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Molecular Landscape

Julián Varas

„Attempts to distinguish mass from class effectively tend toward this limit: the notion of mass is a molecular notion operating according to a type of segmentation irreducible to the molar segmentation of class. Yet, classes are indeed fashioned from masses; they crystallize them. And masses are constantly flowing or leaking from classes.”

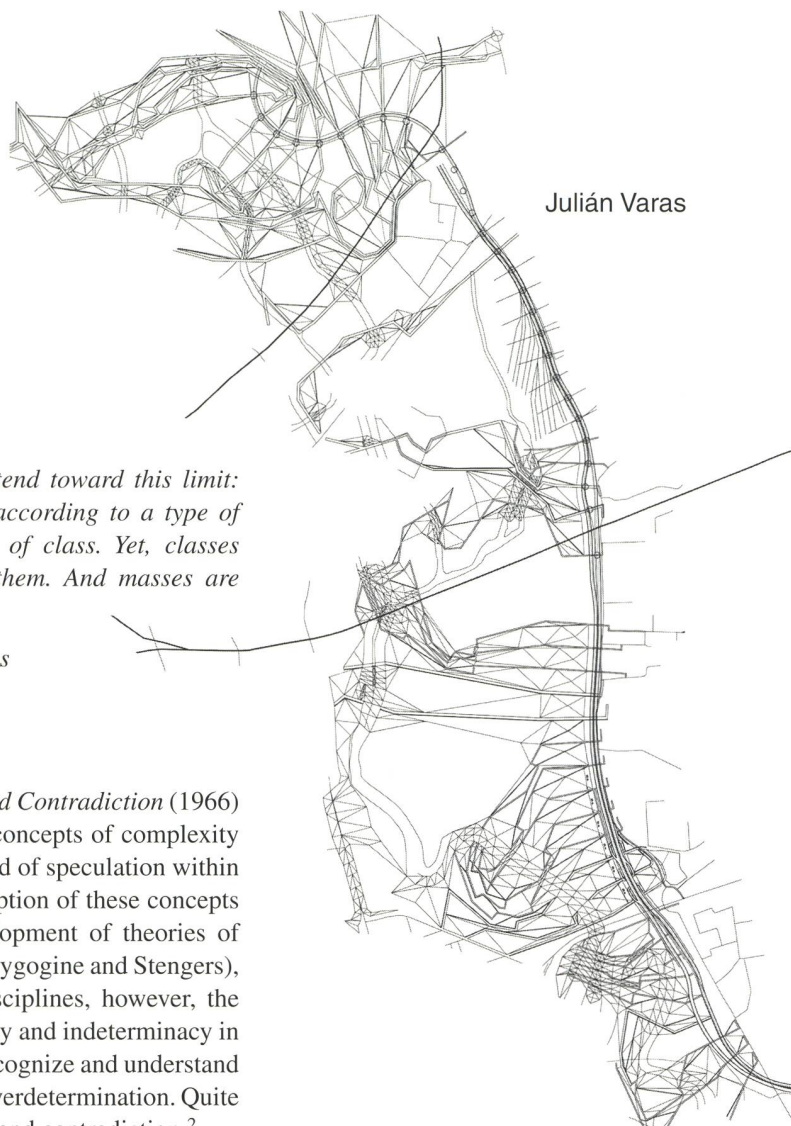
Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*

2 + 1 Projects

Since the publication of Robert Venturi's *Complexity and Contradiction* (1966) and Colin Rowe's *Collage City* (written in 1973) the concepts of complexity and indeterminacy have emerged as the most fertile field of speculation within the domains of architectural and urban form.¹ The adoption of these concepts by the architectural culture coincided with the development of theories of complexity in mathematics (Rene Thom), in physics (Pryogine and Stengers), and in philosophy (Deleuze). In contrast to these disciplines, however, the early attempts at incorporating the notions of complexity and indeterminacy in architecture were still trapped by the impossibility to recognize and understand complexity as order, indeterminacy as a by-product of overdetermination. Quite to the contrary, these ideas were equated with disorder and contradiction.²

Around the early 90's, the expansion of digital technology in the fields of design, allowed the emergence of a new alliance between order, complexity and indeterminacy.³ It is likely that this was possible because of the existence of a cultural and political context that was becoming increasingly liberated from the memories of the homogenizing tendencies of modernism. The disciplinary field thus opened itself again to the idea of order. This marked an important shift in the prevailing epistheme of urban and architectural theory. Newer forms of radicality appeared in terms of a non-oppositional avant-garde whose mandate was to push the boundaries of the system from within. Former categorical oppositions between the natural and the artificial, the rational and the organic, became subsumed in a paradigm where qualitative differences were understood no longer as representations of ideal essences, but as singularities in a continuum of information and matter. Following the structural model proposed by Thomas S. Kuhn for the development of sciences, it can be argued that, since the 90's, we have begun to see the world through the lense of the *cybernetic paradigm*.⁴

Recognizing and aligning itself with this particular historical background, the body of this lecture is organized around three projects. The first two proposals – one in Buenos Aires, the other one near Paris – aroused my interest in those



1 Cfr. Greg Lynn, „Blobs“, In: *Folds, Bodies and Blobs. Collected Essays*. La Lettre Volée, Belgium, 1998

2 In *Learning from Las Vegas*, however, Venturi saw a precise order underlying the apparent chaos of the Strip. Unfortunately, his later explorations lead him in a completely different direction. Cfr. Venturi, Robert et al. *Learning from Las Vegas*. The Museum of Modern Art, New York, 1968

3 Cfr. Greg Lynn, „The Folded, the Pliant and the Supple“. In: *Folds, Bodies and Blobs. Collected Essays*. La Lettre Volée, Belgium, 1998

4 This term refers broadly to a field of knowledge that originates with the publication of Norbert Wiener's *Cybernetics, or control and communication in the animal and the machine* (1948). Beyond their discrepancies, developments in cybernetic theory have been consistent in tracing a plane of knowledge that cuts across biological, social and technological domains. In this sense, cybernetics constitutes an implicit critique of anthropocentrism.



fig. 1 Retiro area in Buenos Aires

questions in the first place, while the third one – my own thesis project at the Architectural Association – can be seen as an attempt to re-articulate those issues in the context of an updated set of theoretical concerns. This third project constitutes a speculation on the interrelations of a set of notions coming from various disciplines; it should not be expected that all of the issues conventionally involved in an undertaking of such colossal scale are answered with precision, or are even addressed.

It is interesting to notice that neither these projects nor those concepts can be clearly ascribed to any of the existing disciplinary definitions. The turbulent changes that the environment has undergone in the last half century have left us empty-handed, in terms of an appropriate conceptual apparatus for engaging its condition of extreme artificiality.⁵ Out of pure habit, we use words like city, landscape, urbanism; but these terms fall short with regard to the description of current phenomena, because they address conditions that no longer exist in a state of purity. This realisation has led architects and designers to read new configurations in terms of hybridization, and to baptize them consequently: urbanized landscape, landscape urbanism, suburbanism, cityscape... This constitutes evidence of their present inability to understand these phenomena as a truly novel situation. The inherited disciplinary subdivisions, therefore, need to be critically assessed: It is evident that the distribution of competences they imply no longer corresponds to the dynamics of the current productive system. The ongoing process of disciplinary hybridization seems to be like a pair of crutches on which we currently rely for want of newer and better terminology. A liquefaction of the existing stratification is occurring, and new disciplinary sediments are already struggling to coagulate. Perhaps these three projects will fall more neatly into one of those yet-to-be-defined categories than they do into any of the existing ones.

In this sense, Rem Koolhaas' *SMLXL* was prophetic in its ability to understand that the only viable distinction between discrete domains of material practice was not through specificity of program, material or figuration, but through scale. Three conditions pertaining to the large scale, emerge then as a potential definition of the area of operation of the three projects. The first one is the interest in the *re-definition and formalization of the concept of public space*. This condition evolves from the merging of urbanism and landscape, and implies a critique of the figure-ground opposition between architecture and the ground. A second issue – which stems also from the landscape sensibility – is the foregrounding of the *temporal dimension* as the most relevant arena for the determination of form in the urban project. The third one is the *questioning of representational techniques*, with special focus on the prevailing picturesque sensibility and the nostalgia for the concept of the city as formulated in recent – especially 80's and 90's urbanism.

⁵ Cfr. Rem Koolhaas, "Pearl River Delta". In: Rem Koolhaas et al., Eds., *Mutations*. Actar, Barcelona, 2002

Retiro

Architecture, infrastructure and the urban ground

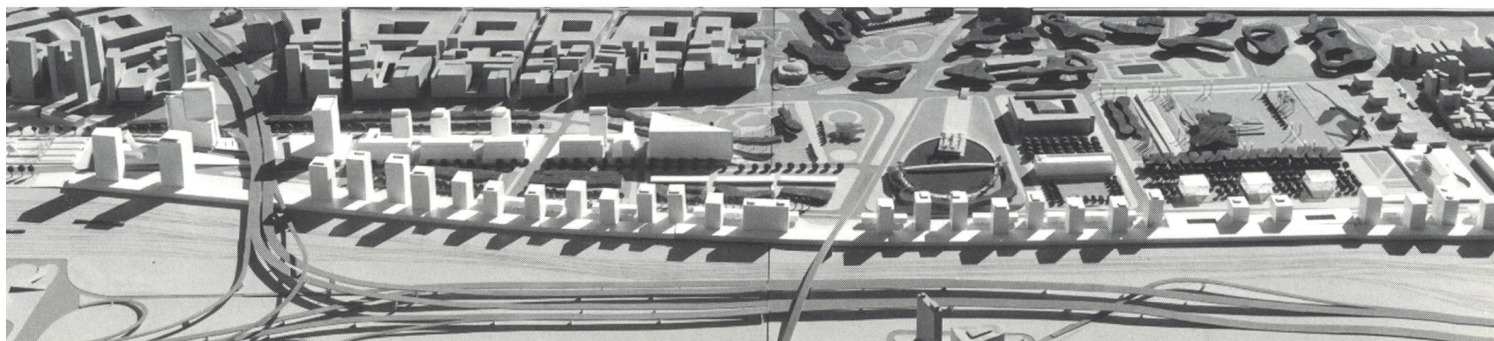
Having been involved in the Retiro project from a lateral position, the present reflection shall be limited to an analysis of the conditions in which the project originated and evolved. Insofar as an in-depth development of projects of this scale and complexity is unusual, it can be argued that those conditions themselves represent an area of inquiry of the greatest interest for the urban practices.

In retrospect, the length and tortuosness of the project, appears now as an issue worthy of being considered as a problem that is intrinsic to it – rather than being relegated to a realm of bureaucratic speculation. The fact that the form of the project could hardly be sustained for a period longer than a couple of months (due to the instability of the political and financial contexts according to which it had to be constantly readjusted) poses the question of where the consistency of the scheme should have resided. While it was clear at all times that it was necessary to preserve a sort of global identity in order that the project could have a formal existence, it was also evident that there was a need for a resilient fabric at a local scale. The implied question now seems to be: is it possible to preserve a series of qualities or performances locally, even if the global form has to adapt to iconographic or quantitative constraints?

The neighbourhood of Retiro (fig. 1) is one of the most heavily populated areas in Buenos Aires. Besides being the largest transportation interchange in the city, it houses some of the finest examples of XXth century architecture and public space. The Libertador Avenue still indicates today the line where the old city limit used to be. The surface area of the city has dramatically increased over the last 150 years by reclaiming ever more land from the Rio de la Plata. Here we can see how a whole strip of land was added to the original configuration of the city. This strip was originally devoted to infrastructure: first, train stations were installed, then the new port, then a long distance bus terminal. Since the 70's, further layers of infrastructure have been added, and a few more are still waiting to happen. During the last century, Retiro worked essentially as an exchange node for transport systems, where people and produce would jump from trains into boats, and vice versa.

Over the last few decades, the construction of deep water harbours on the Atlantic and the evolution of freight transport rendered useless a large part of that infrastructure. The drastic economic growth of the first half of the 90's provided the adequate context for launching several operations of renewal. The transformation of the old Puerto Madero was followed by the Retiro project: the insertion of 1 million sqm of built program and several hectares of open public space into a 4 km long strip of land, which had been, until then, occupied by derelict railtracks, depots and warehouses. Because this

fig. 2 Retiro Project, first stage



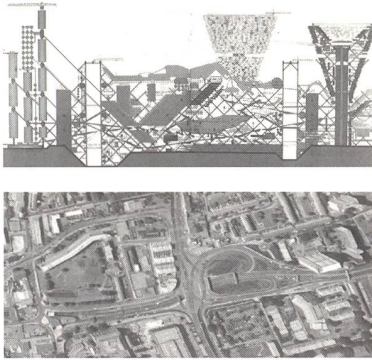


fig. 3 Two visions of infrastructure: Archigram's Plug-In City + East London

band occupied the space between the fabric and the River, the operation was regarded as an opportunity to reformulate the condition of the urban border. Planned as a 20-year long process, three pieces of urban substance were foreseen in the project (fig. 2), as a way to gradually occupy the space liberated of the obsolete infrastructure. With almost immediate feasibility, the first piece, adjacent to the station, would anchor the project, and propel the insertion of the next elements. At a much larger scale, the second piece, a sort of elongated, self-contained island, would imply already the deployment of extensive urban regulations, while the third element, conceived of as a linear infrastructural arrangement dotted with tower-blocks, would end up by framing a central urban park.

Architecture and infrastructure

Among the multiple reasons that impeded in conjunction (up to now) the realization of the project, the way in which the relationship between architecture and infrastructure was conceived of since the operation was launched is perhaps the most important one. To trigger the infrastructural operations (which depended on international credit, and would be followed by „development“ and „landscape“) a political consensus of continental proportions had to be reached. It never happened. Arguably, this is a consequence of the project's dependence on an strict top-down decision-making process, which amounts to saying that it still relies on a series of residual utopian assumptions.

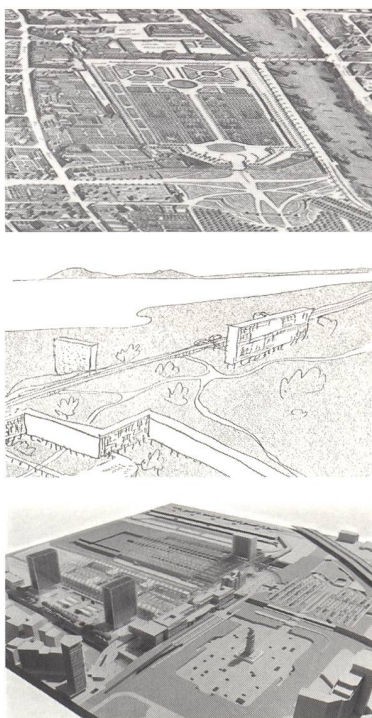
What would it mean to organize a non-utopian model for urban development? What would characterize such a model?

One of the first conclusions that can be drawn from the Retiro experience is that the utopian aspects of recent urbanism are perhaps most visibly exposed in the relationship between architecture and infrastructure. Here you see the utopian condition and the actual condition (fig. 3). In Archigram's plug-in city, perhaps *the* paradigmatic case, an immense infrastructural network is deployed prior to the city itself. But despite that project's naïve form of beauty, the actual relationship between the city, its architecture, and its infrastructure has always exhibited greater complexity and indetermination (or non-linearity). Their relationships are intricate rather than didactic; they trigger and influence each other over long periods of development. The fact that most of those visions have remained on paper could be taken as proof of that particular idealization.

Architecture and the urban ground

The second issue exposed by this project, is how the formal and topological relationships between architecture and ground plane have both shaped and articulated the notion of public space throughout modernity. These three images represent paradigmatic moments in our understanding of the relationship between architecture and the urban ground (fig. 4). Before modernism, the Plan Turgot shows how a single organizational system successfully permeates building and ground, private and public, natural and artificial conditions. The drawing by Le Corbusier shows one of the most radical and far-reaching inventions of modern architecture: the complete severance of building and ground. This severance resonates at many levels: the building is private, the ground is public, the building is artificial, the ground is natural, the building is “functionally determined” while the ground is seemingly liberated from utilitarian responsibilities. The third image belongs to the Retiro Project: it shows the metropolitan condition. The ground here is no longer just a surface where buildings stand: it is a thick crust, totally inhabited and artificialized. It comprises an enormous amount of conflicting functions and structures. New structures get built under, between, on top or inside of new ones. Whole historic particles have to be supported temporarily by make-shift pilotis in order to allow the passage of flows, machines, trains, people; later they are put to rest again on the reconstituted “natural ground”.

fig. 4 Paradigmatic moments: Plan Turgot, Le Corbusier and the metropolitan condition



From space to scape

Nowadays, this kind of relationship has become ubiquitous. Through radical exploitation of the ground, extreme forms of artificiality are generated by explosive processes of urbanization in cities like Mexico, São Paulo or Buenos Aires (fig. 5). Conversely, processes of implosion take place where physical space is already scarce. Mountains, fields, riverbeds, whole historic centers are excavated in order to create parking space, tunnels, barracks, shelters, vaults, shopping malls (i.e.: Switzerland). Every square inch of available space is subject to temporal regimes of use. Sometimes, astonishing programmatic combinations occur (fig. 6). These situations show that any lingering memories of the urban ground as a neutral backdrop for architecture can only constitute nostalgic reverie. It has become apparent, that from the condition once called public-space (a definition based on the existence of certain political and economic conditions of usage), today we can only aspire to reconstruct a kind of public-scape: that is, visual unity imposed as a representation of a reality that is irretrievably lost.

Melun-Sénart

Openness and indeterminacy

If, at the beginning of the 90's, architecture had already awakened from its self-inflicted *semantic nightmare*, hardly the same thing could be said of urbanism. Over the last decade, however, a series of projects have tried to engage some of the most extreme processes of urbanization in a generative, rather than critical mode.⁶ The debate was initiated in the 70's when Manfredo Tafuri's radical critique of the metropolis coexisted with Rem Koolhaas' radical vindication. But the first project that clearly expressed the possibilities of an opportunistic urban practice came only in 1987 with the competition entry for the city of Melun-Sénart, located south east of Paris. As it is widely known, the project is organized around a series of intersecting bands that accommodate public spaces, nature, leisure, entertainment (fig. 7). These bands define *islands of development* where architecture can happen with almost total impunity.

Open urbanism

Melun-Sénart explores the question of *urban indetermination* in a generative rather than a representative sense. While other entries for the competition⁷ resorted to conflicting geometries as a metaphoric incarnation of the ideas of chaos and indetermination, OMA's proposal appears as a set of performative *urban operations*. Renouncing a representational or linguistic approach, formal decisions seek to engage predictable effects; they lend themselves to utilitarian explanations. As the pursuit of an aesthetic agenda is postponed in favour of a set of determinable cause-effect relationships, the overall effect of the project is the emergence of a strange figure, whose form Koolhaas has repeatedly associated with that of a chinese character. Open Urbanism, then. If such a thing is at all possible then these would probably constitute its main preconditions.

The primary aim of Melun-Sénart is to achieve robustness. The strength of the scheme resides in its ability to negotiate the efficiency-driven forces of the market with a sensitivity towards the spatial features of the site where it is operating. It seeks to demonstrate that some of the existing qualities of the site can be preserved regardless of the grade of the individual architectural fragments built in the development islands. In this way, the project welcomes the whole panoply of sheds, infrastructure, malls and almost every thinkable urban pattern, as long as the quality of the void bands is left untouched. *The strategy relies in the generation of a system apt for development, rather the determination of formal results.*⁸

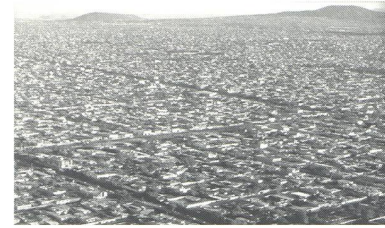


fig. 5 Mexico



fig. 6 Osaka

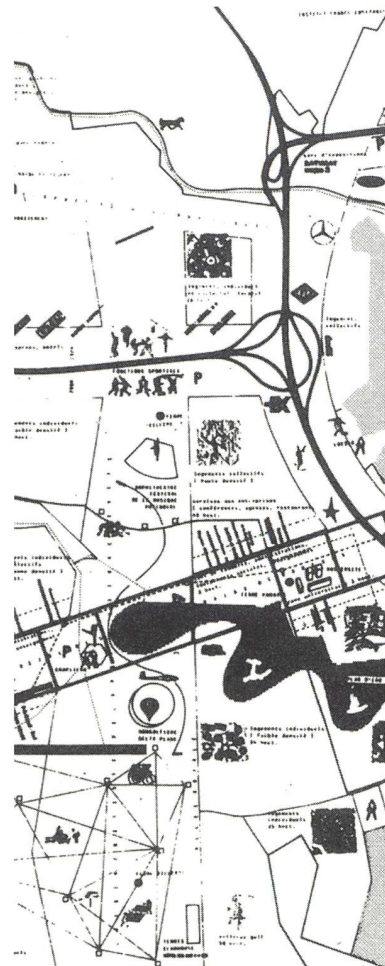


fig. 7 Melun-Sénart, Proposal by OMA

6 A paradigmatic case is constituted by the work of the dutch group MVRDV. Cfr. MVRDV, *FARMAX. Excursions into Density*. 010 Publishers, Rotterdam, 1999

7 See, for example, the winning entry by Coop Himmelblau. *El Croquis* N. 40, 1989

8 Alejandro Zaera Polo, "Notes for a Topographic Survey", *El Croquis*, N. 52, 1992

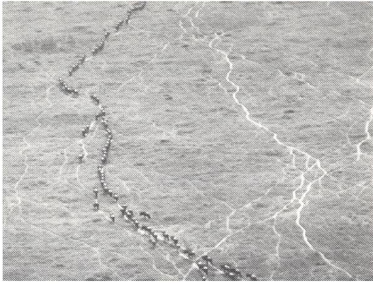


fig. 8 Migrating herd (photograph Georg Gerster);
Contour farming in Washington state
(photograph Alex Mac Lean)



fig. 9 Lower Lea Valley, satellite view

⁹ *Realization* is used here in the sense of “materialization”.

Machinic behaviour as source of indetermination

Following in the steps of a whole lineage of anti-humanist thinkers (Nietzsche, Foucault, Deleuze...) Melun-Sénart confronts urbanism with the “death of the author”. Questioning the virtuosity of the subject, it implicitly acknowledges that a single author can no longer embed sufficient amounts of meaning into an urban organization. The designer here becomes a *medium* or a *sieve*, an organizer, a separator, a distiller or simply a conductor of variabilities and processes larger and smaller than itself. Whereas in architecture actualization is generally prior to realization,⁹ in urbanism these processes are (potentially) simultaneous and indistinguishable. Responses that are not able to actualize themselves during the process of their realization (rather than being totally formally predetermined), would be condemned to banality.

Just like the patterns created by migrating herds or harvesting machines that can be enjoyed through the lense of the likes of Georg Gerster or Alex McLean (fig. 8), Koolhaas’ project for Melun-Sénart embodies a machinic behaviour. Controlled by more or less explicit rule systems, this type of behaviour tends to overcome the subject-object dualism that has permeated design theory since the critique of positivism and the appearance of psychoanalysis. Their most promising feature is their capacity to subvert causal determinism without contradicting causality: the generation of unpredictable responses at larger scales (and of those scales themselves), while maintaining control of local conditions. It is important to realize that those patterns result from a non-contradictory (consistent) relationship between efficiency and sensitivity. If one of the main criticisms towards modernism was that it tended to erase differences and pre-existencies, and if the main criticism of Post-modernism – including deconstruction as its terminal phase – was that it underrated architecture’s involvement with the productive system – except that that was not quite the case... – then one can begin to see that being able to negotiate these necessities would not be a minor achievement.

Lower Lea Valley

Besides acknowledging a set of aesthetic, political and philosophical coordinates, a theory of the contemporary metropolis must be able to identify the main set of desires that generate the urban realm. These are numerous, yet a few of them still (since modernism) lie at the core of what is considered as a desirable condition for inhabitation. The project that I submitted as a thesis at the AA in 2001 was based on the idea that such a condition requires the engineering of three basic parameters: visibility, connectivity, and density.

The project is a proposal of urban development for the Lower Lea Valley area, in east London. Roughly an 8 sqkm area that reaches into the Thames (fig. 9), the site is packed with abandoned factories, warehouses, depots, wastelands, scrap-yards, derelict sites, degraded nature, and infrastructure. But it is almost uninhabited. The site’s history is not too different from any other derelict industrial area in a big city. It was active as long as the port functioned and it died along with the port.

Contradiction

It was compelling to imagine that one could still experience the predominance of the horizon that is so fascinating and unique today, without renouncing to insert as much urban matter as it would take in order to completely reconfigure the place...

Operation 1: Urbanism for the feet

The first operation of the project pertains to providing physical accessibility to the site. This seems to be a very pragmatic and traditional issue of urban

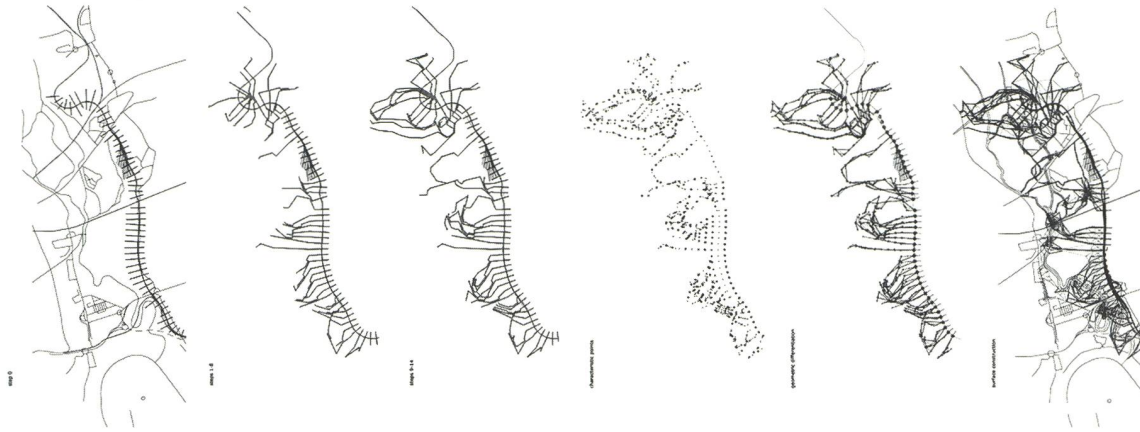


fig. 10 Lower Lea Valley, synthesis and proliferation of circulatory system

design. But the system we want to envisage is neither totally abstract and universal nor totally contingent on the site. The intention is to provide intense accessibility, by creating a series of generic, yet differentiated circulatory paths. These would be sensitive to the main topographic features of the site and would function as a new east-west system distributing the traffic that currently runs along the north-south backbone.

The first step of the process consists in reducing the material complexity of the site by abstracting only the information that is considered relevant for the project. The most important roads are represented, as well as the train tracks, patches of urban fabric, a few historic particles, the water system including the river Lea and the canals, and a few associated patches of grassland. Then, a system of rules is established in order to relate the circulatory patterns to the existing features of the site. The traditional processes of creating connections by either joining origin and destination points (French baroque and Hausmannian) or by deploying a regular undifferentiated grid was replaced here by a system of circulation whose geometry depends on a combination of rules of local efficiency and rules of global positioning. Introducing a first instance of evaluation, this method is then optimized and differentiated by adding new layers of minor connections that create shortcuts between major roads (fig. 10).

Operation 2: Urbanism for the eyes

After devising a method to create physical accessibility, the second ambition of the project is to provide a system of views for orientation and contemplation. In certain European cities, this issue has been dealt with by creating visual corridors along which it is forbidden to build beyond a given height. But this system is based on the criterion of privileging the visibility of monuments. Here, the decision was inverted. In an implicit recognition of the monumentality that the land, the rivers and the infrastructure have acquired today, the ground is lifted selectively so that circulation along streets will generate areas of wide and deep views over the site. Instead of having to look up for orientation, you have to look down and far. The criterion for lifting the ground is simple: increase the differences in speed and effort already generated by keeping the most direct trajectories flat, and make the most intricate paths even more difficult by sloping them up. Thus, it becomes possible to choose your own way through the site among a great number of possible trajectories. These range from very simple, straight, and “efficient” ones, to those that are meandering, hilly, and leisurely.

Although the resulting topography does not come from a strictly predetermined formal vision, it is still possible to guarantee a certain performance both locally and globally (fig. 11). Perhaps a series of precise evaluations would have been

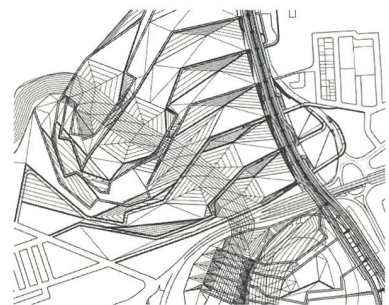


fig. 11 Topographic plans, showing effect of changing tides on the landscape

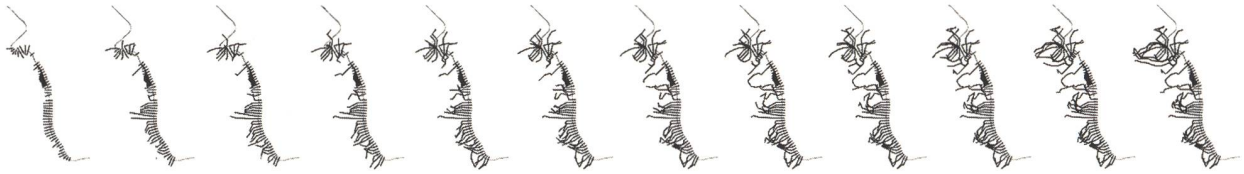


fig. 10 System growth sequence

necessary at this point, but these were postponed in order to investigate the potential consequences of this configuration relative to the third point of the research: the question of density.

Operation 3: Development systems

To generate density, urban life, services, interaction, in a word, complexity, architecture becomes a necessity. Development Systems is an expression coined as an alternative to the two major traditions that modernity has handed down to us regarding the organization of large amounts of architecture. The latest of these traditions – the “Urban Project” – was the ideology of quality through representation. Dismissing the issue of quantity as abstract and irrelevant, the notion of the Urban Project was developed since the 70’s as the panacea that would overcome the misgivings of masterplanning. In trying to impose rational control over the territory, masterplanning techniques had been the instrument of modernization; to separate and classify molar segmentarities – functions, typologies, urban components – was its main endeavor. But, as much as the schematism of masterplanning failed to deliver spatial quality, the notion of the Urban Project was not able to understand the quantitative, molecular basis of quality. That’s why we now face the disappointment of being more interested in the by-product of modernization – what Koolhaas calls *Junkspace* – than in its production proper. Development Systems, a way to instigate urbanity through density and coherence, also represent an attempt at going over the categoric distinctions between the public and the private – such as the ones still operating at Melun-Sénart. Also, they are not about the distribution of functions in space, but about the determination of relations of performance (“this will do that”) and their codification into abstract machines. Development Systems are meant to be generic, yet capable to deliver specificity by indexing the idea of a place as information.



fig. 12 Process of local subdivision of the land

The idea of development systems emerged in the process, though it was latent throughout its evolution. Now the task was to see how to insert “development” – in the crudest and most speculative sense of the word. The question of breaking down the site into smaller units of property was solved in three basic steps. Preserving the east-west bands as the organisational matrix of the project, narrower bands were generated through a simple setback from the circulatory paths. The buildable areas are always situated on the flat zones. Next, a smaller scale, transversal subdivision system is established, such that developers of different sizes can eventually participate in the process (fig. 12). Finally, the urban massing is controlled through the creation of virtual building envelopes. But, rather than making generic cubic envelopes, negotiable envelopes are able to adapt to local spatial conditions. Moreover, these envelopes are produced as a diagonal, rather than vertical, extrusion of the plot (fig. 13). In this way, building roofs are seamlessly incorporated into the ground, for public or private usage (fig. 14).

Proliferation of imbalances: programmatic or formal adjustments?

The project explicitly resists a programming of the city in the conventional way. Instead, it defines its program in terms of topography: flat areas, flood plains, sloping areas, hollow spaces, linear mounds, etc. Activities can accommodate themselves following the opportunities provided by the urban form. Because it is not possible to rely on fixed relationships between form and function, we can

only provide guidelines about how the virtual forms should adapt to diverse programmatic conditions, stating which variables should be fixed, which ones should not, and what should their ranges of variation be.

As mentioned before, the problem here is not to determine the distribution of programmatic components, but to test the actual resilience of the formal system envisaged as it faces different kinds of constraints. Such endeavour is daunting; it requires a processing power that only a large team can generate. The last part of the project for the Lea Valley tries to provide certain guidelines as to the ways in which that kind of research could be conducted.

The proposed methodology is based on an iterative loop. In the general case, architectural matter is first quantified in terms of relevant parameters (square and cubic footage, building depth, distance to infrastructural backbones, etc.). The comparison between those results and the corresponding *thresholds of fitness* for each parameter, reveals redundancies and deficiencies, which then become opportunities for either the determination of programs, or for the further adjustment of form through negotiation of interrelated parameters or ratios (a traditional case being the trade-off between ground occupancy and increase in height). As an example, a study was made concerning the relationship between infrastructural investments required (measured by its linear development) and pay-off through built sqm. Certain zones fall below the acceptable threshold and would therefore have to be programmed specifically with high turn-over investment activities, or else be allowed to increase their surface area. The project could then accept conventional typologies, such as the tower block, or semi-detached building types. In the end, parts of it would end up looking quite conventional, and perhaps that should be considered a great achievement...(fig. 15)

Round-up

Perhaps the most optimistic assumption underlying the set of arguments presented so far is the idea that a city can evolve and crystallize into many different forms without necessarily losing its integrity as a project. To this end, urbanism and landscape architecture alike, have historically relied on the idea of composition as the means to impose an overarching, top-down organization on the urban project. This seems to be an inescapable tendency of complex systems: that they tend to evolve levels of control that are able to overwhelm their immanent determinations.

The mechanisms that I have attempted to develop, try to imagine the possibility of establishing a positive feedback loop between bottom-up and top-down forms of organisation. A landscape, in short, which is *molecular*, as it operates by proliferating qualitative quanta, rather than emerging from *molarities* such as typology, class or function.¹⁰ Yet, at the same time, a landscape that does not resist the imposition of certain orders from above, because it knows that whatever comes from above has to have deep, deep roots in the process of self-organization – although we may never be able to know exactly where to find them.

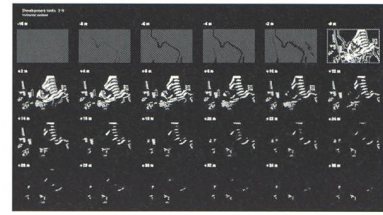


fig. 13 Sequence of plans and development units

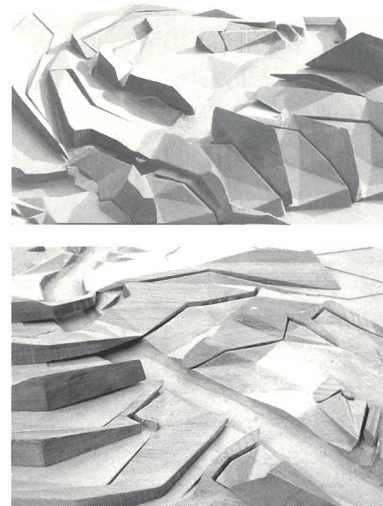


fig. 14 Model photographs

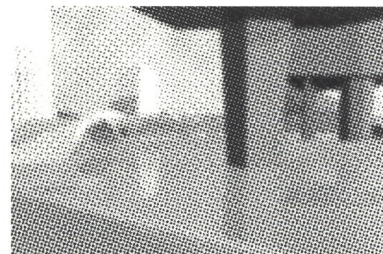


fig. 15

¹⁰ Molar and Molecular are used in this paper in the sense given to these terms by Gilles Deleuze and Félix Guattari in *A Thousand Plateaus*. See especially the ninth chapter, 1933: *Micropolitics and Segmentarity*.