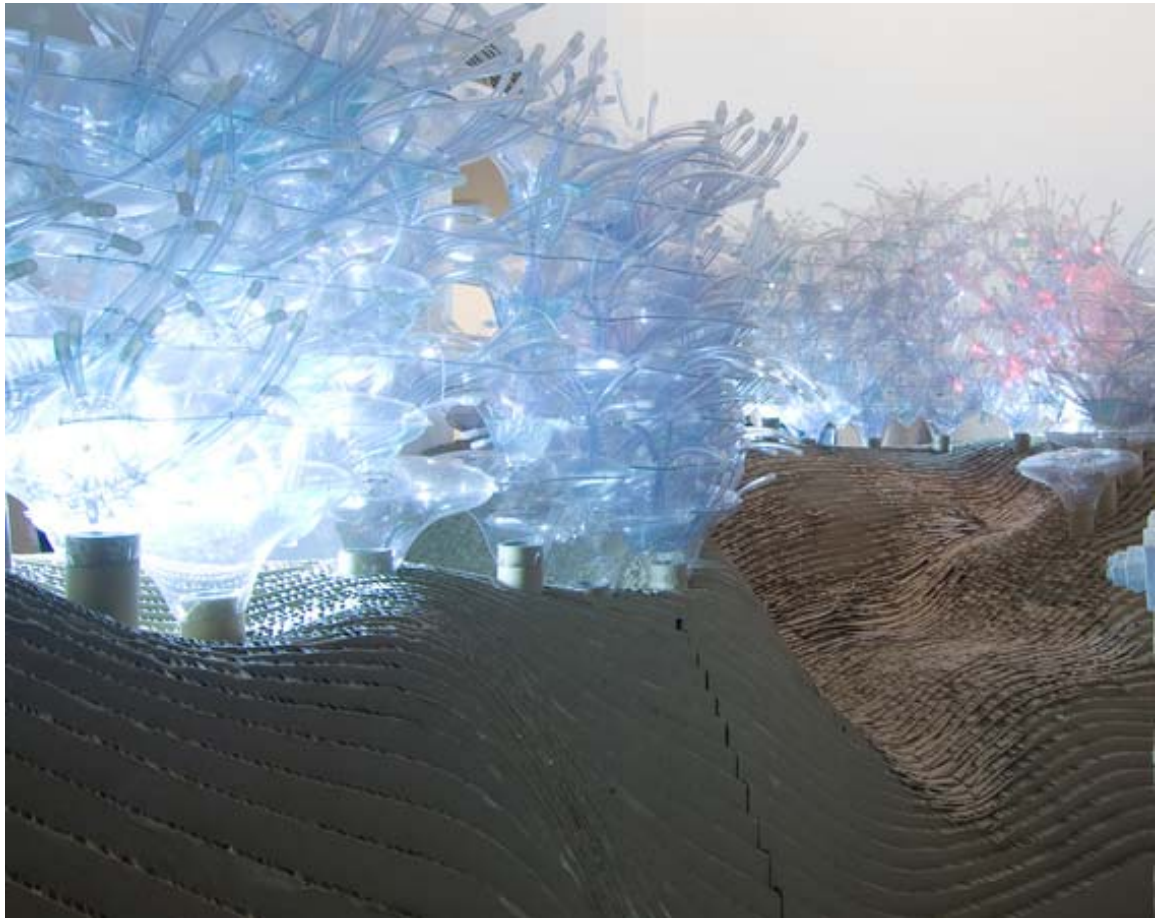
Anthropic rhythms, natural cycles, urban phases are fundamental parameters.
The cities are considered as a dynamic entity continually evolving.
Reduce their ecological footprint to help resolve the energy crisis, combat the greenhouse effect and preserve nonrenewable resources requires a chronotypical approach, blending the spatial and temporal dimensions.
This also means developing a sensitive form of urban planning, where different places can be used at different times, and rethinking the quality of the spaces from that perspective.

Electronic Urbanism Takis Zenetos 1962-1974

WHAT IS THE CHALLENGE

GENERATOR SYSTEM

An evolutionary object evolve in the time. Architecture as an organism adapts to multiple contextual changes but as a plant grows, germinate and generate changes rebuilding nature, healing environment and creating forces. This is the challenge.



Today we are able to conceive passive and active zero impact buildings, but the challenge is to produce in excess, is to integrate local resources, therefore global, to regenerate the system, to activate new rebuilding natural processes.

As the individuals architecture evolve to adapt to the environment. As the organisms that are in extreme conditions it adapt their body so they can survive. In the same way the individual behavior and social habits of the population adapt to the conditions in which they are.

But contemporary evolving architecture can not only adapt to multiple changes but generate changes in the city and environment..

CONCEIVE
REACTIVE AND PROACTIVE OBJECTS

REBUILD NATURE

"The nature of landscape in this concept is not the floral or liberty one, not even that of the masters of organicism. It has become much more complex, much poorer, more hidden, as Heraclitus already said, and is probed also by architects with an anti romantic eye through the new formalisms of contemporary science (fractals, DNA, atoms, the jumps of a expanding universe, the relationship between life and matter, etc.) ".

In this regard it is necessary to study the logics that govern it, the codes that generate it, to investigate the evolutionary and relational mechanisms to conceive new projects that include the reasons and dynamics both from a material and expressive point of view.

Rebuilding nature as a work program, as a reminder of ethics, is necessarily among the main educational objectives of the architect, who has the ability to pay off the debt incurred in the modern era with the Planet. If the industrial society had to dominate and exploit the natural resources, the society of information can enhance it. Artifice and nature in this sense can hybridize making it difficult to reap the limits.
You can create hybrids capable of constituting a new contemporary landscape in which nature plays a fundamental role in cities and predominates them: an integrated city when the activities of contemporary society are intertwined with a substantial presence of nature11.
But be careful. This is not to design the decorative element, the roof garden of Le Corbusier or the enclosed park of the zoning.

BIOLOGICAL PROCESSES

Nature' as a mine of interrelated dynamic processes that are available for analysis and digital simulation for architecture.

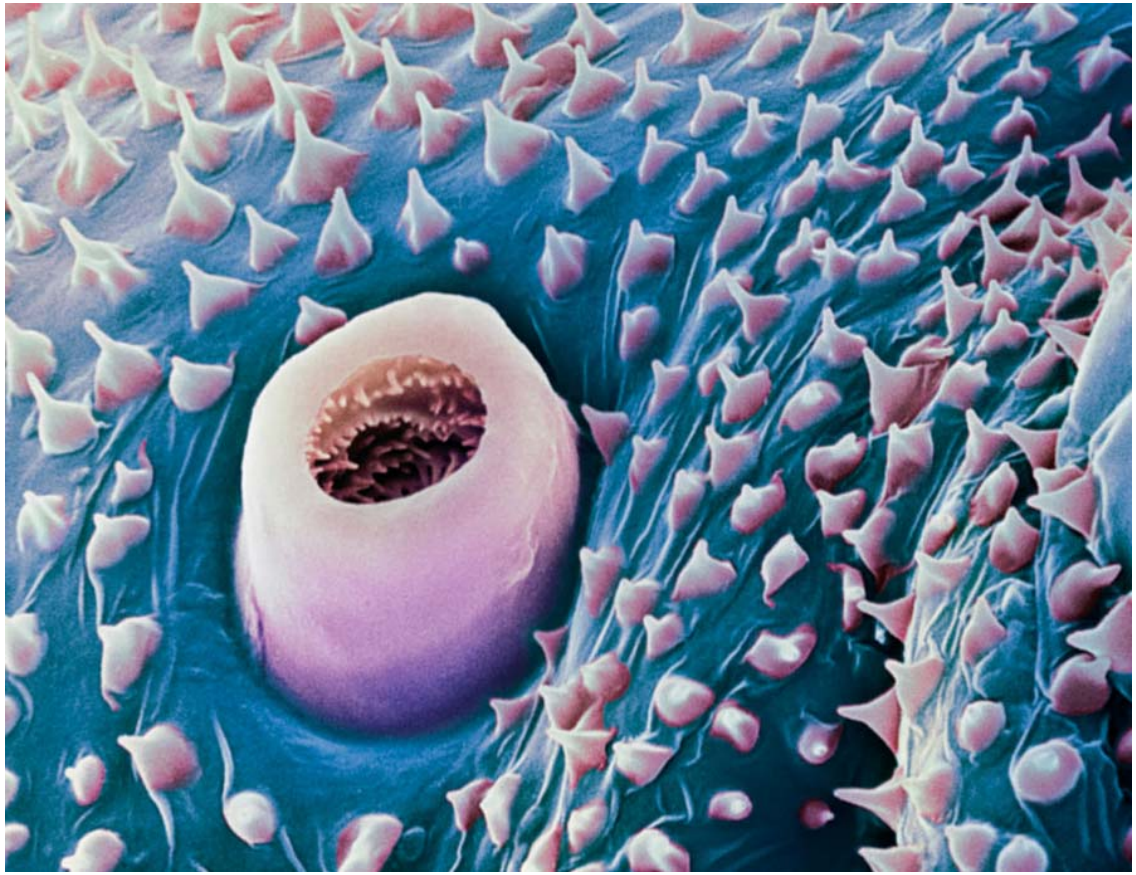
As architects we are now starting to have the wherewithal to create great works of 'biological parallelism'.

The long-proclaimed biological paradigm for architectural design must go beyond biological metaphors or superficial biomorphic formal repertoire.

We can use the natural imperatives of plants and maybe animal cells as a means to 'rewire' them to create huge rafts of new architectural flora and fauna. We might be able to make truly sustainable and green materials whose biodegradability is simply a natural side effect of these technologies. Obviously, the ethics of these technologies must be frequently debated.

MORPHOECOLOGY

The study of morphology and metabolism of natural organisms and their complex and dynamic exchange with environment, represents the search of a new model for architecture .



To pursue seriously the proposition of a sustainable architectures it is important to take a close look at biological processes and materials, all the way down to the molecular scale, involving biochemistry in the understanding of the advanced functionality and performance capacity of biological organisms.

Biotechnology and Cyberbotany once established and integrated into 21stcentury culture, as I believe will eventually be the case, would cover a wide spectrum of activity and Investigation into the properties and potential of artificial life forms within the cyber and nano ecologies.

MORPHOGENESIS

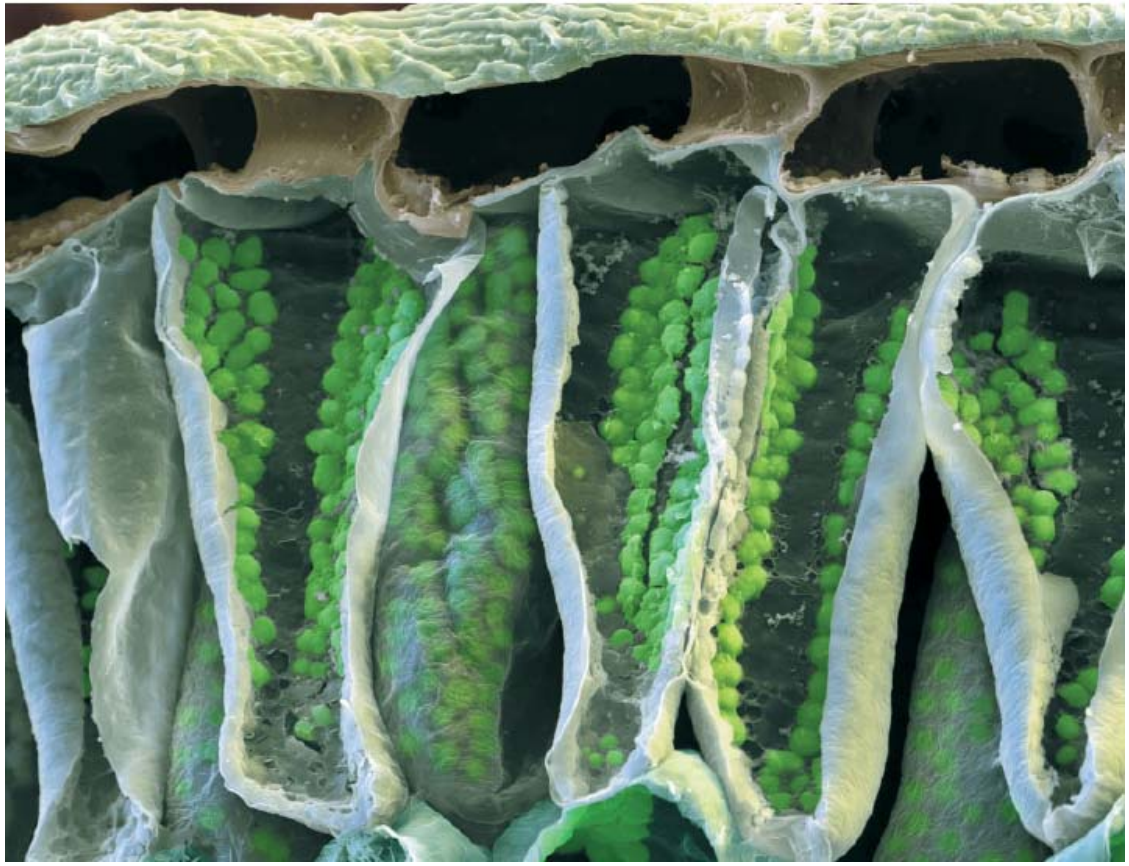
is the biological process that causes an organism to develop its shape

Cell growth encompasses increases both in cell numbers and in cell size. Cellular differentiation describes the process by which cells acquire a 'type'. The morphology of a cell may change dramatically during differentiation. Morphogenesis involves the shapes of tissues, organs and entire organisms and the position of specialized cell types.

When attempting to set forth a paradigm for differentiated and multi-performance architectures, it is interesting to examine available methods for modelling biological growth informed by a hosting environment.

SELF - ORGANIZATION

is a process in which the internal organisation of a system adapts to the environment to promote a specific function without being guided or managed from outside. In biology this includes the processes that concern developmental biology, which is the study of growth and development of organisms and comprises the genetic control of cell growth, differentiation and morphogenesis.

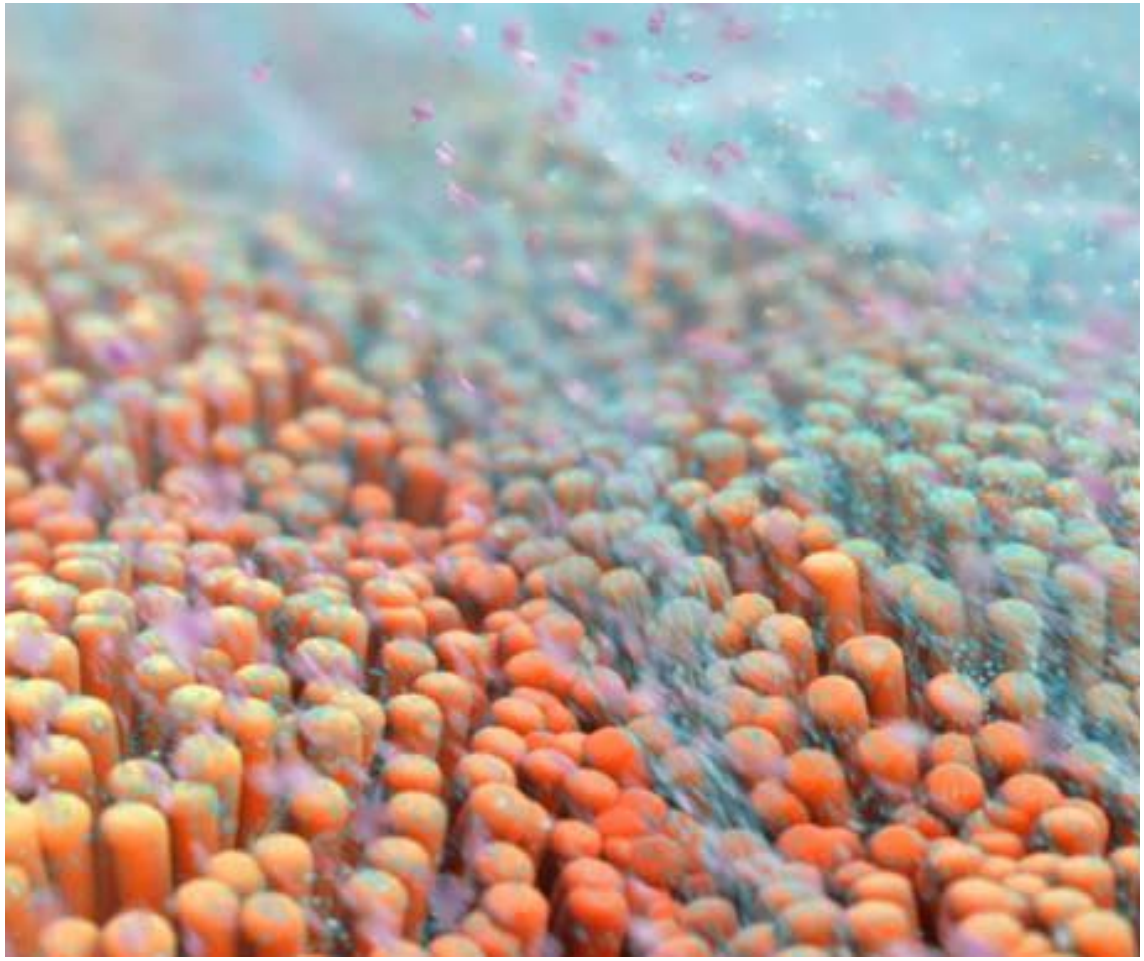


The self-organisation processes underlying the growth of living organisms can provide important lessons for architects. Natural systems display higher-level integration and functionality evolving from a dynamic feedback relation with a specific host environment.
Biologists, biomimetic engineers and computer scientists have begun to tackle research in this field and there is much to learn from their work.

Michael Hensel, Achim Menges and Michael Weinstock are the most important theorists of this morphogentic approach that promote in the Emergence and Design Group and in heir teaching and research at the Architectural Association (aa) in London.

GROWTH BIOLOGICAL PROCESSES

Natural growth as urban paradigm



The most extreme manifestation of this biological approach is François Roche's vision of a habitable organism or biostructure that is responsive to human occupation but develops its own adaptive behaviour.

A new species of architecture has developed: one with its own intelligence that can evolve on its own, and change as it needs to; one that brings nature back into the information loop. Forget bricks and think of cells – cells that can reform, recombine and reconnect in different ways, according to their own internal intelligence.

Urban models are conventionally planned and intended to control urban systems. François Roche's vision is to the contrary: it is for an unpredictable organic urbanism. A biostructure develops its own adaptive behaviour, based on growth scripts and open algorithms.

Architecture became an evolutive complex machine that hybrids nature and technology.

GENETIC ARCHITECTURE - BIOSTRUCTURE

Lost in Paris by R&Sie

Gaetano De Francesco | Sicily Lab | 2013

“problem adequately stated
is a problem solved”

Richard Buckminster Fuller