

ALAIN RENK

BUILDING THE COMPLEX CITY?

With the increasing complexity of the political, cultural, environmental and economic realms, the dangers of compartmentalization are ever more real. Encompassing all of these activities, architecture must be able to resist any simplifying reflex if it is to devise the new tools it needs to take action on a shifting reality. What will the complex city be like? This is the question that Alain Renk and the Host Agency have raised through the innovative process of urban reflection they have undertaken on a vast tract of land in the city of Montreuil, in the eastern suburbs of Paris. This book focuses on a moment of their experiment, examining what informs it, what it produces and what it prefigures.

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BUILDING THE COMPLEX CITY?

ALAIN RENK / HOST

jean michel place / urbanism

ARCHITECT YES, BUT...

Alain Renk

CONTEXT The architect makes his way along the mountain crest. Only yesterday, he was still tempted to reinvent the world and to adopt a demigod-like posture, replete with dangerous good intentions. Today, the market economy has been promoted to the rank of a new nature. The architect runs the risk of backsliding into a plastic pragmatism, running all the way from contextualism to cynicism.

PROBLEMATIC How and why would anyone create a new architectural firm today? For what sort of practice?

To fight the simplifying visions of the world in which architecture and urbanism are broadly involved through standardizing territory might be an adequate motive. The reason to still believe in architecture is thus in the form of a lack, a tension, a resistance rather than an emergence. For indeed, time is needed to forge new tools.

OPPORTUNITIES There are no opportunities. Only the urgency to defy the arbitrary and to favor chance. And a subject: take account of the new forms of human dwellings (cities? networks?), which may open onto different developments, under certain conditions. What is there after the suburbs of the suburbs? How can freedom-producing chance be laid out?

OBJECTIVES To answer the following questions: can architecture affect – and update – our mental space? More precisely, can it improve our ability to take the world into account and to act upon it? Can architecture and urbanism foster autonomy to the detriment of programmed behaviors, help us to escape from simulacra that are not our own? To articulate singularities and solidarities?

MEANS To propose a laboratory open to partners situated outside the world of architecture in order to intersect different problematics and make our way through the complexity. In other words, right from the outset, the Host Agency's strategic core group has been made up of seven people involved in different domains: scientific research on chaos, programming for video games, high-end marketing, production of cultural documentaries, the geopolitics of humanitarian aid, name-brand strategy and artistic direction in the fashion industry.

Within this network, to develop theoretical models stemming from analyzing the shifts in our environments. To study integrating these models into the dynamics of transformation and endeavoring to predict their behaviors. The initial models – or matrixes – correspond to the worlds of labor, trade and culture, artificially disjointed in order to evaluate the differences between them.

To experiment with contractors in actual reality with the paths opened up by more supple methods of conception, leading to projects based on connections between the different elements, adaptations and feedback rather than forms or dimensions. To work with these systems on urban and human scales simultaneously. To inscribe in theoretical models information drawn from the passage to reality.

SUBJECT It was absolutely necessary to inscribe the first theoretical principles of *the complex city* into reality, for they help us to come up with strategies for inhabiting the world in its various degrees of organization and disorder, its surprises, its advances and regressions. Our agency is based in Montreuil and the city's Department of Urbanism told us the strange story of a freeway bridge built there in 1970, which is to be demolished in several years time.

How is the city to be reconstructed? Should the city be reconstructed? Montreuil Karma.

× **SOCIAL CHAOS** The desert is gaining ground... We are more and more vulnerable – economically, socially, and even mentally. A space full of holes is emerging, deserted and ever more barren, a world of formlessness and restless wandering. The activities that take place there are the expression of a radical gap: an uninterrupted succession of behaviors of refusal, negation, repetitive and parallel activities, the inability to penetrate and to understand the world of others. Like prisoners, we wander in a set of closed, mutually impermeable worlds.

↳ Visiting Vladimir Velickovic's studio constituted a rupture in my architectural practice. Highly impressed by the coherence of his research, I decided to place the previously peripheral problem of *the complex city* at the heart of my thinking.





✘ **HYBRIDIZATION** The city is thought to exist only with regard to some ideal model, of which it is a mere reflection, its value depending entirely on this ideal model to which it aspires to correspond. As if the city should vary only within an ideal enclosure. Like in telamon architecture: here's the temple, there's the obelisk, and further along is the forum... Pile up, juxtapose, and above all, keep inside the enclosure.

But the city craves transformation: is shifting, transforming, hybridizing necessarily about taking a loss, increasing the imperfection?

↘ This strategic spot – a roadway perpendicular to the A 186, that links the north of Montreuil with its center, and already has a small cultural center, a market and several small shops – still seems to be looking for an identity. Perhaps it will find one in the tramway, metro and bus stations that, over time, it is destined to acquire.

× **NETWORKS** Everything is relational: beings are evaluated through their relationships with things and other beings. How is the subject to come into being for other subjects? How is one to enter into a relationship with others? We move through a dynamic totality of interacting elements, all different from one another and all destined to change. Reference to a fixed point has been abandoned in favor of the network, a complex system of interactions and relationships, made up of a plurality of centers and links, none of which is privileged a priori. Each element is interdependent with all the others. The space of the network is defined by its growth, its openness, its incompleteness. It is the source of questions and even anxieties, for it is no longer the affirmation or the sublimation of an order, a social, political or religious model.

In a network, everything tends to become equal, equivalent. Everything is the same as everything else and in the end nothing has any value. On the other hand, we cannot be satisfied with simplistic schemas that strictly oppose order and disorder, the real and the virtual, material and immaterial, singular and universal, global and local...

What defines the network?

↘ Situated one-hundred feet above the ground, on the roofs of Mozinor, this site was preserved as a spot with earth and trees. Is the neutralization of nature by technique ineluctable?





× **PERIPHERY** A territory remains a space with a specific culture, but it has neighbors, and can undergo the effects of influences acting on the edge, on the periphery.

A territory includes concentrated elements and disseminated elements: between proximity and explosion, regeneration and dissolution, does architecture establish the link? Must one bemoan the lack of a center?

The city has ceased being an entirely complete, entirely closed totality, possessing a “center.” And what if the city were incompleteness, decentering, management of entropy itself?

↘ Two ramps, telling us two stories. The first, on the left, tells us of the 1974 energy crisis through its unfinished off-ramp, which just stops. The second, hemmed in by trees, reveals a surprising and somewhat bucolic landscape.

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× **TRANSITIONS** Architecture is no longer the expression of an immutable, permanent, immobile state. It is no longer monumental. It is the link between two forms, which are neither origins nor ends. Can it be the materialization of this intermediary state? How is one to live in the interval?

↘ Beneath this freeway bridge, there is blond-colored concrete worthy of an Indian temple imagined by Le Corbusier.

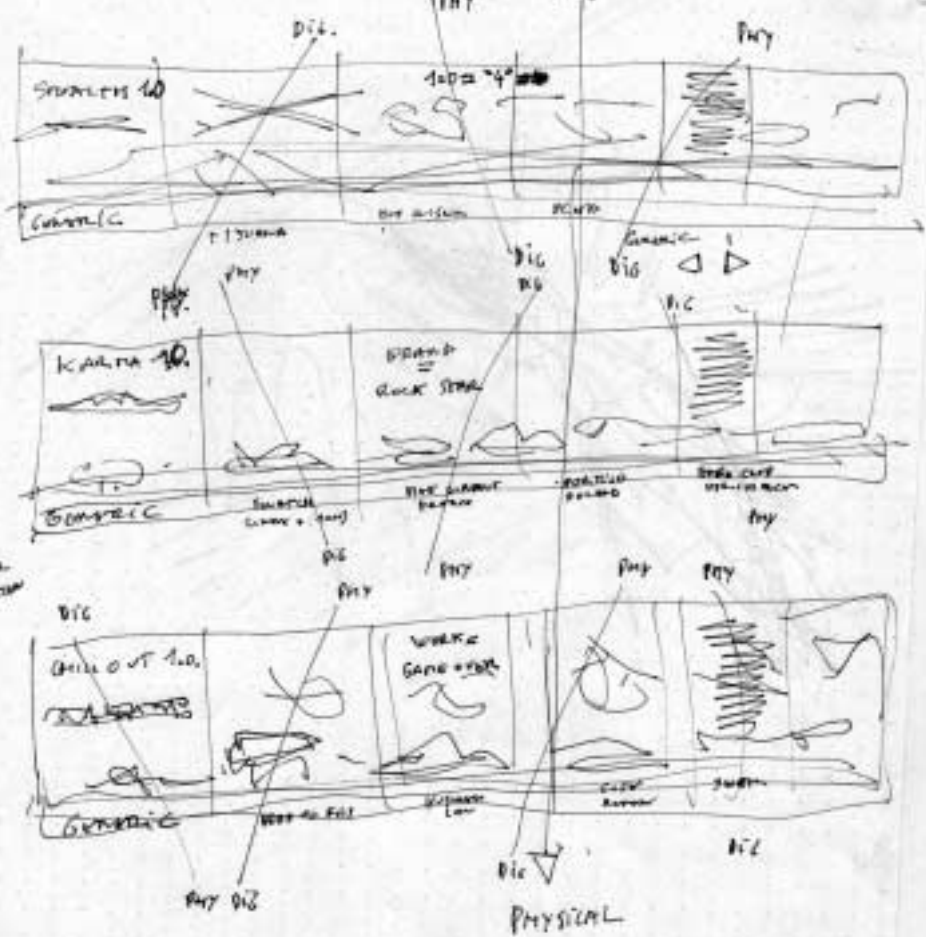


✘ **NATURE** “Society has to move into nature while at the same time nature has to move into society.”
Edgar Morin, *La Méthode*, vol. II, *La vie de la vie*, Seuil.

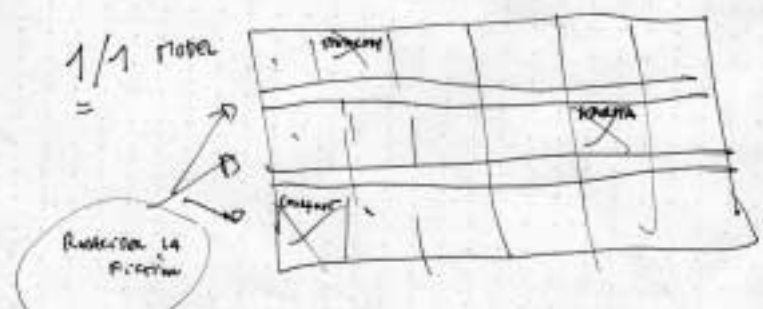
↘ “Can private gardens be rooted in collective dwellings?”

✘ **DIVERSITY** We are plural. We must, therefore, do away with the capital M in Man, and simply say “Men” (meaning both men and women). If nature “has to move into society,” it is in order to foster diversity.

Recherche / Dev.



GENERIC
vs
PHYSICAL



Applic.

× **CHANCE** Throw of the dice, luck of the draw, play.
 Play is free action: it is situated in the transgression of a code.
 Play is the use of operations which are not generally valid: it is about learning difference, a struggle for something, a gap between the discourse of the system and the discourse of the subject.
 Play has a social function: it is the desire to learn, to create links. "Creating the enigma with knowledge; creating knowledge with the enigma" (Philippe Meirieu).
 Play is infinite: play is about playing, not about winning.

× **COMPLEXITY** It is the "tragedy of ambiguity": "the socio-anthropological reality produces and calls for an exceedingly high degree of complexity; it is answered only by simplification, Manicheism, exorcism."
 Edgar Morin, *La Méthode*, volume 2, *La vie de la vie* (Paris: Seuil).



BUILDING THE COMPLEX CITY

× **RISK** In such an uncertain place, a suburban suburb, automatic reflexes are already at work and the drama takes shape. How is one to prevent reaction and the fear of the unknown from setting up anonymous, planted thoroughfares running amidst the buildings of standardized companies?

× **THEORY:** Theory has to be extracted from its laboratories so that the research it entails is in contact with reality. Methods have to be produced to work on the fluid matter of territories' reservoirs of uncertainty.

× **LEGITIMACY** Leading the territory to develop in a strategic sense (defined beforehand through democratic procedures) is to simultaneously provide it with different bundles of possibilities. It is to be attentive to it, fostering those tendencies that are compatible with the public interest, and curbing the others.

MAINTAINING A COMMON WORLD

A conversation between Jean-Paul Dollé, Sacha Goldman and Alain Renk

(Sacha Goldman) Today, architecture verges on metaphor. It is in this sense that such expressions as “architecture of the mind,” “architecture of art,” or even the “architecture of society” have to be understood. But for all of that, can it help us to understand the complexity of the contemporary world?

(Jean-Paul Dollé) The metaphorical use of the word “architecture” has undergone significant change over the past little while. Whereas until recently, politicians were happy to make use of it, today they prefer such terms as “urbanism” or “development.” That no doubt has to do with the fact that though architecture is considered to infer ideas of order and organization, the very presence – and hence the absence – of the word thus becomes a clue as to the state of the world in a given society. To simplify, one might say that in collective imagination, the more architected something is, the better it works, and the less architected it is, the more it falls apart. Thus we often establish a relation between what we consider to be an increasingly disorganized mode of life and an increasingly de-structured architectural form. In that context, we do not know exactly what we are referring to when we use the metaphor of architecture today.

(Sacha Goldman) As we conceive it, architecture has been structured around the play of fundamental oppositions. Initially, the opposition which divides it between two dynamics of civilization, one founded upon a desire for anchoring, materialized in building; the other driven by the dynamics of the road, the tension toward an elsewhere, toward passages. Between the two,

the nomads who live in a permanent oscillation between stops and starts. Later, it was around the conflict between the city and the country, center and periphery, that our conceptions took shape. But these oppositions have largely lost their relevance today.

(Jean-Paul Dollé) That is the very underpinning of the question: if there is a preference for synonyms of the word architecture, it is because the reality referred to is ever more removed from all inherited and known schemas. We are living at a moment where all we can do is guess at what we are experiencing without being able to refer to the elements that structured experience for thousands of years. Take the basic notion of territory for instance: it has become increasingly difficult to perceive this term by means of the two traditional distinctions. The first, which was valid for a long time, between sedentary and nomadic populations, is no longer able to structure a space undergoing homogenization, where the faraway grows ever more distant as speed increases, a world where moving around is never about overtaking but resides in the gap that connects two disjunctive points.

The city/country conflict provides, at first sight, more resistance inasmuch as it has structured our history. Moreover, erasing this fundamental distinction is not yet on the agenda in one part of the world and only goes back to the 1960s and 70s in the other. And yet no one today can fail to notice that the world has entered an entirely urban phase of development. It is precisely for defining the enigmatic side of this development that words are lacking: humanity has been shaken in the certainty of its foundations by scientific and technological developments which follow their own specific logic and superimpose different causalities; the basis of architecture is vacillating, caught up in this maelstrom. It is increasingly difficult to use



architecture as a metaphor for the linguistic matrix itself is no longer architectural but infinitely complex. However, what *has* become emblematic, far from any construction in the classical sense of the term, is the concept of the network.

(Sacha Goldman) Take the Montreuil freeway, for instance, located on the land where the Host Agency is working, and which has in effect neither beginning nor end...

(Jean-Paul Dollé) What could that freeway, which goes absolutely nowhere, possibly be the metaphor of? In principle, the purpose of a freeway is to enable us to go from point A to point B. But here we find a freeway that leads nowhere. It could be the metaphor for urbanism pushed to its outer limits. What I mean is this: the notion of urbanism – in spite of the fact that it refers to a recognized scientific field dealing with the city, which is based on the analysis of circulation and construction – is actually fraught with problems. Cerdà, who was the first to use the term “urbanism” to describe the work he was doing in Barcelona, at the same time posited a problematic equivalency between the city and the house. It is precisely this equivalency that begs reflection today. I don’t mind yielding to a sophism here: “the city is a big house,” Cerdà tells us. And an architect knows how to build houses. Thus he ought to be able to build cities... This conception of urbanism, passed down from Cerdà, paved the way for a whole school of thought, which developed both in the Communist countries and in Western countries, and which considered an organized urban projection to be possible. One finds for instance this will to project a totally organized vision of the city in such megalomaniacal projects as Brasilia or Chandigarh.



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But, it seems to me that to admit that a city can be put together the way a house is built – that is, according to controlled and controllable principles – is to fail to take account of the essential difference that exists between houses and cities. In any city, there is such a multitude of intentions and actions coming together that one cannot imagine constructing it. As I see it, by its very essence, the city escapes conception. There too a difficulty arises – that of the scope of planning. Confronted with the impossibility of an organized vision of the city, some people have in effect opted for pure speculation, relying on the market to provide balance, and going for proliferation rather than for planning. This age-old position, however well argued and recurrent it may be, strikes me as no more satisfying than the former.

In the face of this oscillation between a rigid definition and a total indetermination, a third perspective of urbanism is perhaps emerging – one that leaves me perplexed: the theory that implements the concept of urban chaos.

(Alain Renk) The question is in effect to discover a third approach, somewhere between projection and speculation. On the one hand, it is easy to see that the city cannot be reduced to an all-encompassing blueprint without it integrating the sort of challenges constituted by vagary, randomness and chance. The point is no longer to conceive of a form of architecture established on a fixed pedestal, but on dynamic underpinnings integrating the complexity and the diversity of the relationships which come into play in any city. On the other hand, thanks to our experience with territories that have been left to their own resources, it is very clear that free speculation is unable to give birth to model cities.

The whole problem thus consists of reconstructing a form of architecture able to be organized on a sort of pedestal and dynamic underpinnings, which have no further relationship with what we have known until now; in order that it be able to regain its place in the world as it is, and not in the world as it used to be or as we wished it were. It is easy to understand, for instance, that the problem which arose with regard to the famous unfinished freeway in Montreuil, is that of the preliminary and underlying conception. In traditional architectural terms, the freeway is, in effect, already built – and even well built – but it is based on a world view which ceased to be relevant after the 1974 oil crisis.

To talk about chaos or complexity is thus to analyze new geometries in the hope of discovering suitable structuring tools. Before having the necessary tools for the control of these notions at our disposal – like physicists – our work has to focus on identifying the rules to find our way. The question is no longer about how to construct the city but how, with the help of new tools, to be able to control certain of its developments.

(Jean-Paul Dollé) We therefore have to be able to determine the relationship between a human establishment and the creation of new cognitive tools that can lead to the creation of new technological tools. In Greek cities, one can observe a questioning of this kind with respect to geometry. This new science, this unprecedented way of conceiving the ordered world according to certain figures, has given way to a multitude of reflections concerning the relationship between its invention, mastery and application. We have made use of two principles which are complementary in their divergence: Plato's philosophical vision and Clisthene's political vision. On the one hand, geometry is perceived as the sign of the existence of a great god, a great thaumaturgical being who conferred order upon the world; geometry is thus inscribed both in the world and in the human mind and has to do with a pure principle of order. In Clisthene's thinking, on the other hand, geometry is situated on the side of action since it is perceived as a political instrument making it possible to conceive of space like a homogenous plane that can be measured and controlled. Without geometry, nothing would be possible, nothing could happen, whether one adopts the perspective of sacred meaning, the desire to dominate the world through scientific knowledge, or whether one reflects on what constitutes a space common to human beings today. However, this question as to the foundation of a common world has proved enduring. Should all common space be seen as the translation of a certain order? The whole difficulty is really to know if it is possible and relevant to conceive of the world without referring to an idea of order, in other words, without perceiving the earth as a cosmos.

(Alain Renk) On the political level, if one wants to acquire greater autonomy, it strikes me that the dominant system to be thrown into question is that which concerns the extreme mercantilization of every aspect of the world and our life. In effect, I consider this new form of oligarchy contrary to the open and modifiable system we are concerned with, because it has adopted

an almost abstract geometrization of the world, made up of elementary figures.

(Jean-Paul Dollé) What use does this globalized system make of geometry? Does it still have any need of it?

(Alain Renk) This system obviously needs the science of geometry, and it is in fact by looking at how it imposes its own geometry that one best perceives its fundamental characteristics. It suffices to notice how, as soon as any market-based opportunity crops up, geometrical efficiency rearranges the hybrid spaces left in the margin of the system according to its own norms of instantaneous comprehension and elimination of ambiguous spaces. No sooner does the system get set up than there is no further possible movement outside this specific logic of geometry: when a new fluidity emerges, for instance in the form of cooling down brand-name concepts or even replacing showcase windows, it is always on the inside of the system. In saying that, I am not merely referring to the space devoted to commerce, but also the space of labor, leisure, and even to some extent, culture.

(Jean-Paul Dollé) Why has this oligarchy, whose watchword is to proclaim the immateriality and virtuality of everything, been unable to get away from these archaic forms?

(Alain Renk) The answer is simple: because nothing is less virtual – “not yet of the present,” as Paul Virilio would say – than this new form of oligarchy.



Montreuil vert couture

If the dominant system uses geometry, it is no doubt because of the profit involved in keeping us in an archaic, ordered – and therefore programmable and controllable – mental form.

(Sacha Goldman) Therefore you feel that architecture should be concerned with imagining new geometries?

(Alain Renk) The more I move ahead, the more I notice that the architectural adventure as I had imagined it to be – in other words, as a project where the architecture would be conceived as a social, cultural bond between man and his environment – almost never exists. The architecture with which we are most often confronted provides anything but a bond; it has more to do with closure and limiting than with an interface, passage, or transmission. The need for the sort of ordered geometry imposed on us by the dominant system thus has far more serious consequences for architecture than the proliferation of security locks, passwords and barriers. It functions like a sort of malediction negating any and all architectural possibilities which do not yield to these precepts. Architecture today is far more about imposing than about proposing. Why should we be obliged to live in inert blocks that cut us off from other people? There is far too little discussion about that question, as if there were no alternative possible, as if the reality of the existent system were self-evident. If we ask ourselves who is still looking for flaws, rifts, places to conceal themselves, it is very clear that it is certainly not the “ideal-consumer-citizen.”



(Jean-Paul Dollé) Thus you feel that the idea of order is so all-pervasive at the level of the imagination and the psyche, that nothing of the stability or comfort of our habitat can be said if one bypasses canonic geometrical forms, with elementary figures?

(Alain Renk) I consider, on the contrary, this pervasiveness of traditional schemas to be purely artificial. It implies our being cut off from outside reality – not in order to protect ourselves, but to keep us away from any critical curiosity. It is absolutely no accident that what the globalized system took from geometry was its purely rational aspect. If an opportunity presents itself, everything that cannot be understood in a flash must be eliminated. It is not by using creative, unstable, complex and discrete systems that one defends a form of hegemony.

(Jean-Paul Dollé) What kinds of alternatives might be imagined?

(Alain Renk) Think of Jean Malaurie’s description of Inuit sleighs in *The Last Kings of Thule*¹. On several occasions, he mentions the toughness of the sleighs’ framework, conceived as a flexible system and as such particularly durable. The sealskin webbing over the whalebone structures enabled the bending and twisting which made it possible to avoid any breakage over frozen and uneven ground. It seems to me that we can see there the direct relationship with architecture which we haven’t invented yet, but is still to come. It is through new terms, integrating the idea of movement and flexibility, that this geometry has to be envisaged: not as something “pure,” cut off from the world, but on the contrary as taking advantage of the intelligence and adaptability of nature to take shape. Of course, that will inevitably run up against difficulties. How are contractors, who are used to seeking refuge in forms of architecture freed from generalized movement, to be made to understand that we are now going to work with concepts of deforming and reforming. Despite these reserves, one clearly senses a coming shift between a form of architecture conceived as a geometrical machine and a form of architecture that is perceived as a living machine. If this were in fact to occur, we would have no other choice but to conceive tools other than those which already exist – less mechanical, more reflexive.

(Jean-Paul Dollé) Given that the new tools you mention are not yet available, how did you choose to carry out your reflections on *the complex city* in Montreuil? How is one to respond to the standardization of urban responses?

(Alain Renk) If you observe the territory in Montreuil, you notice clearly how modest architecture – in other words, the kind built up by successive layers (by adding a floor, a garage, a terrace, a roof...) are closer to life itself than their more definitive, machinelike, grandiose counterparts, where the only development possible would seem to be deterioration. The degradation of a city spreads like a shock wave as soon as the rigid principles stand in opposition to the development of the territory. On the basis of this simple observation, I refuse to refer to a fixed definition of architecture. To build in keeping with these new tools, it is obvious that I cannot begin from architecture. My method consists above all of endeavoring to not conceal the idea of territory beneath the notion of architecture. That is the reason we have postponed the moment of architectural realization as such for several months. What is at play in this project on the complex city is a research process inscribed in time. The first phase of the task consists of attempting to discern several obvious points concerning the road and rail networks. On the basis of the analyses drawn from these observations, we then endeavor to define new uses to be initiated. This empirical quest for new geometrical tools can only take place if the architect manages to take a step back with respect to his position, if he manages to free himself from the automatism dictated by his reflexes and habits. One might say that the *architect of the complex city* belongs to no school and to no culture, that he is content to present himself as an “impartial” observer to discern the broad meaning-producing natural movements. Once these different broad principles have been determined, we obtain a new and variable basis upon which to found our conception of architecture and to test out new tools.

(Jean-Paul Dollé) That is fundamental. Architecture is something entirely different from construction; it is a position, an action principle. There is no architecture without an underlying conception of the world. To ask oneself the question as to the meaning of inhabiting a place, a making it inhabitable, is a necessary anxiety, bound up with a fundamental demand: that of understanding the contemporary world in its complexity to be in a position to maintain it, to organize it in keeping with its own laws.

Jean Malaurie, *The Last Kings of Thule*, trans. by Adrienne Foulke (London: E. P. Dutton, 1982 [1955]).



AN X-RAY OF CHAOS

Marc Lefranc, physicist

Words are often misleading. As they travel between mouths and ears, amazing transpositions are wont to occur. At times they can be enlightening, but are sometimes treacherous. In an article published almost thirty years ago, two American mathematicians, T.-Y. Li and J. A. Yorke, coined the term “chaos,” using it to describe the set of solutions to the mathematical model they were studying. Were they thereby admitting that this system was so utterly disordered that it escaped understanding? That is was situated on the far side of an insurmountable barrier beyond which anything could happen? No, on the contrary, for their article concluded with a theorem which showed that under certain conditions very simple dynamic systems (that change over time in keeping with highly determined equations) are apt to have an infinite number of different outcomes. When a system behaves in stationary fashion or repeats the same pattern in a periodic fashion, we are inclined to describe it as organized. A system that is “chaotic” in the sense of their

theorem has the particularity of being made up by an infinite number of interwoven periodic systems: one might say that it is infinitely organized. None of these cycles being able to attract the system in a stable fashion, they are run through one after the other, thus providing an impression of irregularity although their organization obeys perfectly rigorous rules. In this type of system – of which swirls of cigarette smoke or an erratic neon tube provide reasonably good examples – “order” and “disorder” are closely linked.

This observation is not new – it was discovered by mathematician Henri Poincaré more than a century ago – but the highly evocative term “chaos,” or rather “deterministic chaos” to be quite precise, has remained in the jargon of the field, to the extent of lending its name to a special column in physics journals. It has actually gone far beyond this framework, becoming in the public mind the name of a discipline proposing to determine if a butterfly in New York can trigger a typhoon in the China Sea.

Whenever I have to explain what my work consists of, I often have to clear up misunderstandings. Most of them stem from images conjured up by the provocative term “chaos.” No, it does not have to do with perfectly disordered states, but on the contrary with very complexly organized dynamic systems, which are entirely analyzable provided one chooses the right tools. Yes, they are unpredictable in the long term, but, conversely, perfectly deterministic in shorter time scales. Nature likes to be simple; being simplistic prevents understanding it.

More rarely, I have the troubling sensation of receiving an immediate echo to my explanations, as if, in fields seemingly foreign to physics, others had already internalized this surprising mixture of complexity and simplicity, shown by the chaotic systems I am interested in, and had gathered whatever could be extracted from their paradoxical properties. This is what I have become accustomed to in my conversations with my friend Alain Renk. I don't know if it has to do with the phenomenon of transposition I mentioned by way of my introduction, but to the same extent that I always have the impression that my descriptions stimulate his imagination, what he shows me of his architectural projects invariably conjures up images in my mind that were first born through contact with chaos. For instance, when he insists on “working on territories like on-going processes.” Of course they are insofar as he recognizes them as ecosystems, one of the most fertile dynamic

models of all. Or when he evokes “the fluid matter of territories’ reservoirs of uncertainty.” For a chaotic system is in principle deterministic: if its position at the outset could be determined in absolute terms, its whole future history would be plotted out. But it is sensitive to the slightest outside perturbation and the deviation the latter introduces grows exponentially with time: if a certain period of time is needed for it to be multiplied by two, it will have doubled once again at the end of that same period of time. It is the “reservoir of uncertainty” constituted by these perturbations, inexorably increased by the chaotic dynamics, which shunts the chaotic system onto one of these possible stories, moving from one to the other as fluctuation sees fit. The apparent complexity of the paths taken is merely the consequence of their infinite number.

No sooner have they apprehended a phenomenon than physicists are obsessed with wanting to turn it to good account. Thus, attempts have been made to show how to make a chaotic system follow a previously laid-out trajectory by applying tiny but judiciously chosen perturbations to it – somewhat like a circus performer balancing a pole on his forehead. These corrective signals are constantly recalculated in keeping with both the itinerary actually followed and the given instructions. But in systems of heftier proportions, these perturbations may be so minute that one is inevitably reminded of the famous fulcrum which could lift the world: it is in fact the “sensitivity of the initial conditions” that is domesticated. Does this method merely imitate nature? It has been conjectured, for instance, that it is a mildly chaotic dynamic that enables heartbeats to adapt easily to highly varied conditions and to move quickly from rest to effort. Thus, when I read that the method consists of “breaking into the random machine of territory to orient certain aspects and to remain attentive,” I cannot prevent myself from seeing an echo of the technique mentioned above and which physicists refer to as “chaos control.” The following remarks could also be lifted from one field to another virtually unchanged: “territory does not fold, it agrees to modify its development by consuming the leads set out by attentive people. These modifications are hard to control but it is possible at any time to influence on-going developments by shifting the leads or calibrating their force of attraction.”

Of course, one should be cautious about taking words... too literally. Nonetheless, I am hard pressed to believe that this conjunction of discourses is meaningless. There is a clear advantage in piloting a chaotic system rather than a mechanism that has been optimized for a given context. The latter is not easily adaptable: when it is perturbed, it tends to fall back into its system of reference – which, alone, is stable. On the contrary, the chaotic system can move effortlessly from one behavior to another, for in the absence of any control signal, each system taken individually is unstable. Switching over to different bearings does therefore not require forcing the system: aside from infinitesimal corrections, its own natural dynamics lead it into the new state. That strikes me as very close to Alain Renk’s idea of allowing territory the possibility to develop – to be a dynamic system – and taking advantage of this development, of this capacity for change, in order to influence it and guide its history, letting it do most of the work itself. Proceeding in this way may certainly prove to take longer than a more authoritarian method, but makes it possible to do a great deal with very little; above all, it naturally rules out operations that are incompatible with the rules governing the system’s internal dynamics. Encouraged by the exhortation to “carry out a permanent oscillation between the analysis of existent reality, its extrapolation into a theoretical model and the creation of a new reality,” I find myself dreaming and thinking about how to extend the metaphor. One of the fascinating properties of a chaotic attractor (in other words, the geometric representation of the history of a chaotic system) is that it is fractal: by examining one of its parts, one can discover its overall organization. It is understandable, then, why I am troubled when I hear Alain Renk talking about the fractal city. I believe that the idea is to be able to adapt the latter to communities of highly variable sizes. But as a physicist, I cannot prevent myself from wondering what the mechanism might be that would naturally produce this fractal structure. Trees or lungs are (approximately) fractal, which is what enables them to optimize their exchanges with the outside world (light, air). A chaotic attractor is fractal because the geometric processes which shape it are similar to the recipe for puff pastry. In each cycle, the attractor is stretched and then folded back on itself, the way a rectangle is transformed into a horseshoe. The same way that a knob of butter placed on the pastry dough ends up spread out over

its entire mass, it is not possible to predict too far in advance exactly where the chaotic system will end up inside its attractor. This mechanism of stretching and folding back characteristically gives the chaotic attractor an infinitely layered structure. Rather as if one kneaded the map of a city in such a way that each part ended up in interaction with all the space, an invariant configuration (in other words, one that reproduced itself from one iteration to another) ultimately being obtained when in each neighborhood one could find the entire city in embryonic form.

I don't know to what extent this should be taken seriously, but it is at any rate amusing to note that one seems to encounter once again this notion of iterative processes connecting a hierarchical level to those immediately above and below – making the chaotic attractor fractal – in the idea of “generative universes,” “theoretical matrixes” that engender more detailed worlds based on the action of transformations, but are themselves modified by what they produce in a retroactive loop. The architect himself thus becomes part of a network of regulation. Giving it further thought, I wonder if I can't guess at an explanation for the resonance between the geometry of chaos and what Alain Renk is after. They perhaps stem from nature itself, from the functioning of living beings. The latter, obliged to adapt at low cost to a variety of environments, make abundant use of systems in mutual interaction that make up complex regulatory networks, capable of reacting to tiny variations in their environment but also have to be able to absorb any brutal changes. For instance, we are progressively coming to realize that to understand genetic processes, one must not only study the structure of the genome, but also the complex network of interactions and regulations

woven by genes and proteins.

It is no mean feat to remain agile while being sturdy. In the same way, a chaotic behavior frequently originates in the existence of retroactive loops between the different variables characterizing the state of a system. Once in action, a chaotic system stays with its attractor in stable fashion even as it increases the perturbations within it. By making it possible to conjugate the stability necessary for survival and the instability needed for adaptability, chaotic – or at any rate linear – behaviors may indeed be essential ingredients of life.

Is it permissible to extend this metaphor to architecture and the city? To believe that words are not entirely misleading? To hope that certain recipes taken from nature be a source of inspiration? It is hard to say at this point in time, but why not? On the condition, most likely, of remaining flexible, and putting the images and concepts themselves into a process of interaction, into a... regulatory loop.

As is shown by the example of genome, one of the great issues of our time is to understand complexity without mutilating it. Will the twenty-first century be that of engineering and complexity? In science, and also perhaps in architecture?

ORGANIZING COMPLEXITY

ANALYZING REALITY

Objective: bring to light the forces that provoke and guide the shifts in our environments.

Means: work on the types of characteristic spaces – such as work, commercial and cultural spaces – where it is possible to identify the principles of transformation with precision.

CONSTRUCTING THEORETICAL MODELS

Objective: observe using theoretical models, matrixes, the extreme-most application of transformations in the real world. How can they be accelerated, how can they be slowed down?

Means: computerized simulation tools make it possible to construct potentially infinite artificial worlds.

CONSTRUCTING HYBRID SYSTEMS IN REALITY

Objective: introduce into the real forms of architecture stemming from the system of matrixes in order to build environments capable to play with randomness and being thrown into question.

Means: take advantage of simulations on theoretical models to study the processes of transformation making it possible to maintain the qualities of urbanity through developments.

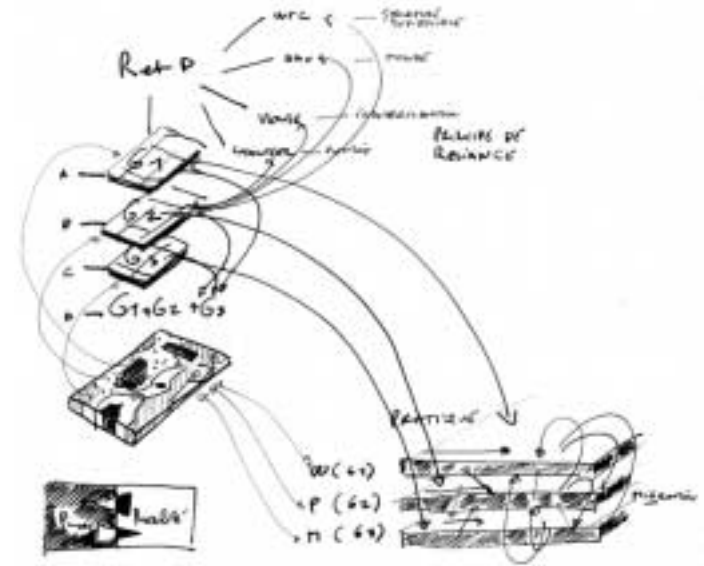
RESTART THE ANALYSIS LOOP

The constructed elements themselves become elements of analysis and integrate matrix worlds. (See FAPs, page 48)

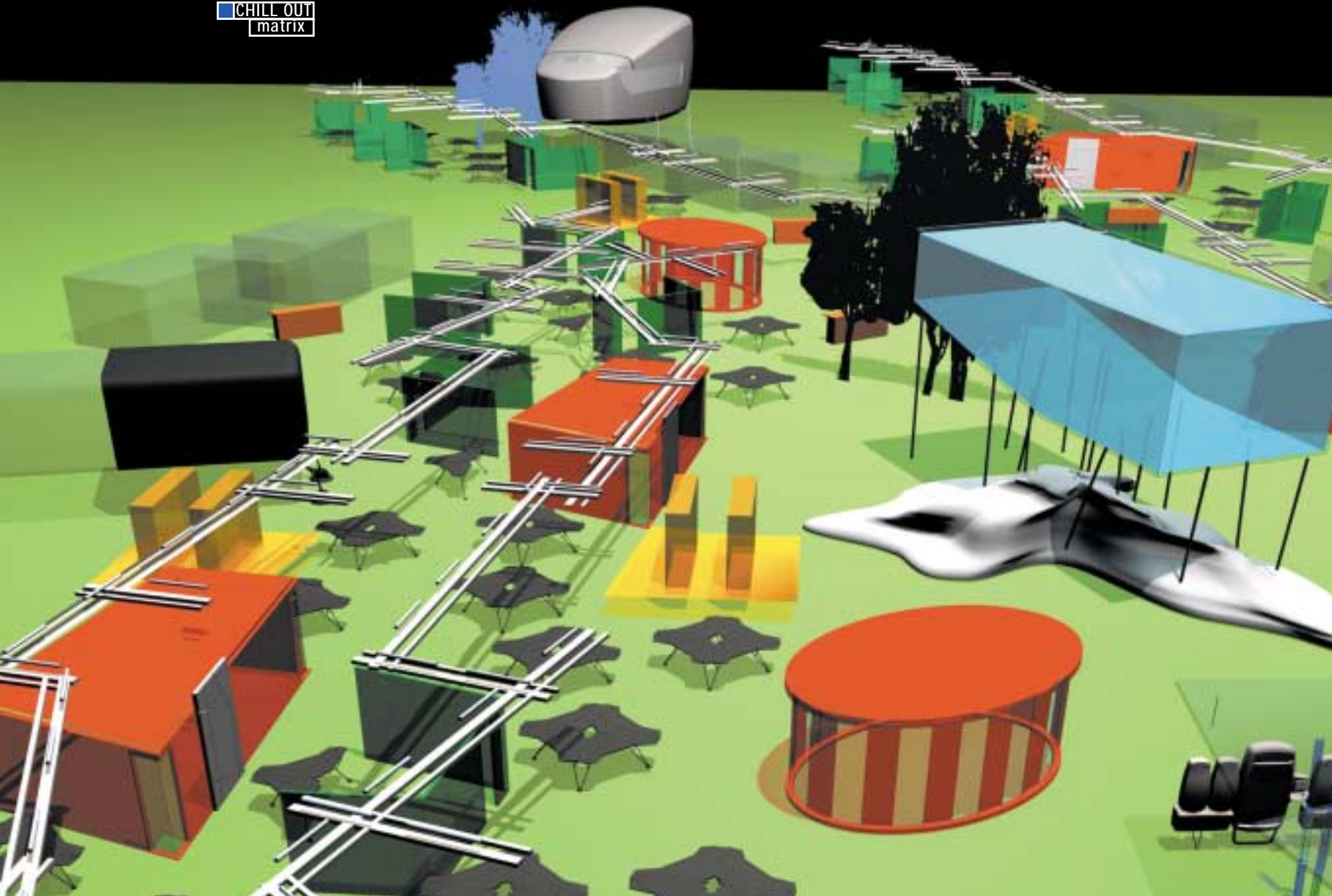


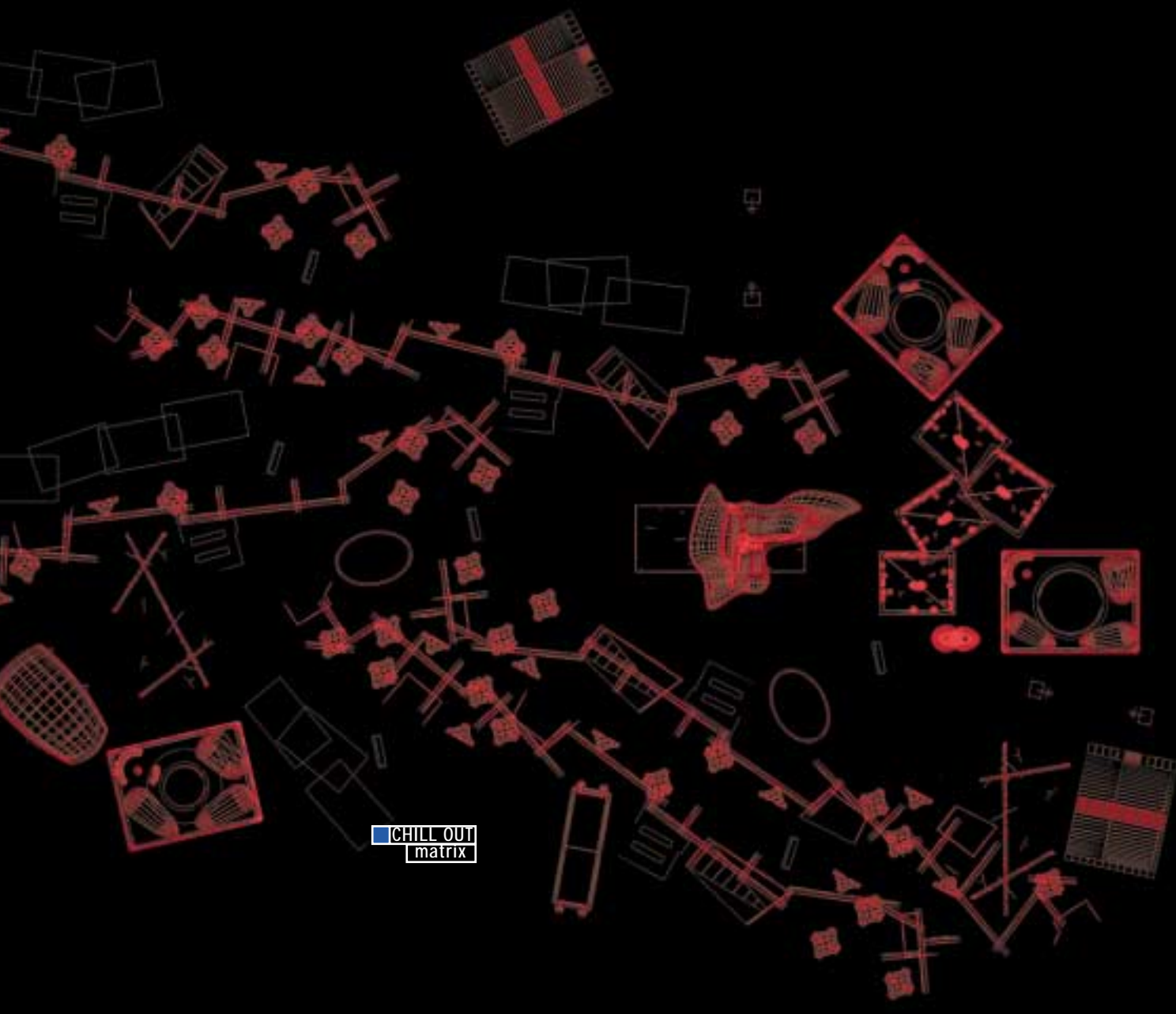
MATRIXES

Once all the transformation principles identified, it is possible to construct theoretical models informed by reality. These are theoretical matrixes, something like generic universes, infinitely extensible, which have a variety of roles. Accept all types of hybridization, permutation and combinatory experiments, to test out the possible variation, then project into the real.



➤ The constructive potentials of numeric tools will make possible the development of at once self-evident, efficient and indefinitely adaptable "essential matrixes"; from the consensual organization of these modules will be born a powerful and particular identity in which any event will be free to take place.





CHILL OUT
matrix

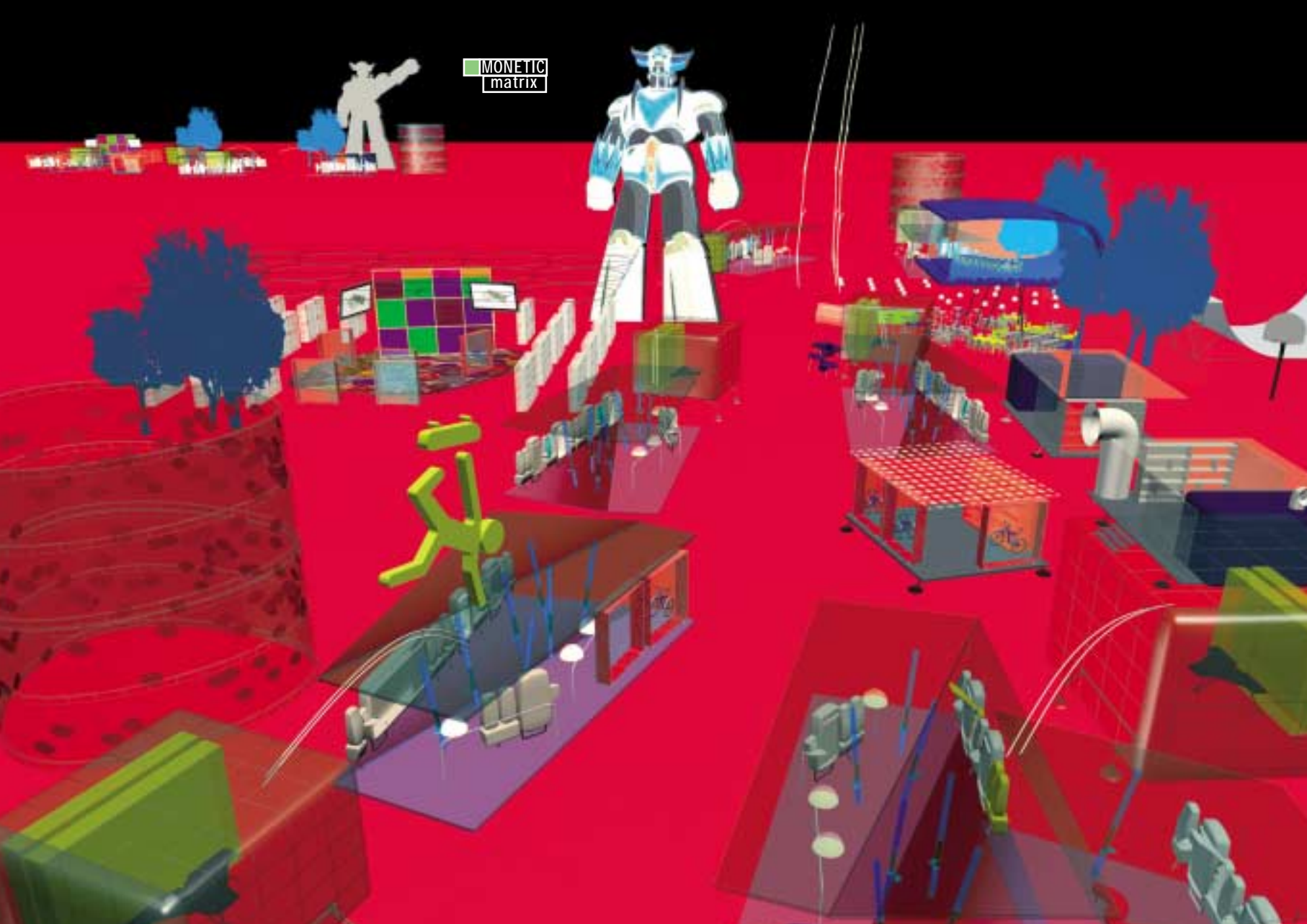
➤ On the horizon appears the development of computational models intended to accelerate the formation of levels of complexity, making it possible to study – as if they were intersecting fruit flies – differentiation lines.

➤ Plane: layered system.

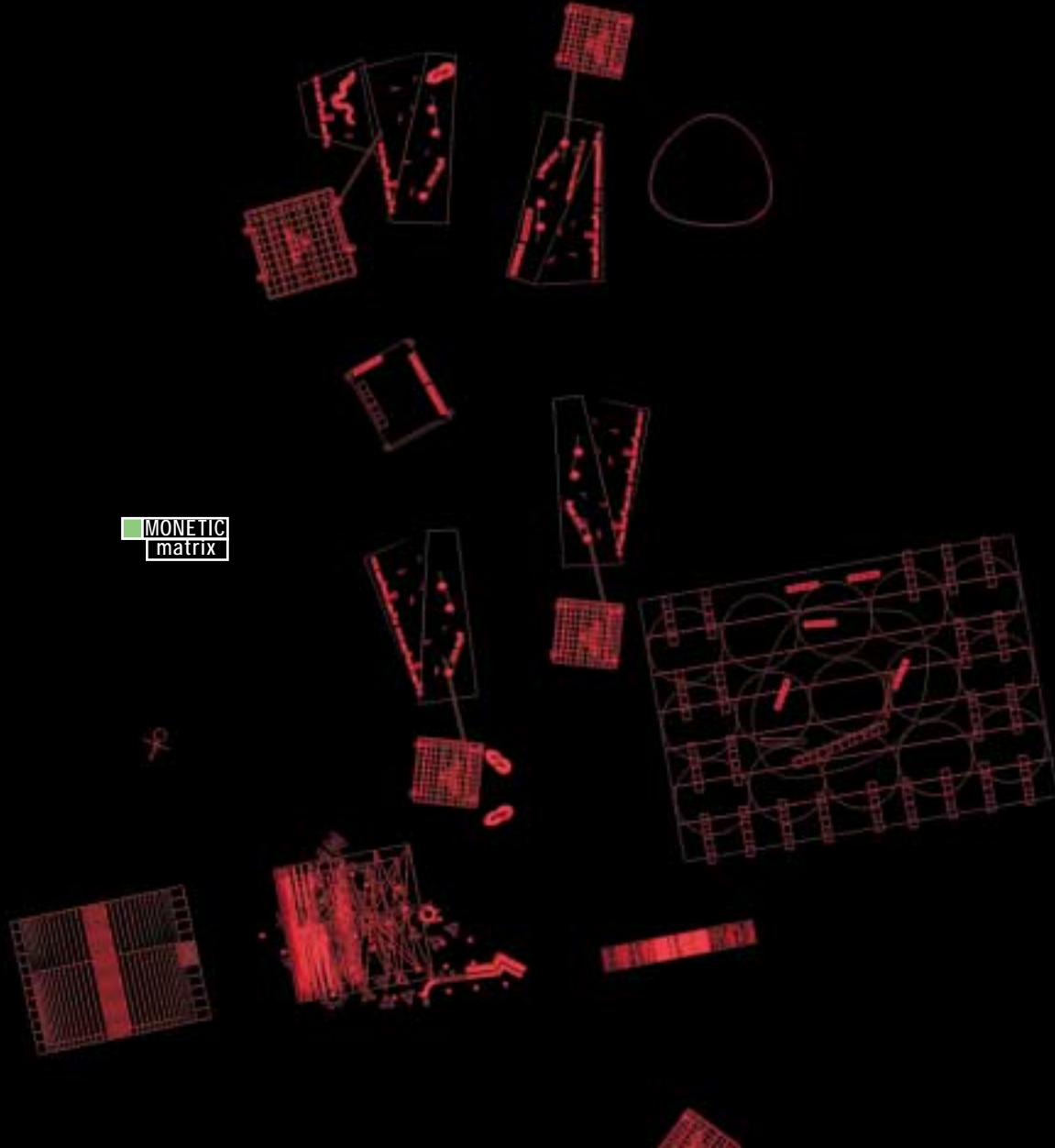
➤ Elevation: choice of a random viewpoint.



MONETIC
matrix



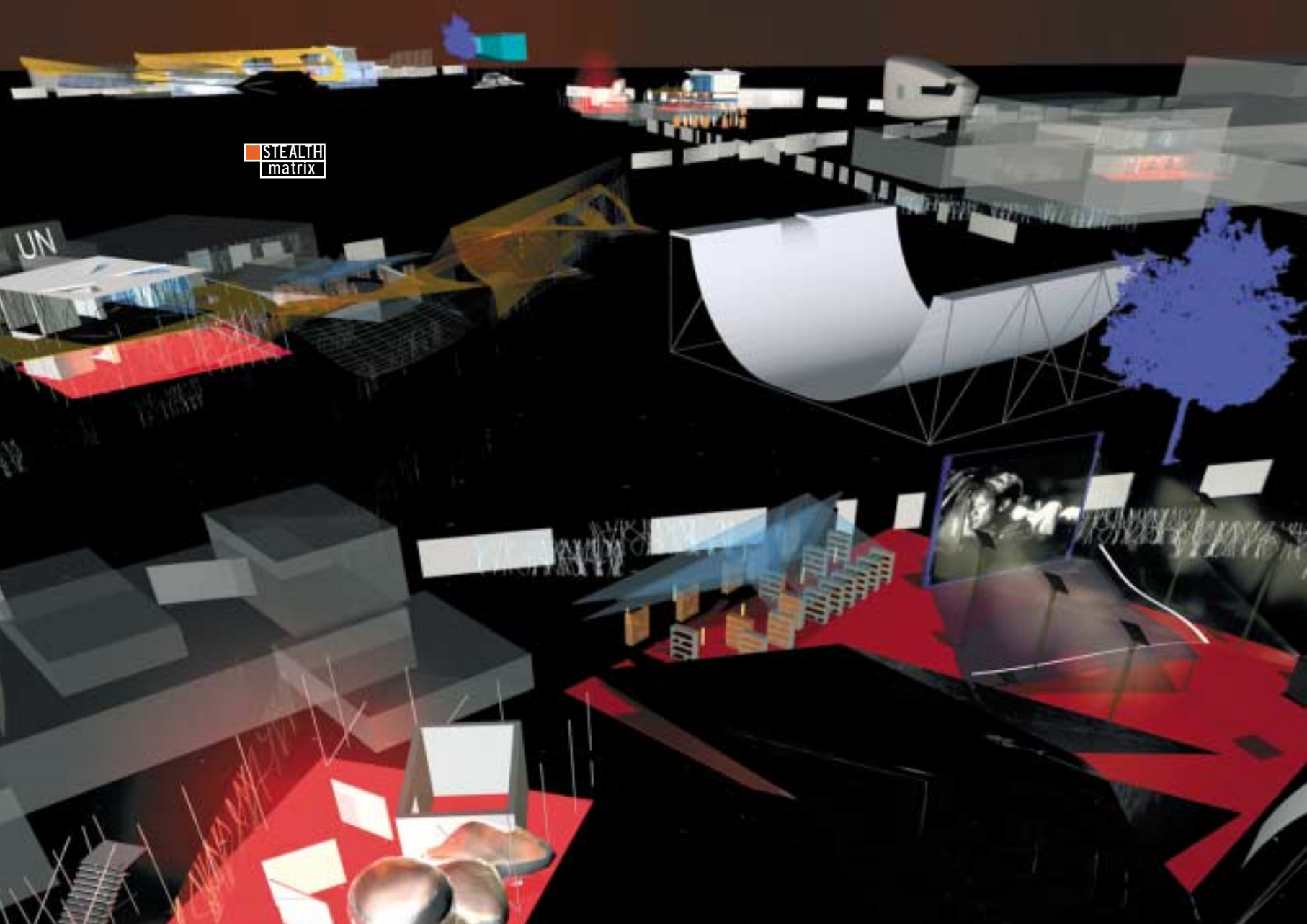
MONETIC matrix



- Loim de rélectronique, de la mécanique, de l'agriculture, peut-être serait-il possible de planter une sorte de graine sauvage dont le développement saurait rester discret. ?
- Plan : système en faille. ➤ Elevation : choix du point de vue aléatoire.



STEALTH
matrix





STEALTH
matrix

- Has power not changed sides? Has it not rid itself for city centers to take back its natural territory – the fringe, the periphery?
- Plan: support system.
- Elevation: choice of the random viewpoint.





TWO BREEDS THREE

Question for Norbert Hillaire

Today, we can no longer be satisfied with binary oppositions (order/disorder, local/global, singular/universal...) for understanding a complex reality and environment. We have to make do with the uncertain, the random, the diverse.

If we think of our environment like a complex organization, the product of both disorder and order, what criteria can be put together to act upon the city? Under the pretence of “always gaining a clearer view,” haven’t we actually yielded to a logic of cleansing?

Does that not also lead us to considering complexity as if it were political problem?

Of course, though I am tempted to play the devil’s advocate. Imagine the following situation: urban planners and converters want to improve the to environmental questions and are considering setting up a future integrated development zone in keeping with an environmental perspective, which calls for a complexity of interactions between the various components of the project. They produce a voluminous document (an “environmental charter” for instance), intended for future business leaders potentially interested in

➤ FAP (Functional Architecture Prototype)*: articulated, mobile forms, dynamic by their very essence, born of principles of transformation of matrix-like worlds, embodied in the physical world.

* courtesy Fabrice Hybert

➤ PAF 1 : Link Project, San Francisco (Chill-out).

➤ PAF 2 : Stork Club, Los Angeles (Monetic).

➤ PAF 3 : Computer dysfunction, Tijuana (Stealth).

setting up on an innovative site. In their document, they stress the different aspects of the project and their interrelation – and they are quite right to do so: eco-construction, waste-management, water-management, risk and “natural” catastrophe prevention, internal communication and personnel awareness-raising campaigns on environmental issues, external communications, landscape issues – in short, everything has been thought of and is presented as a whole where everything is understood to be connected, like in complex systems. And yet, it doesn’t work. This at once intelligent and complex approach, runs aground in the face of the incomprehension it provokes amongst the business leaders involved, who see it ultimately as a catalogue of restrictive measures.

Complexity is a very rich idea, as Edgar Morin’s entire work attests to, but if it has to be translated concretely in the realm of urban policy-making, then it cannot be imagined “from above,” from the viewpoint of an expert “overview,” tending to impose the project on the actors in the field. It calls for a form of simplicity, and occasionally somewhat abrupt oppositions, and clear choices: do the disastrous ordeals that are putting such strain on the managerial and co-habitive complexity of democratic power today not in fact suggest that one cannot get away from “binary oppositions” – such as left and right – as easily as was thought, and that it must also be borne in mind that a “door has to be open or closed.”

In effect, the point is less to deny the relevance of these binary oppositions than to set them into a dialectic, and to understand that surpassing them is already bound up in the play of their very relations – and thus in their existence: it is the reciprocal putting to the test of order and disorder that certain epistemological advancements were able to occur (such as the opposition between crystal and smoke in the work of Henri Atlan); or the local and the global, as testified to by the current work of Arjun Appadurai; or, in an entirely different register, that of Georges Didi-Huberman, when he calls for a complex reading of the image, on the basis – amongst others – of the “opposition of the trace and the aura” in the thought of Walter Benjamin. In short, it suffices to bear in mind this truth, shared by both great logicians and semioticians like Charles Sanders Pierce and plain common sense: two breeds three, to figure out that one cannot banish binary oppositions out of hand, although one must seek to get beyond them.



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MONTREUIL KARMA

× **SLOW MUTATION** Between the oil crisis that occurred several years after the construction of the freeway and the ultimate decision not to extend the first part of the A186, and thus to transform hyper-functionalism into surrealism, twenty years went by. Another ten years were necessary before the decision could be made to declassify this freeway so it could eventually be demolished and replaced by a tramway line bordered by trees. Is the radical shift in orientation on Montreuil's north plateau a precursor of the sort of actions which are to be undertaken on many leftovers from the 1970s.

× **NEW AUTOMATISMS** Thirty years ago, the A186 freeway was to have made it possible to save fifteen minutes by circumventing the freeway junctions on the A3...

× **PROJECT** Apply strategies of the complex city. Maintain the territory's singular side, without negating its particular history – karma – but rather seeking on the contrary to draw a ferment, a strength from a difficult history. Avoid rushing into building, but rather preserve the voids created by the demolition of the freeway by assigning them to differentiated leisure and cultural functions, directly linked to commercial and business activity. Spread out a number of in-depth interventions demonstrating that new uses have been taken into account. Construct several buildings emblematic of these new function, while allowing plenty of leeway to foster potential transformations. Accompany these re-balancing initiatives with interventions carried out over the entire territory. Change in spectacular fashion the several buildings projecting a negative image while abstaining from demolishing them in order to maintain their mark on the landscape.

- ↳ Diffusion of matrixes on a 3-D model of the territory.
- ↳ Identity of the territory.

📅 DATES

Late 1960s: the A186 freeway is inscribed in the planning guidelines.
1970s: the A186 freeway was partially built.
1994: the idea of a junction between the A3 and the A86, via the A186 is abandoned.
1994: the principle of a surface-transport system is validated.
1999: registered in the thirteenth Ile-de-France planning contract.
1999: the thirteenth Ile-de-France planning contract is voted in.
(source: Sciences Po Report)

📊 FIGURES

Surface of the territory studied: 150 hectares.
Amount taken up by the freeway: 9 hectares.
Zone affected: between 200 and 300 meters on each side of the freeway.
Width of the land taken up by the freeway: 30-60 meters.
Length of the territory affected: approximately 2 kilometers.



RANDOMNESS AS A GUIDE

Alice Laguarda

Often repressed, and for a long time stifled by totalitarian closure and totalizing theories, complexity is out there. Nevertheless, faithful to the pretext of always having to see things more clearly, have we not yielded to a logic of purging?

This logic is today leading us toward a violent rejection of structures, organizations and authorities. We find ourselves jointly threatened by simplifying, even simplistic discourses, and the impossibility of thinking through the crisis with our traditional binary oppositions.

The human condition is heavy indeed in its complexity. We are torn between the desire for attachment and for rupture, rootedness and movement,

conformity to traditions and emancipation from these same traditions. The city has not escaped this crisis. Its existence is attendant upon a double truth: it can, like any ecosystem, either live, and continue to develop through exchange with the outside, or die, asphyxiated by entropy, deregulation, rifts. For the architect, going beyond reaction can take place through the idea of complexity: acquire the possibility to construct from the ground up forms of political and personal subjectivity, communication between groups and individuals, carry out an activity outside of tradition and consumption. Aim at maintaining a society in the public sphere. Consider that chance and randomness can play a positive role in the organization of the city and make it possible to return to the complexity of meaning, as opposed to technicism, marketing and instrumentalization.

FAILURES OF MODERNITY?

When the revolutionaries drew upon the philosophy of the Enlightenment, it was to do away with a holist form of social organization, in which the individual was nothing in himself, and conformity to tradition the only acknowledged value. Modern values expressed this rupture with former societies by highlighting the individual, and human rights; through belief in progress, in the future, in science for the benefit of humanity; through the right and the possibility for everyone to change status, to climb in the social ladder, to acquire a freedom through labor; through defending values of equality, freedom, fraternity and political democracy.

Today, however, we are witnessing a collapse of the values of modernity. A perversion of liberal, moral theories on both the economic level (the “law of the market,” the triumph of financial flux) and on the political level is



↘ With the freeway

emerging. For the growing inequality is becoming increasingly violent. The exaltation of individualism, self-withdrawal and consumerism are all threatening our belonging to a common world. The unbridled and headlong rush of techno-science awakens long-latent nightmares. The denial of the political is flagrant, and is fostered by the triumph of totalizing systems of ideas and the rise of various forms of fundamentalism. It can be argued that “the myth of progress, at the very basis of our civilization, which proclaimed that tomorrow would be necessarily better than today – something common to both the Western world and the Eastern World, inasmuch as Communism promised a radiant future – has collapsed as a myth. That does not mean that all progress is impossible, but that it can no longer be considered automatic and that it contains regressions of all sorts. Today, we have to acknowledge that industrial, technical and scientific civilization has created as many problems as it has solved.”¹

Like the infant in its first year, humanity finds itself before the dilemma of the mirror: “for the first time, the infant recognizes its reflected image as its own; it identifies with it to such an extent that when it hears its name called, it sometimes looks at the mirror rather than reacting from within. It prefers the reflected image, which is whole. Retrospectively, the body such as it is perceived before the mirror stage has a fragmentary appearance; it is a split body. The reflected image is the basis of an identity, for it is also the identification with something that is not the infant.”²

Is the reflected, whole image preferable?

Is the internal, incomplete image satisfying?

What is reflected is not what was expected. The intimate feeling is disgust, rejection, dereliction. Hence a cascade of reactions against and refusals of modernity.

REMAINING IN UNCERTAINTY, UPHOLDING RANDOMNESS

The rejection of what modernity sought to achieve – too beautiful, too perfect, too clean – should not be read only as a reaction.

The point is to put forth alternatives to the manifold logic of planning and asceptisizing, to emphasize that architecture and urban thinking cannot be reduced to the resolution of technical, scientific problems. For the architect, that means refusing the art of the supplement (adding an object or a monumental structure to the cityscape), not merely illustrating a program. Attention must be paid to function: “we are in a relationship of transformation, where architecture understood as an intelligible object is disappearing to the benefit of a developing artificiality. The interpretation of the latter can no longer be done from the descriptive angle of form, but rather like a field of energetic, constantly changing, sometimes converging, sometimes contradictory tensions. New technologies do their utmost to generate an infinite amount of data, capable of incorporating time, to predict behaviors, to plan phenomena, without ever losing sight of the uncertainty of the developments.”³

What we need is to produce a critical state: architecture is making its way through ambiguities, levels of complexity, provoking the implosion of such binary oppositions as local/global, real/virtual, singular/universal...

Thinking about uncertainty, relativity does not mean that everything is the same and equally acceptable, that everything is arbitrary, that we are lost in a world where all differences tend to blur. In this context, the architect has a fundamental role to play: he has to be capable of proposing difference to society; breaking with the desire for permanence and bear witness to what is common.



Alain Renk's and the Host Agency's project in Montreuil obeys two principles: the application of the idea of plurality to the reality of the project; the necessity of rethinking the function divisions between labor, business and culture, through their potential for permeability and their developments.

To accept to introduce complexity into the project is to pursue a sort of empty, open-ended universal. No sooner does one seek to fill it, than one particularizes it, destroys it. It is destroyed by dogmatic discourses, through swelling the form in architecture, the fascination for the object which plays against plurality: "if this complexity is a fascinating specular regression, rich in accidents and new beauties, often corresponding to a game of form rather than meaning," as Alain Renk points out.

How can these spaces that have been abandoned – or are in the throws of being abandoned – recover their humanity?

How is one to think through the fabrication of the city when faced with the degradation of spaces charged with memories and identity – which, as we are now inclined to forget, are common to all?

How are we to deal with context, on the basis of geographies and histories of the site, like tensions which coexist?

How are we to participate in the intelligence of complexity?

By struggling, for instance, against the quest for perfection through randomness and play. We need to make our way back to the intermediary space, the interstice, which conceals the greatest wealth: "experiencing an intermediary – and of course codified – reality, with all the traits of a constraining structure, but that can nevertheless be penetrated without great consequences." The game is to "leave the world even as one remains within it, to withdraw from necessity while reporting present to necessity, fleeing and returning in the same movement."⁴ The struggle to avoid caving in to technique and programming

will have to make it possible to give priority to transitions, gradations, interference, hybridization. Producing 3-D images and determining "matrixes" (labor, culture, business) are not the expression of a technicization of the project. They are used for the simulations and the modifications which they make possible: the city fabric undergoes re-composition, stratification; it is reduplicated by foreign elements, punctual interventions whose development is uncertain. The ebb and flow between the numeric world and the material world must be permanent. There has to be a degree of free "play," "giving priority to meaning over constructive imperatives, recognizing a certain autonomy of the sign with respect to function." Thus, emphasis is laid on "the fact that architecture cannot be reduced to the solution of technical problems, and that it can be enriched by taking the risk of chance in the perception of its meanings. As a mixture of architectonic necessities and often random and unpredictable aesthetic messages, architecture incessantly eludes the one-dimensional and simplistic readings applied to it."⁵

1. Anne Rapin, Interview with Edgar Morin, in *Sciences humaines*, no. 28, 1997.
2. Bart Lootsam, "Des corps et des globes," exhib. cat., *Vision machine* (Nantes, 2000).
3. Philippe Rahm, "Seconde genèse," in *Mutations @morphes* (R, DSV & Sie., 1998).
4. Paul Ardenne, *L'Image corps* (Éditions du regard, 2000).
5. Claude Massu, "Architecture et hasard," in *Traverses*, no. 24, 1982.





Texts *Architect yes, but...* pages 2-3, *Constructing the complex city*, pages 16-17, interview *Maintaining a common world*, pages 18-27.

(Alain Renk) Architect, Chevalier des Arts et Lettres.
Young Architecture Album, 1991; invited to the Venice Biennale in 2000 and ArchiLab in 2002.

Finished his studies in architecture in 1990, after an interlude in the tropics and west Africa, in pursuit of surfing and photo reportage. Cofounder and participant in the adventure of the design and architecture agency Naço until 2000.

Created the Host Agency in 2000, to undertake a radical questioning of the role of the architect in a general ecology of the contemporary world.

TEXTS

Interview *Maintaining a common world*, pages 18-27.
(Jean-Paul Dolle) Philosopher, writer

Most recent book: *L'Ordinaire n'existe plus* (Éditions Léo Scheer).
Has published: *Désir de révolution* (Éditions Grasset)
Haine de la pensée (Éditions Médiation)

Interview *Maintaining a common world*, pages 18-27.
(Sacha Goldman) Film producer, involved in various media (publishing, exhibitions). Initiator of the Association for the International Ethical, Political and Scientific Collegium, of which he is secretary general.

Production currently underway: *La représentation du monde*, a series of television interviews with philosophers and scientists; *Borderline*, documentary on the city of Washington, DC.

Text *An X-ray of chaos*, pages 28-33
(Marc Lefranc) Researcher at the CNRS, works in the realm of non-linear dynamics and determinist chaos, particularly using lasers.

Author with Robert Gilmore of *Alice in Stretch and Squeezeland* (New York: Wiley, 2002).

Text *Two breeds three*, pages 48-49
(Norbert Hillaire) Professor of aesthetics and communications at the University of Nice-Sophia-Antipolis, and art critic.
Recent publications: *Architectures de lumière, vitraux d'artistes contemporains, 1975-2000* (Marval, 2000), in collaboration with Anne-Marie Charbonneaux.

Écosystèmes du monde de l'art, special edition of *art press*, co-editor with Catherine Millet and Christophe Kihm, November 2001.
Œuvre et lieu, essais et documents (Flammarion, 2002), in collaboration with Anne-Marie Charbonneaux.

Texts pages 4-15. *Randomness as a guide*, pages 54-59, back cover text
(Alice Laguarda) Studied architecture and philosophy, editor-in-chief of *Parpaings* (Jean-Michel Place), co-founder of the journal *Visuel(s)*.

Recently published: "Architecture entre crise et critique," in *Créateurs Création en France, la scène contemporaine* (Éditions Autrement).

ICONOGRAPHY

(Vladimir Velickovic) Painter for life, etching, page 5.

(Agence Host) documents and drawings, pages 14-15, 16-17, 23, 28-29, 30-31, 32-33, 35, 36-37, 38-39, 40-41, 42-43, 44-45, 46-47, 50-51, 52-53, 54-55, 56-57, 58-59.

(Guillaume Favreau) Architect, saxifrage: n. lower Latin (breaker of stones); variety of plant that grows in interstices and of which several ornamental species are cultivated...

(Sylvain Cochet) Architect, converts theory into matter.

(Ian Humbert) Photographer, journeyman carpenter.
Photographs of the city of Montreuil, pages 9, 10-11, 12-13, 19, 24, 27, and all the photographs on pages 60-61. Attracted by limits, their creation and the representation of the in-between... working with their gaps.

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