

DISSIPATIVE URBAN SPACE

by

CHRISTIS LOIZIDES


Diploma of Architecture
National Technical University
Athens, Greece
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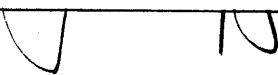
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Department of Architecture
May 15, 1985

Certified by  _____ Julian Beinart
Professor of Architecture
Thesis Supervisor

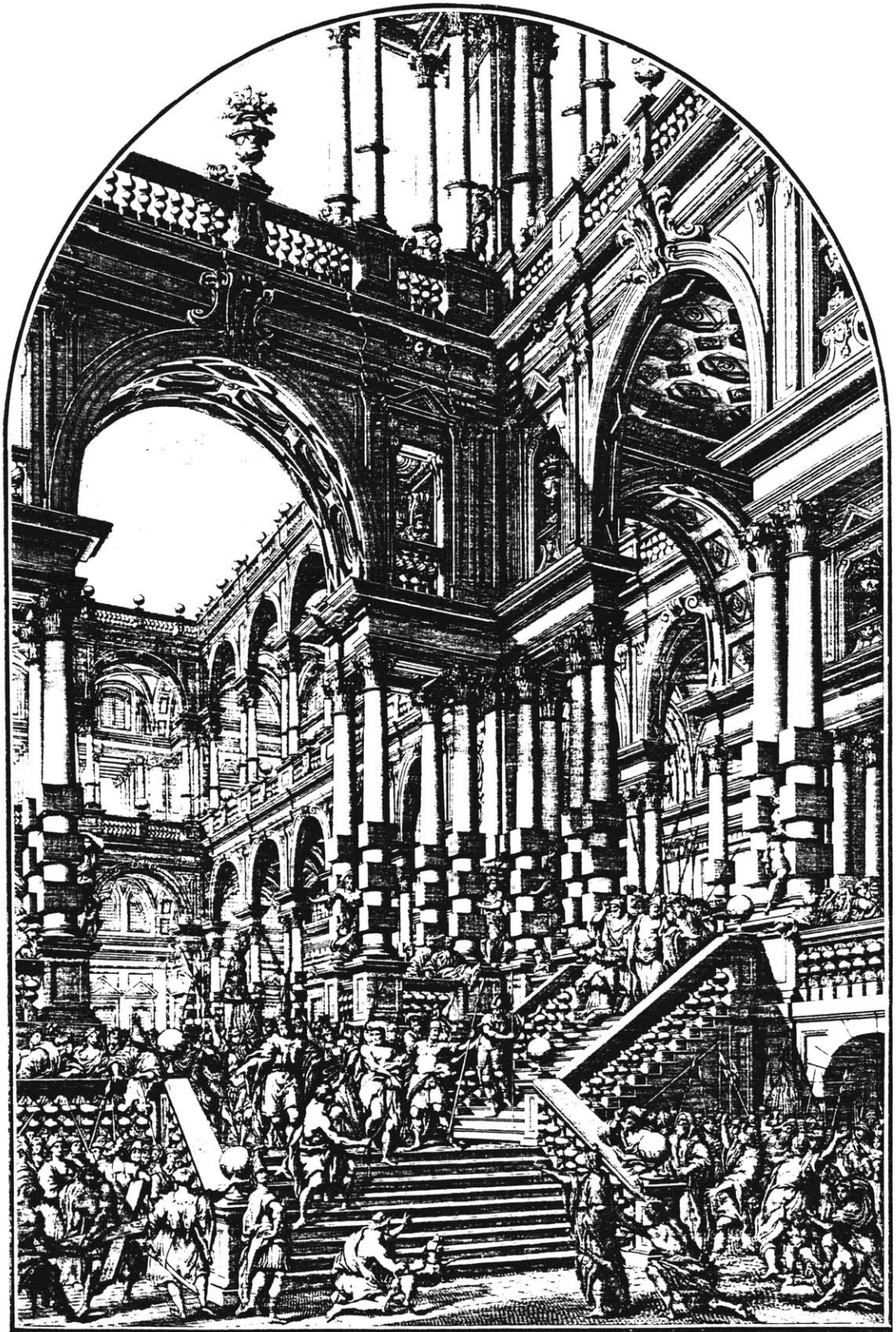
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DISSIPATIVE URBAN SPACE

by
Christis Loizides

*Submitted to the Department of Architecture on May 15, 1985
in partial fulfilment of the requirements for the Degree of
Master of Science in Architecture Studies.*

ABSTRACT

Our life evolves as an interaction between predictable and unpredictable patterns. Variations and impediments stimulate our *free*, non-mechanical impulses towards *unpredictable* patterns.

At the macroscopic level, history can be seen through an ever-repeating cycle moving from a cumulative trend towards order, to a decaying process. Through a similar viewing lens, the past trends that regulated the physical context have been moving from concentrated and dogmatic ideologies, to dispersed and spontaneous ones. Since the 18th century, the Machine Age is geared towards the perfection of the machine. Within this frame of development it took no more than 200 years for the trend of "machine perfection" to be explicitly applied, at the microscopic level, upon the urban environment.

At the urban scale of design, the internationally accepted manifestations of the Chart of Athens have been projecting dogmatic patterns of development: The "ideal" definitions of uses and "orderliness", inside and outside the built shells, have brought about the problem of segregating the liveliness of the city. Such regulating orders have negated the particularities of the public spaces; the spaces where the mixture of both intended and unintended patterns of activities, and regulated and unregulated forms, acclaimed *publicness* through time.

The physical structure of *all* urbanizations is the result of the antagonistic interaction between concentrated totalities on the one hand, and dispersive partialities on the other. The first process is the product of the aforementioned deterministic development while the second one is the more unpredictable, evolutionary development that follows. My goal is to bring *both* processes into equal consideration when taking on the role of shaping a micro-scale, public space.

It seems that the recent acknowledgements of qualities in the "street", the "square", the "19th-century fabric", are weak in challenging the negative aspects of the International style. They still do not escape from generating guiding and deterministic environments. *Dissipative urban space* aims at a rewardingly rich public experience by embodying, yet not determining, both regulated and "unregulated" physical patterns.

Thesis Supervisor: Julian Beinart, Professor of Architecture

To my parents

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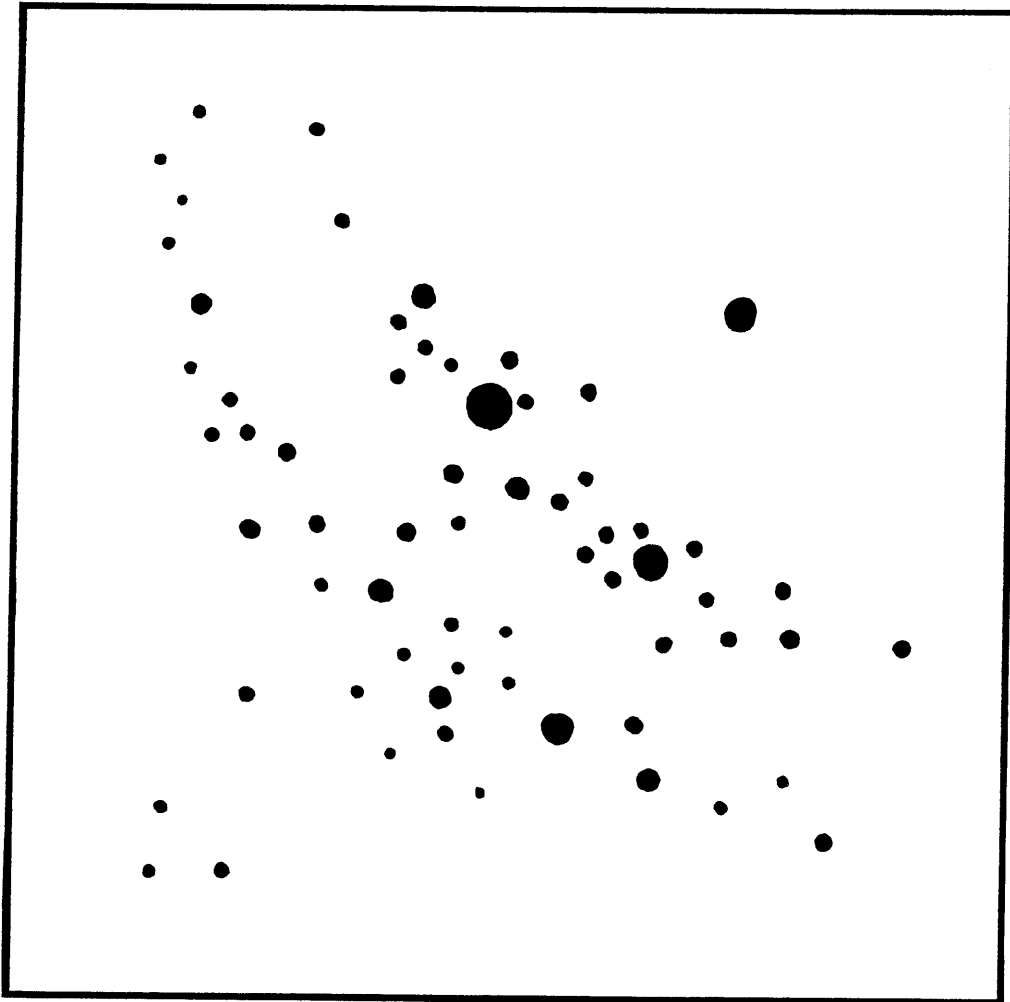
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FOREWORD



W. Kandinsky
Dissolution in Progress

Part one

CHAPTER A

IN SEARCH OF A PUBLIC SPACE

You live in a city.

Every now and then you are attracted by a downtown spot either to consume information and goods or simply to consume variety and "publicness". Except for some occasional breaks from a lively experience, you do not expect to relax and meditate; if you are after seclusion then you better head for the closest garden or wasteland. What you are heading for, is really an arena of vivacity and dense stimulations.

.....You are right there. You might have wanted to preestablish conceptual lines of movement but in fact, every split second awaits with unexpected contributors to your course: The built frontage has an ending whose anarchic appeal reminds you of the whole city's skyline - hence, that playful interchange of light and shadow under your feet. Occasionally, while you slow down or speed up, some buildings protrude and some recede along the frontage. The frontage itself winds and turns mildly and, at times, breaks or disappears; in progress, the vista is slightly changing while it is occasionally blocked or opened up. The colourful shop windows are subject to the zone of the ground floor but few of them claim the upper levels; their disrupted sequence is almost a metaphor of the overall frontage's broken progress. Along the facades, the materials and design motifs range in intensity from rich in articulation and complex in decay, to singular and abstracted in simplicity. Yet, from within this diversity you can extract a touch of homogeneity: The subtle visual intensities are consistent with the "anarchic" configurations of the major orders. When

you walk, you feel the pressure of convexities on the groundscape while you take for granted some anomalies or stains on the ground material.

The crowd tends to be aligned with the diverse course of the frontage; at times, the flow is broken. You might find yourself forming a circle with others around an information post or a kiosk; you might stop for a moment at an unexpected opening and lean on a blind wall; you might sit on a chair at the edge of a protruding platform and hinder the flow of the by-passers.

.....While moving away from your downtown spot, the crowd concentrations start dissolving and so do the striking contrasts: The shop windows are progressively scattered and their intensities are transformed from continual light rays to mere flashes; the colours are gradually neutralized; the breaks and directional shifts of the built walls are less frequent. You are most probably following the same route that guided you back to the "centre" or the same route that will take you there tomorrow; through this course, you will be facing the same things. However, in the centre itself, tomorrow's spatial experience will be different from the one of today.

In our most habitual surroundings, in the environments where we reside and work, we are daily experiencing space with the *same* familiarity and intensity. In such environments we easily claim "possession" and identification for two distinct reasons: The first deals with the singular function of the space; in our "possessed" setting, we are confronted with identical and homogenous patterns of activities and, moreover, we *anticipate* this singular character of uses. The second deals with the coherent character of the built surroundings; again, because of the singularity in the use patterns, we are confronted with simplistic and homogenous structural orders and we can easily define the overall unity which contains our own shell.

In an ideally "energetic" public environment, all notions of *variety, liveliness, publicness and information interchanges* are associated with an image which is not as "total" and easily readable as our "privatized" domain. The visual stimulants vary in intensity and context from the prominent presence of the built frontages, to the individual free-standing objects of amenities, to contrasting

touches on surfaces. The clashing arrangements of these elements do not presuppose a comprehensive or cohesive reading. The moving eye reads them as unexpected breaks from continuities, but in the end, the eye records these clashes and registers them as associations with our "public repertoire". Furthermore, every new visit to the same environment will result in remodifying the visual repertoire with a fresh stimulation; we cannot register the multitude of unconventional settings at once.

Added to our appreciation of the clashes in the built context, comes our confrontation with the variety of activities. The patterns of movement and use are freed from the predetermined schemes in our more habitual spaces. We walk along and stroll around, and we get in and out of places not only after preset goals but also after momentary stimulations. Overall, we do not "zoom" in and out of the area in a programmable and deterministic fashion.

In the above terms, the difference between an "ideal" public domain and our private one lies in the degree of predictability in interacting with the environment. In the public space we are really confronted with *both* predictable and unpredictable schemes of variety; the combination of both constitutes on the one hand the public vivacity and, on the other hand, the freedom from our stereotypical and "privatized" preconceptions of our more intimate surroundings - hence, that ever-emerging fresh intensity with which we invade the public domain.

The object of this exploration is to look at the space which is left out of the built "containers" or, the exterior space that is claimed and "influenced" by the physical context. Such spaces are mostly usable in public areas of concentrated activities or in downtown information centres. In such environments it is important to appreciate the communication or even the clashing juxtaposition of all ranges of visual intensities.

Today, we are mostly content with the liveliness of old environments which have evolved through a series of superimposed interventions. Within this juxtaposition of different orders, the accumulation of clashes resembles the intriguing orders of nature: In his free will, the user or spectator perceives *alternative* fragments of orders. Such a property can invest a public space with a welcoming spirit of freedom yet, it is not encompassed in the ideological goals of the current design

concepts. As we will in the following chapters, for more than fifty years the public space is produced with the cohesion, clarity, order and totality of our privatized domains. Even though today planning is recognizing the advantages of the mixture of uses in downtown areas, nothing has been done to conceptualize the intricate spatial orders of a public environment.



Dialogues

BETWEEN ORDER AND CHAOS

Ilya Prigogine and Isabelle Stengers¹

Our scientific heritage includes two basic questions to which till now no answer was provided. One is the relation between disorder and order. The famous law of increase of entropy describes the world as evolving from order to disorder; still, biological or social evolution shows us the complex emerging from the simple. How is this possible? How can structure arise from disorder? Great progress has been realized in this question. We know now that nonequilibrium, the flow of matter and energy, may be a source of order.

*.....We now know that far from equilibrium, new types of structures may originate spontaneously. In far-from-equilibrium conditions we may have transformation from disorder, from thermal chaos, into order. New dynamic states of matter may originate, states that reflect the interaction of a given system with its surroundings. We have called these new structures **DISSIPATIVE STRUCTURES** to emphasize the constructive role of dissipative processes in their formation.*

*.....If we leave the Carnot cycle and consider other thermodynamic systems, the distinction between entropy flow and entropy production can still be made. For an isolated system that has no exchanges with its environment, the entropy flow is, by definition, zero.....Here, then, it is no longer a question of irreversible transformations considered as approximations of reversible transformations; increasing entropy corresponds to the **SPONTANEOUS EVOLUTION** of the system. Entropy thus becomes an "indicator of evolution", or an "arrow of time", as Eddington aptly called it. For all isolated systems, the future is the direction of increasing entropy.*

.....Once we associate entropy with a dynamic system, we come back to Boltzmann's conception: the probability will be maximum at equilibrium. The units we use to describe thermodynamic evolution will therefore behave in a chaotic way at equilibrium. In contrast, in near-equilibrium conditions correlations and coherence will appear.....We come to one of our main conclusions: at all levels, be it the level of macroscopic physics, the level of fluctuations, or the microscopic level, nonequilibrium is the source of order. Nonequilibrium brings "order out of chaos".

¹ I. Prigogine and I. Stengers, *Order out of Chaos* (New York: Bantam Books, 1984), pp. xxix, 12, 119, 286, 310.

.....Let us notice that initial conditions, as summarized in a state of the system, are associated with Being; in contrast, the laws involving temporal changes are associated with Becoming. In our view, Being and Becoming are not to be opposed one to the other: they express two related aspects of reality.

Rudolf Arnheim¹

.....Either the need for simplicity will no longer be counterbalanced by complex experience and invention. Released from these constraints, it will yield all the more strongly to the pleasure of tension reduction and content itself with a minimal structure at a low level of order. In the extreme, it will reach the emptiness of homogeneity. Or, in the other case, organized structure will simply succumb to disintegration, either by corrosion and friction or by the mere incapacity to hold together.

Jean Arp²

.....About 1930 the pictures torn by hand from paper came into being. Human work now seemed to me even less than piece-work. It seemed to me removed from life. Everything is approximate, less than approximate, for when more closely and sharply examined, the most perfect picture is a warty, threadbare approximation, a dry porridge, a dismal mooncrater landscape. Why struggle for precision, purity when they can never be attained. The decay that begins immediately on completion of the work was now welcome to me. Dirty man with his dirty fingers points and daubs at a nuance in the picture. This spot is henceforth marked by sweat and grease. He breaks into wild enthusiasm and sprays the picture with spittle. A delicate paper collage of watercolor is lost. Dust and insects are also efficient in destruction. The light fades the colors. Sun and heat make blisters, disintegrate the paper, crack the paint. The dampness creates mould. The work falls apart, dies. The dying of a picture no longer brought me to despair. I had made my pact with its passing, with its death, and now it was part of the picture for me. But death grew and ate up the picture and life. This dissolution must have been followed by the negation of all action. Form had become unform, the Finite the Infinite, the Individual the Whole.

¹ R. Arnheim, *Entropy and Art: An Essay on Disorder and Order* (Berkeley: University of California Press, 1971), pp. 52, 53.

² J. Arp, *On My Way. Poems and Essays 1912-1947* (New York: Wittenborn, Schultz, 1948).

Ernst Hans Gombrich¹

MAN-MADE ORDERS:Do we not increasingly feel the contrast between the modern human habitation, with its grid of streets and its matchbox buildings, and the surrounding countryside? But has this contrast anything to do with the topic of this book, which is decoration? Is not the preference for straight lines and regular shapes a matter of convenience rather than creativity? No doubt it is, but I also believe that the contrast between rationality and creativity is ultimately unsound. We shall see that it was Ruskin who bequeathed to us this opposition between the untamed exuberance of life and the dead perfection of engineering. His hostility to the machine certainly alerted him to a vital problem which no student of ornament can disregard, but I believe it also blinded him to the kinship between rational and organic orders. Once we realize what advantages rational man derives from the application of simplicity principle, from his preference for straight lines and standardized geometrical shapes, we may be better placed to study the emergence of analogous behaviour along the whole evolutionary scale. We are no longer afraid in such matters to use teleological arguments and to ask why our mental make-up favours simplicity both in perception and in making. If these tendencies did not have a strong survival value they would not have come to form part of our organic heritage.

Rudolf Arnheim²

ORDER AND DISORDER:Order is possible at any level of complexity in statues as simple as those on Easter Island or as intricate as those by Bernini, in a farmhouse and in a Borromini church. But if there is no order, there is no way of telling what the work is trying to say.

.....I therefore define disorder as "a clash of uncoordinated orders".

I want to emphasize once more that the lack of relation between adjoining orders does not necessarily create a disorderly clash. Clash presupposes relation, and disorder comes about when relation is suggested but not provided. We find disorder in the visual appearance of a city street, not because no relation is discoverable between the various components, but because such a relation is called for by the street's coherent parallelism. The best possible way of ordering the elements of an atomized society might be one involving no discernible relations, a world in which each individual unit were visible on its own..... Such atomization may not be the desirable way for individuals, families, populations, and peoples to live together. But that is preeminently a social problem.

¹ E.H. Gombrich, *The Sense of Order: A Study in the Psychology of Decorative Art* (Ithaca, New York: Cornell University Press, 1984), p. 7.

² R. Arnheim, *The Dynamics of Architectural Form* (Berkeley: University of California Press, 1977), pp. 162, 171, 204.



CHAPTER B

LEXICON: THE FATE OF MEROS

**

In dealing with the intricacy of the physical orders in urban spaces, it has been essential to integrate a systematic qualitative-quantitative vocabulary into the text. The terms are grounded on pure scientific bases and, as such, have an accurate validity of measurement in their explicit use. However, in shifting terminologies from pure science to the area of concern, the intention is the *comparative* use of this vocabulary: the terms will be the ground for comparing the properties of physical entities.

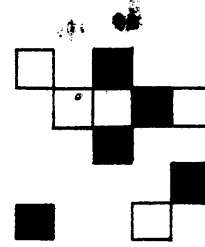
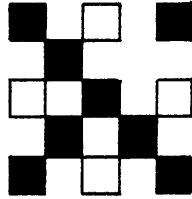
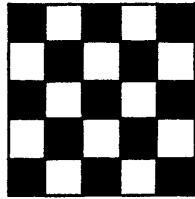
The major concept of *dissipative space* is based on Ilya Prigogine's term of *dissipative structure*.¹ Prigogine has characterized as dissipative those physical and chemical structures that, from a state close to thermal chaos, emerge as organizations of a higher level of order: In the scientist's terms all subsystems within a system are continuously fluctuating until, at a certain moment, they shatter the preexisting organization. At this critical moment, the system will either disintegrate into "chaos" or leap to a higher level of order which is called a "dissipative structure". The term emphasizes the constructive role of *dissipative processes* in the formation of these organizations. It also indicates that the new structures require more energy to be sustained than the simpler structures that they replace.

In the urban form, the metaphorical use of the terminology will enhance the communication between elements that are considered prominent or important, and subtle elements that are usually regarded as redundant.

¹ I. Prigogine and I. Stengers, *Order out of Chaos* (New York: Bantam Books, 1984), p. 12 and passim.

HIGHER ENERGY

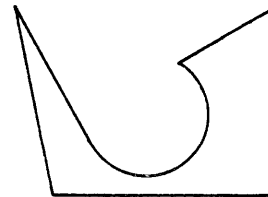
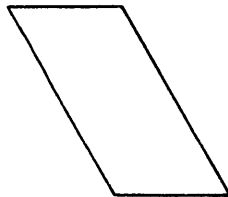
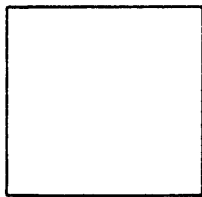
LOWER ENERGY



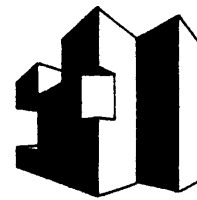
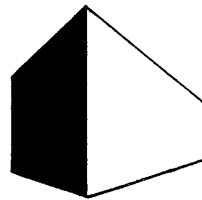
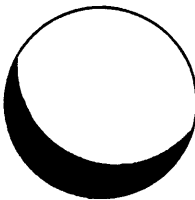
Orderliness



Scale



Regularity



Compactness

Energy Levels of Physical Forms

Terminology

The following terms will establish the relation between the examined object and the theoretical base throughout the text:

- The *ENERGY LEVEL* is associated with the intensity of physical presence. The more visually prominent the built object, the more energy it encompasses or the higher its status of energy. The visual intensity is proportional to the orderliness, scale, regularity and compactness of physical elements.

Orderliness: A setting or configuration is more orderly when it is more unlikely to occur by chance. A configuration is characterized by a lower level of order at a more random distribution – symmetrical settings are more orderly or at a higher level of energy than non-symmetrical ones; straight linearity is more orderly than broken linearity; a stable frequency in a setting of objects or patterns is more orderly than an unstable one.

Scale: The size of an element is proportional to its status of energy. The energy level increases with the size, as long as the object or surface is visually readable.

Regularity: The canonic volumes or shapes, the ones whose edges have equal length and meet at the same angles, have a higher status of energy than non-canonic ones. The term will be mostly used for patterns that *tend* to be canonic.

Compactness: The more compact the object – the higher the ratio of volume/surface – the higher its level of energy; a sphere is more intense than a parallelepiped of the same volume. Similarly, for two-dimensional patterns the visual intensity is proportional to the ratio of surface/perimeter; a circle has a higher energy status than a rectangle of the same area.

- The *FLOW OF ENERGY* or *TENSION* reflects the visual stimulation due to a difference of energy levels between different objects. The larger the difference between the energy levels of two objects, the higher the energy flow or tension.
- *DISSIPATION* is the process of reducing the flow of energy or tension.

- The *EQUILIBRIUM STATE* of urban space is the state where there is *no* tension between the built entities. This situation can be paralleled to a chaotic state.

- The *DISSIPATIVE STATE* of urban space is the state when the tension is minimized to the degree where the space acquires full vivacity. Such a state is *near* an equilibrium state

The last two terms will be outlined more explicitly as we move on towards the next chapter.

Urban Space

Before looking at how a dissipative process can work constructively in a public space, let us reflect for a while on how we make our home interiors work for us.

We all think of an underlying interior order where furniture and amenities are meant to be found in specific places. However, any type of home activity requires that the underlying order of things be disrupted – furniture pieces are removed and horizontal surfaces start getting loaded. If we take as an example a writing activity, it happens that sometimes the chaotic distribution of desk objects reaches a state when the writing process cannot advance. At this state, we have to reestablish a higher order of object distribution if we want to continue with the work.

If equilibrium is the state when the working tools establish the most unpredictable relations between them, then such a state represents the "blocking" moment; it is the moment before reordering activities occur. In which state, though, is the disruption of the initial order in harmony with the writing activity? Such a state is *near* the equilibrium; it is the phase when the clashing arrangement of objects fulfils the needs of the writing process.

It should be noted that at this level of reality, the conception of the degree of disruption (equilibrium state) varies from person to person. For one, the sole presence of ash in an ashtray can signal the "dead-end" of all activities and the reestablishment of an order. For another, it will not be before all the

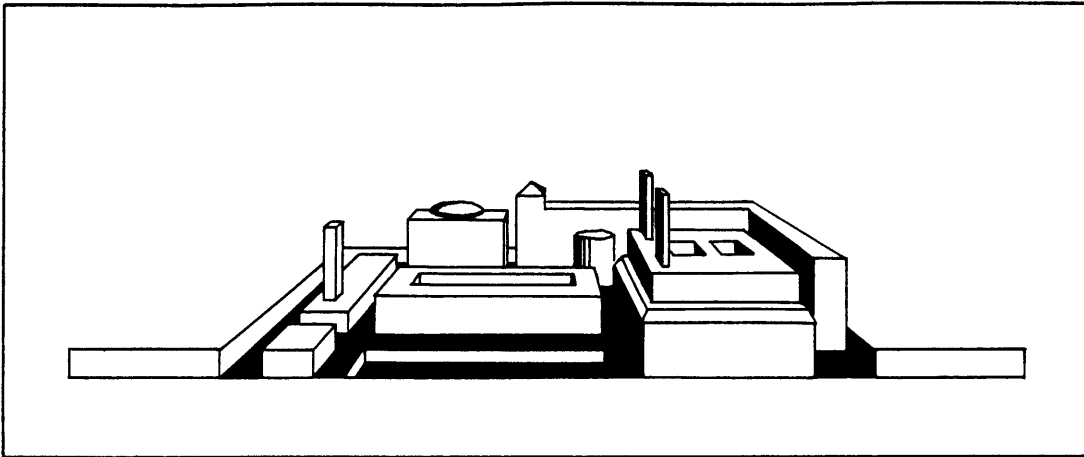
horizontal surfaces are stuffed with the most improbable order of things, when the reversible process of disruption or "dissipation" begins.

Moving to large-scale phenomena, the dissipative process becomes long-term and irreversible, while the status of equilibrium is a manifestation of consensus. In a simplified analogy, on the scale of public spaces, the role of home objects is taken by buildings and public amenities while homework is replaced by activities that are responsible enough for the environmental liveliness. The following story will demonstrate how the concept of dissipation acts on the urban fabric.

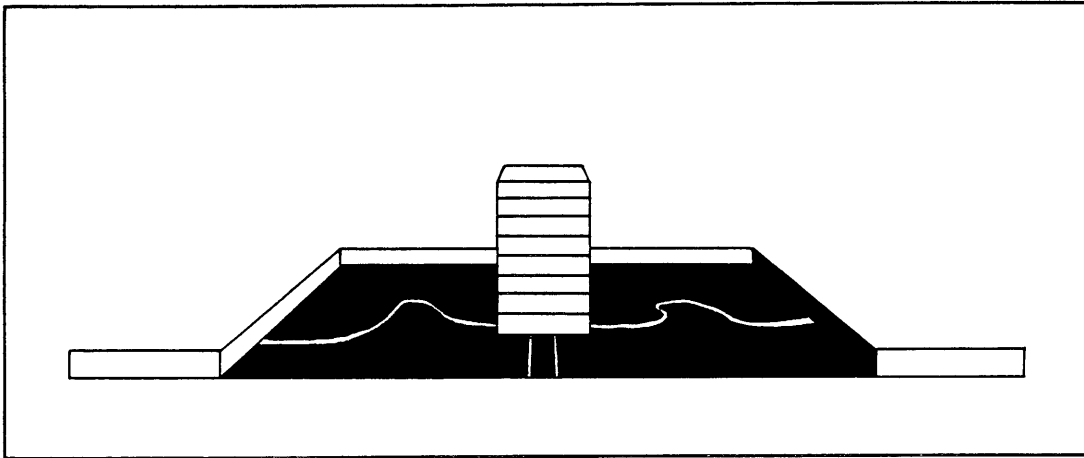
The *MEROS* has been conceived as a public place in a downtown area, where the market is backed by a free economic system. In order for the Meros project to be realized, important demolition work has to take place on the site. The "chaotic" preexisting network with the numerous "clashing" orders of uses and buildings have reached an *overloaded* scheme; the *PROMEROS* has been gradually abandoned in favour of other, up-growing areas and the site has been left to a fate of decay.

By reacting negatively, to the low level of order in the Promeros, and positively to the profitability of "package" design, the Meros has been designed at a high level of order and concentration: A compact and simplistic structure is built at a prominent part of the site. The building is zoned in horizontal strips, each distinctly representing a different activity - parking for the underground strips, and office, commercial and recreational uses for the rest. The vacant area is physically treated with the least possible amount of intervention but at the same time, it claims to be a recreational "open" space.

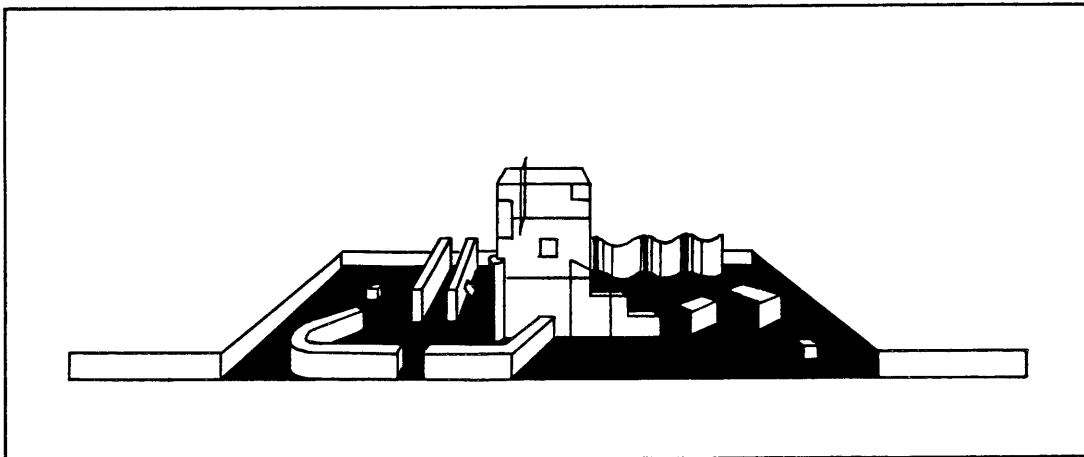
The Meros cannot retain its orderly pattern for long: Soon, the various activities start changing in scale, from shrinking to expanding. The strip division is disrupted while both the need for the expansion of activities and the need to revitalize the claimed, public space, encourage the allocation of variances to the zoning and building codes of the city. As a result, different orders emerge from the building or from the site itself, each manifesting an orderly configuration that is less prominent than the one of Meros. The clashes of the new orders and the antagonistic spirit of expansion bring out new configurations, and so on. The *total* order that was reinforced initially, is gradually challenged by a *range in partial orders*. The Meros is eventually transformed into the *METAMEROS*.



Promeros



Meros



Metameros

Yet, within this improbable state of things, the Metameros offers itself as a *public* space more than the Meros does. The activities and their interchanges are stimulated all over the site – the activities of the Meros were dynamically attracted by the sole structure and thus resulted in leaving the vacant space lifeless. Nevertheless, the initial structure of Meros is still the "underlying order" and the generating force of evolution in the Metameros.

The dissipative, evolutionary process works in favour of reducing and spreading the tensions: In the Meros, the tension between the structure and the surrounding area is maximized. The arrow of time – from the Meros to the Metameros – points at a redistribution of energy levels so that the tensions are gradually reduced. If the process continues and further dissipation occurs, then we might reach the chaotic appeal of an equilibrium state. The situation at this state would be not much different from the one of Promeros or the situation in our homes, just before "reordering" activities are needed.

For the sake of clarity in the terminology, the story has been isolated from the stories of the surrounding territories. If the proximity of other areas is taken into account, then, in fact, the dissipative process is further encouraged through the tension between the site and its neighbours.

The Metameros represents a *dissipative urban space*. As in the case of the individual home, this situation reflects a state *near* the chaotic one. It is a state where the tension is reduced to a sufficient level so that the human interface in-between the physical objects attains the maximum usage of the space. As it will be pointed out in the second part, the dissipative public spaces are the ones where the users best manifest the spatial liveliness: they are the ones that are carefully looked after so that their life is prolonged.

Dialogues

CITY CLASHES

Robert Venturi, Denise Scott Brown and Steven Izenour¹

.....Henry Bergson called disorder an order we cannot see. The emerging order of the Strip is a complex order. It is not the easy, rigid order of the urban renewal project or the fashionable "total design" of the megastructure. It is, on the contrary, a manifestation of an opposite direction in architecture history.....But the order of the Strip includes; it includes at all levels, from the mixture of seemingly incogruous land uses to the mixture of seemingly incongruous advertising media plus a system of neo-Organic or neo-Wrightian restaurant motifs in Walnut Formica. It is not an order dominated by the expert and made easy for the eye. The moving eye in the moving body must work to pick out and interpret a variety of changing, juxtaposed orders, like the shifting configurations of a Victor Vasarely painting. It is the unity that "maintains, but only just maintains, a control over the clashing elements which compose it. Chaos is very near; its nearness, but its avoidance, gives force" (A. Heckscher).

Ernst Hans Gombrich²

RESTLESSNESS AND REPOSE:Objectively speaking, it is not the breaks which attract the eye but the eye which seeks the breaksWe behave as if we could regard continuities as relatively "redundant" while breaks will yield the information we seek.

Robert Venturi³

.....In the validly complex building or cityscape, the eye does not want to be too easily or too quickly satisfied in its search for unity within a whole.

¹ R. Venturi et al, *Learning from Las Vegas* (Cambridge: MIT Press, 1977), pp. 52, 53.

² E.H. Gombrich, *The Sense of Order: A Study in the Psychology of Decorative Art* (Ithaca, New York: Cornell University Press, 1984), pp. 121, 122.

³ R. Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art, 1977), p. 104.

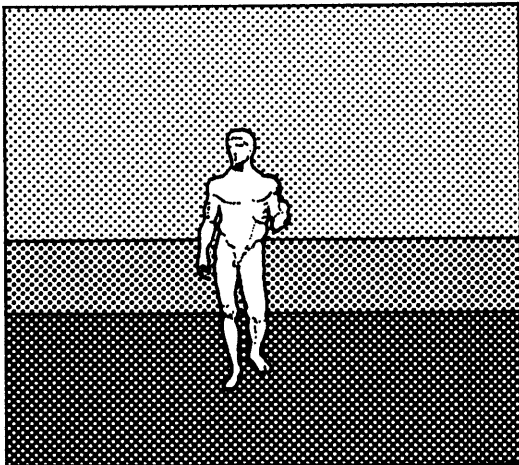
Jane Jacobs¹

VISUAL ORDER: ITS LIMITATIONS AND POSSIBILITIESIt is fruitless, however, to search for some dramatic key element or kingpin which, if made clear, will clarify all. No single element in a city is, in truth, the kingpin or the key. The mixture itself is kingpin, and its mutual support is the order.

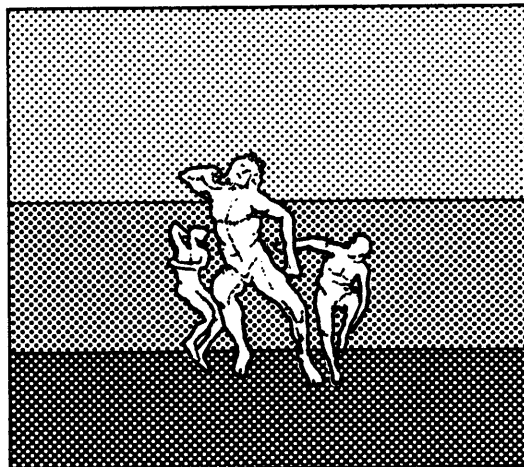
When city designers and planners try to find a design device that will express, in clear and easy fashion, the "skeleton" of city structure (expressways and promenades are current favorites for this purpose), they are on fundamentally the wrong track. A city is not put together like a mammal or a steel frame building - or even like a honeycomb or a coral. A city's very structure consists of mixture of uses, and we get closest to its structural secrets when we deal with the conditions that generate diversity.

.....The city's intricate order - a manifestation of the freedom of countless numbers of people to make and carry out countless plans - is in many ways a great wonder. We ought not to be reluctant to make this living collection of interdependent uses, this freedom, this life, more understandable for what it is, not so unaware that we do not know what it is.

¹ J. Jacobs, *The Death and Life of Great American Cities* (New York: Vintage Books, 1961), pp. 376, 391.



Classical



Hellenistic

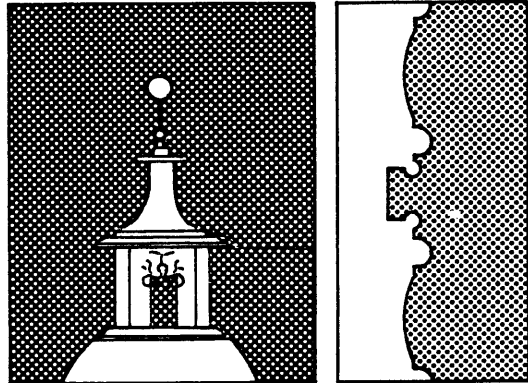
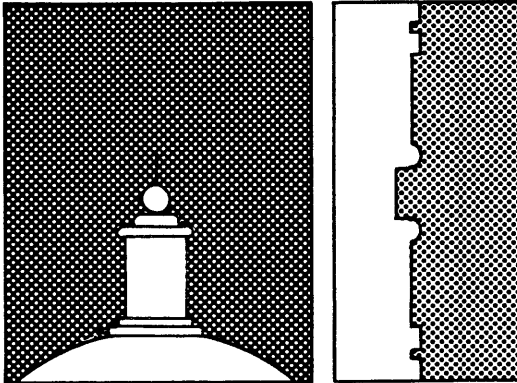
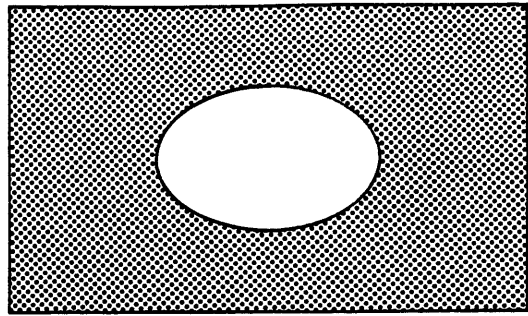
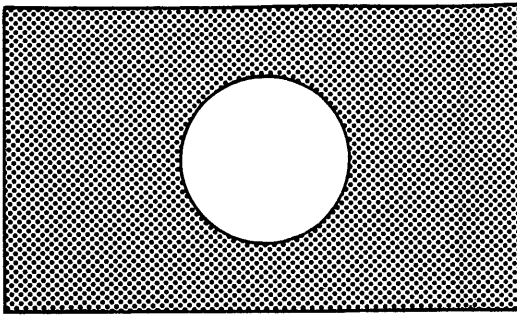
*CHAPTER C***PAST TO PRESENT: METAMEROS IS NOW**

In the previous chapter we have seen how a dissipative process works on transforming a public space. There has been, however, no definition over epoch and time in the story. A brief outline of evolutionary design concepts of the past will indicate how the dissipative spirit keeps reemerging as a response to "Meros" configurations. The following presentation of trends does not represent an attempt to comment on the history of design; the examples are selected so that their juxtaposed relations can be paralleled to the Meros–Metameros scheme.

Classical to Hellenistic

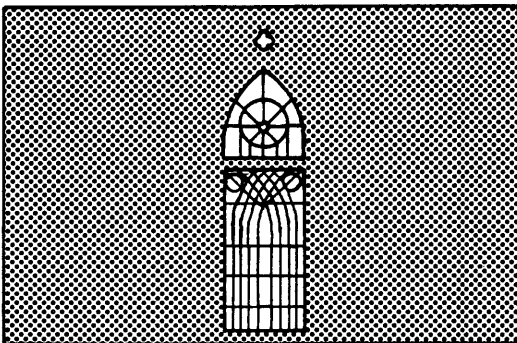
In the Classical Greek Era, statues came to represent complementary architectural elements to public spaces. The spirit of enlightenment, prosperity and harmony, all reflected in the classical norms of design, brought about proportional characteristics to the statues: The trend had been to incorporate ideal figure proportions, mild gestures and absolute dominance of light over shadow. While retaining the ideal proportions of the Classical building and space, the Hellenistic period produces statues of acquired movement and drama with a balancing effect between light and shadow. The property of Classical autonomy is further challenged to the degree where the Hellenistic statues are either in groups or in stronger compositional relations to other built elements.

The static and autonomous appeal of the Classical statue in space, generates an intensive energy flow between the figure and the ground. The complex and kinetic Hellenistic articulation, disperses the tension unequally, to the ground, to the buildings, to other statues: Moving from the Classical period to the Hellenistic, the energy flow is reduced.

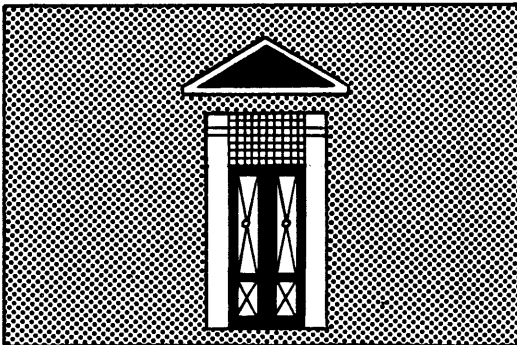
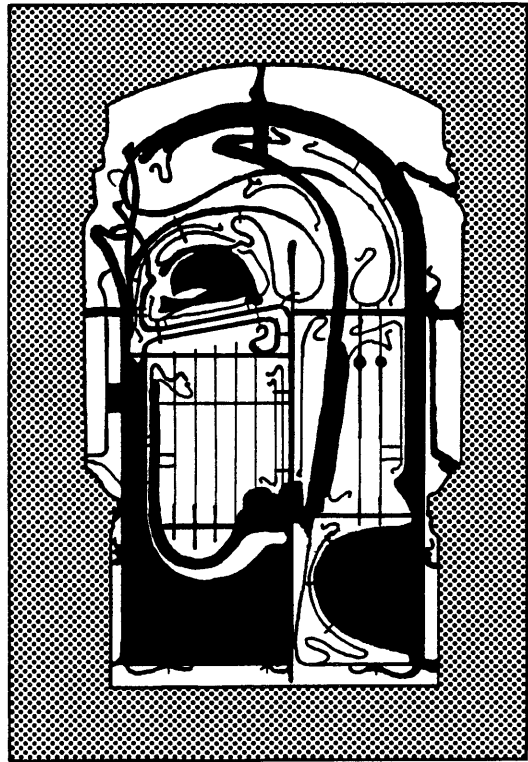


Renaissance

Baroque



Romanticism



Neoclassicism

Art Nouveau

Renaissance to Baroque

The public space of the Renaissance is seen as a manifestation of pure, static geometry. The structural order of spaces incorporates circles, squares and perpendicular axes in the plan. Within the same "classical" spirit, the elevations encompass highly ordered configurations of zones and canonic structural elements. Users are urged to stay rather than go, fix their vision rather than have it wonder, slow down rather than speed up and overall, claim stability rather than suspense. Baroque spaces manifest *a/so* the opposite notions. Static geometry becomes kinetic and individual parts loose part of their purity and perceptual autonomy for the sake of the whole. In the same way the hellenistic statues affect their direct environment, the built entities of the Baroque reduce the tension in the related space: The energy flow is dispersed to a smaller degree and in a less orderly fashion than in the Renaissance space – the tension of the individual parts reduces the energy level of the whole.

Neoclassicism-Romanticism to Art Nouveau

Like the Renaissance, the almost concurrent movements of Neoclassicism and Romanticism came to be revivalistic movements that tried to reestablish the ideal norms of past, "enlightened" periods. The organic anxiety of Art Nouveau did not complement the two trends but rather reacted to them.

The Hellenistic period retained the Classical proportions in buildings and figures while the Baroque kept the axial symmetries and revivalistic spirit of the Renaissance. Unlike the dissipative trends in the previous examples, the Art Nouveau trend has emerged as a free style, not based on any of the predecessor's dogmas. Both Neoclassicism and Romanticism have been the last comprehensive movements – if we disregard some contemporary phenomena – to be dependent on configurations of the past. Art Nouveau came to "stain" these movements in an unprecedented way: The free style's curvilinear obsession has brought forward one of the most dissipative trends on built surfaces in history. Baroque's Rococo decoration was still dominated overall by the presence of symmetry. Art Nouveau's curves have escaped from all the conventional geometric rules nearly to match nature in articulation. The curves act like

channels through which buildings and surfaces are dismissing their energy randomly, into the surrounding space.

Meros to Metameros

The previous juxtapositions of trends have briefly illustrated that, within the urban form, structural order is followed by disorder, static by kinetic, simple by complex, abstract by organic, zoning by diffusion and total by partial. The "preceding" trends have been concerned with orchestrating their design concepts so that the *built* is exhibited. These disciplined trends of design have manifested the prosperity of the built by orderly concentrating the energy level onto the shells. Within the follower-trends, however, there has been a designed communication between the built and the *surrounding space*. The environments of these periods have indicated that the inherent tension of *parts* of the built shells has resulted in a tension reduction into the space. Hence, the reemerging trend has always been one that removes attention from the built to the surrounding space. Let us not be carried away by thinking that the canonic shapes of circular or rectangular public spaces in the Renaissance were realized in favour of the spaces themselves. They were also configurations of the buildings, for the sake of the buildings: they are circles and rectangles *off* the buildings so that the structural order of the facades is fully exhibited.

Elitist as they are, all the above trends have affected most of the public spaces within major cities. In places that are frequently used, cities try to expose the mass to what the synchronous minorities are exposed to. In the second part, we will see how the dissipative trend is also synonymous to rational evolution in "popular" fabrics.

The 20th century Modern or International style, has been the latest manifestation of simplicity and structural order in favour of the building. Its urban design approach has been one where the built is exhibited with an autonomy of the statues in Classical Greek spaces. What the masterminds of the movement have done, through the Chart of Athens in 1933, was really to redefine "ideal" free distances so that the built element could gain as much energy as possible. Moreover, the Chart has encouraged the preconception of *totality* in design; the determinism of this approach has produced spaces which significantly block

impositions of *partial* orders. In Europe, the trend has created the dormitory suburbs of major cities. In North America, the products have been - and still are - the Urban Renewal projects. This configuration was reflected by Meros. Today, we are closer to the Metameros, but not yet there.

The current reactions to the codes of "modern" fragmentation have focused on the revivalistic spirit: Again, the street continuity is generally viewed as a *clear* cut through a dense fabric while the popular plaza, piazza or square, viewed as a *clearly* defined rectangle or circle, is necessarily an arena of attraction. Even though these trends are certainly a step forward to looking at the space left by the modern shells, they do not escape from the International Style's built-oriented importance. They merely shift the high-energy level of the modern structure onto linear or canonic, vertical surfaces.

The Meros has been preconceived and executed according to its plans whereas the Metameros has reached its dissipative status gradually, through an interaction between planned and unexpected patterns of growth. The second part will deal with actually investigating ways to *preconceive* the dissipation.

In short, the Metameros configuration will be reached with a determination of the Meros level.

Dialogues

HOW DO WE GET THERE?

Kevin Lynch¹

ACCEPTABLE CHANGE:This type of "existentialist" design is a difficult model to apply in situations in which mistakes may be costly and hard to remedy or communications must be extended and explicit. Its joy is reserved for the participant rather than the passive spectator. It requires rapid and legible feedback of events and of the probable consequences of current action to the particular designers. Artists can explore and change their products because their visual consequences are immediate, and they can judge those consequences by criteria they need not make explicit. To apply this model at a larger scale, there must be more rapid ways of growing and testing environments, whether in reality or as simulations, and users must be drawn to those explorations.

ENVIRONMENT AS STABILIZER:Homeostatic places react to change by a counterchange to reestablish the previous state: a thermostatically controlled heating system is the classic exampleThe underlying question, at least, is serious: Could a responsive environment be used to induce behavioural change rather than behavioural stability? If it could, would we want it, except as a toy? Would systems of rapid mutual response between man and setting tend to "blow up", to escalate into uncontrollable action? Limits and dampers would certainly be required. Very likely, an environment of this kind would be too risky and too expensive, except for occasional use under controlled conditions of individuals or very small groups bent on education or entertainmentIn another way, however, environmental change can have a profound effect on the growth and development of individuals and thus, indirectly and at some remove, on the patterns of society.

Richard Sennett²

A NEW ANARCHISM:For if the multiple points of social contact once characterizing the city can be reawakened under terms appropriate to affluence, then some channels for experiencing diversity and disorder will again be open to men. The great promise of city life is a new kind of

¹ K. Lynch, *What Time is This Place?* (Cambridge: MIT Press, 1977), pp. 211, 220.

² R. Sennett, *The Uses of Disorder: Personal Identity and City Life* (New York: Random House, 1971), pp. 108, 142.

confusion possible within its borders, an anarchy that will not destroy men, but make them richer and more mature.

Encouraging unzoned urban places, no longer centrally controlled, would thus promote visual and functional disorder in the city. My belief is that this disorder is better than dead, predetermined planning, which restricts effective social exploration. It is better for men to be makers of historical change than for the functional design of a pre-experiential plan to be "carried out".

Robert Venturi¹

I am for richness of meaning rather than clarity of meaning; for the implicit function as well as the explicit function. I prefer "both-and" to "either-or", black and white, and sometimes gray, to black or white. A valid architecture evokes many levels of meanings and combinations of focus: its space and its elements become readable and workable in several ways at once.

.....Cannot the architect and planner, by slight adjustments to the conventional elements of the townscape, existing or proposed, promote significant effects? By modifying or adding conventional elements to still other conventional elements they can, by a twist of context, gain a maximum of effect through a minimum of means. They can make us see the same things in a different way.

Edgar Wind²

AESTHETIC PARTICIPATION:It is indeed a psychological fact that when colours, shapes, tones or words appear in bold disjunctions or collisions, and thus freed from their habitual surroundings, their quality as brute sensations is felt with a fresh intensity. Hence that intimate and perilous connexion between purism and barbarism which Paul Valery observed in himself. "Nothing leads more certainly to perfect barbarity", he wrote, "than an exclusive attachment to the pure spirit".

Paul Jacques Grillo³

SUSPENSE IN COMPOSITION:This is not true only of story telling. It is true of all arts. A composition of any kind should always be an

¹ R. Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art, 1977), pp. 16, 44.

² E. Wind, *Art and Anarchy* (New York: Alfred.A.Knopf, 1964), p. 19.

³ P.J. Grillo, *Form, Function and Design* (New York: Dover Publications, 1960), p. 217.

experience in suspense. Our being thus conducted by the artist into new areas of unexpected emotions is possibly the surest mark of genius.

Peter Prangnell¹

I would like to think that, with as much disorder as we can manage, we may come closer to freedom - certainly closer than many of the current architectural orders may bring us. Even if disorder is just one more form of order, I want to suggest that it does not allow us the freedom we may anticipate when we submit to experiences whose outcome is not predetermined.

Constellation-type compositionsthey present themselves as objects to be felt and to be loved. And hopefully, better understood. For that must be the need which prompts us to go exploring. From which it can be understood that a domain, rewarding for an explorer, may not be a tidy oneAs with the Giacometti group, I want to see a constellation of things, but always without the lines of identification drawn in. They lock me in and up! (By drawing the lines you forfeit freedom. Being locked in is particularly unfortunate when we have the opportunity to explore and be among things without prejudice).

John Berger²

FIELD:But the ideal field, the field most likely to generate the preverbal experience, is:

- 1. A grass field. Why? It must be an area with boundaries that are visible - though not necessarily regular; it cannot be an unbounded segment of nature the limits to which are only set by the natural focus of your eyes. Yet within the area there should be a minimum of order, a minimum of planned events. Neither crops nor regularly planted lines of fruit trees are ideal.*
- 2. A field on a hillside, seen either from above like a table top, or from below when the incline of the hill appears to tilt the field towards you - like music on a music stand. Again, why? Because then the effects of perspective are reduced to a minimum and the relation between what is distant and near is a more equal one.*
- 3. Not a field in winter. Winter is a season of inaction when the range of what is likely to happen is reduced.*
- 4. A field which is not hedged on all sides: ideally, therefore, a continental rather than an English field. A completely hedged field with only a couple of gates leading into its limits the number of possible exits or entrances (except for birds).*

¹ P. Prangnell, "Some Constellations", *Spazio e Societa*, 24 (1983), pp. 72-79.

² J. Berger, *About Looking* (New York: Pantheon Books, 1980), pp 194-198.

Two things might be suggested by the above descriptions. The ideal field would apparently have certain qualities in common with (a) a painting - defined edges, an accessible distance, and so on; and (b) a theatre-in-the-round stage - an attendant openness to events, with a maximum possibility for exits and entrances.

.....Often the first event which fixes your attention is more obvious than the subsequent ones. Having noticed the dog, you hear a woodpecker and then see it fly across a corner of the field. You watch a child walking and when he has left the field deserted and eventless, you notice a cat jump down into it from the top of a wall.

.....You may complain that I have now suddenly changed my use of the word "event". At first I referred to the field as a space awaiting events; now I refer to it as an event in itself. But this inconsistency parallels exactly the apparently illogical nature of the experience. Suddenly an experience of disinterested observation opens in its centre and gives birth to a happiness which is instantly recognizable as your own.

The field that you are standing before, appears to have the same proportions as your own life.

Kevin Lynch¹

THE IMAGE OF SPACE AND TIME:Our earthy environment is a very special and perhaps the unique setting for life. It should be conserved; it cannot be preserved. It will change despite us, whether owing to our intent or to our heedlessness. To the extent that change is inevitable, we should at least make sure that it is a humane process and that it does not lead to our destruction. On the other hand, many needed changes are not inevitable at all. Our real task is not to prevent the world from changing but to cause it to change in a growth-conductive and life-enhancing direction. The environmental image of time-places can play a role in SPEEDING that necessary change, and its analysis can tell us what some of the features of a life-enhancing universe would be. We can change our minds so that we enjoy the dynamics of the world. We can also change the world to correspond more closely to the structure of our minds.

¹ K. Lynch, *What Time is This Place?* (Cambridge: MIT Press, 1972). p. 242.

Part two

We have seen so far that a process of transformation brings urban spaces from the Meros state to the Metameros. The "process" has been related to an "unconscious" evolution of physical distributions. In the second part we will see, specifically, what those physical elements are that are "treated" by the evolutionary changes and how the Metameros might look. After a diagnostic analysis of the Metameros, we will see how we can *consciously* bring other configurations to the same dissipative state.

The first chapter will outline the evolutionary process that constructs the dissipative urban space. This process is called *evolutionary dissipation*. The following three chapters will demonstrate how different levels of interventions can alter physical distributions to reach the result of evolutionary dissipation. The interventions are named *dominated*, *supported* and *constructive dissipations*; they differ in the degree of transformations they bring to the distributions to which they respond: In the *Diagram of Intensity Distributions*, if the central concentration is the Meros and the overall scheme is the Metameros then the three interventions aim at inducing the dispersion from the centre to the edges. The distance of every category from the centre reflects, on the one hand, the distribution against which the interventions respond and on the other hand, the level of dissipation that is needed to reach the product of evolutionary dissipation. In this respect, there exists a hierarchy from the least dynamic intervention, the dominated dissipation, to the most dynamic one, the constructive. The diagram also indicates that the products of the less-dynamic interventions *are encompassed* in the products of the more dynamic ones. In order to better understand and define the distinctions and outcomes of the intervening process, every chapter is structured in the following way:

- *Reality and/or Imagery*: The examples in this group are taken from everyday life, science, and the two- or three-dimensional art world (painting, reliefs, sculpture). They represent the simplest, metaphorical use of dissipation and can be perceived by quick, close-up observations.¹

¹ All the configurations are outlined through black-and-white schematic relations, void of the important contribution of colour. It is obviously more important to exhibit a colour distribution (not possible in this documentation) than merely to talk about it.

- *Architecture:* Regardless of the functional or aesthetic ideologies of the architects, the examples are chosen and analyzed in the terms put forth in the Lexicon. The analysis of specific aspects of the projects – plans (what we go through) or elevations (what we see) – does not suggest, necessarily, that the whole project can be justified in its dissipative status: With architecture playing an integral role in urban space, the examples indicate how the notion of dissipative intervention can be related to surface and circulation patterns.
- *URBAN SPACE:* At the level of concern, an introductory piece outlines the distinct, spatial characteristics of the category's dissipation and of the distributions that can "afford" the intervention. The examples that follow show how the dissipation can transform configurations at the *scale* of urban space. The chapter ends with an analysis and proposal for a specific *public* space of Boston. The *status* of each space determines the specific process of intervention: the intervention itself proposes and locates the *outcome* of the new *tension distributions*, so that the space reaches the Metameros from its current status. It is not the object of the intervention to analyze the means of reaching the proposed distribution, whether functional or formal. It is suggested that any physical distribution should be guided so that the proposed schemes of intensities are reached. The previously outlined examples will have already provided a wide range of suggestions on how the physical aspects of a proposal can be developed.

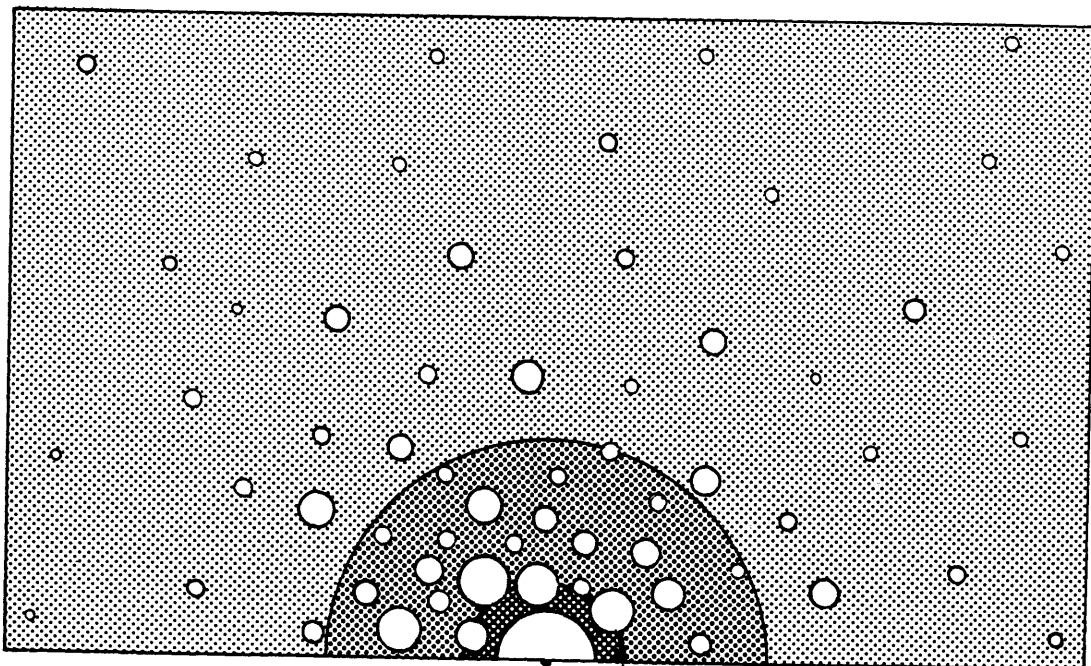


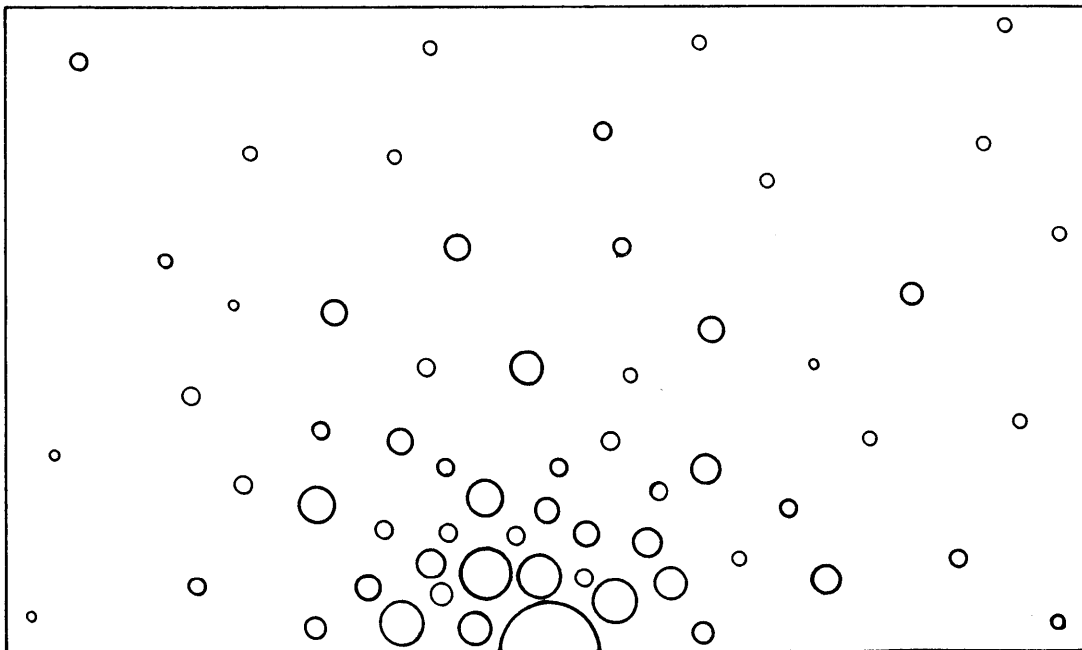
Diagram
of Intensity Distributions

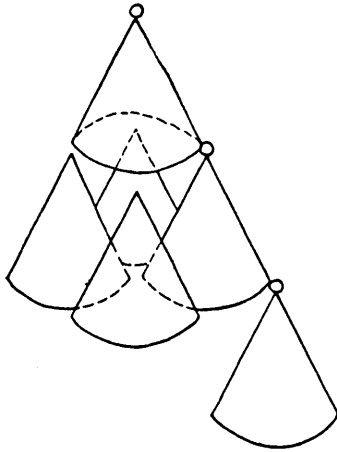
— Dominated
— Supported
— Constructive

CHAPTER A

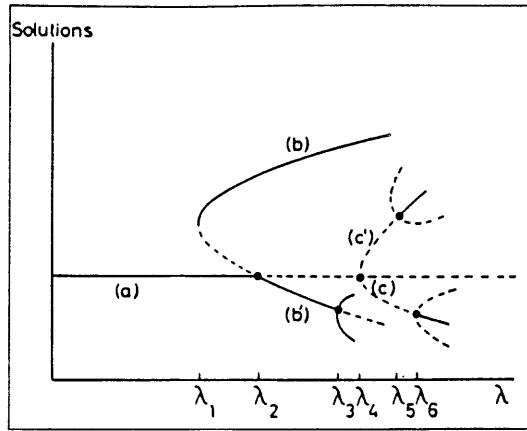
EVOLUTIONARY DISSIPATION

The category encompasses all those configurations whose dissipative status has reached a state *near* the equilibrium, as it was previously reflected in the Metameros. In the examples that follow, the energy flow has been reduced to its optimum state through a historic process. The process involves a series of interventions through time, with every new intervention responding to the state that was brought about by the previous one. Since the final product reflects the actual goals of the tension reduction, it is important to realize that *no* further intervention is desirable. In this respect, the *evolutionary dissipation* reflects the status at which the rest of the categories of dissipation aim. Schematically, the intensity diagram of this category represents the whole spectrum.



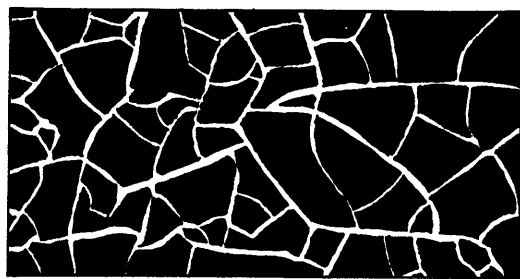
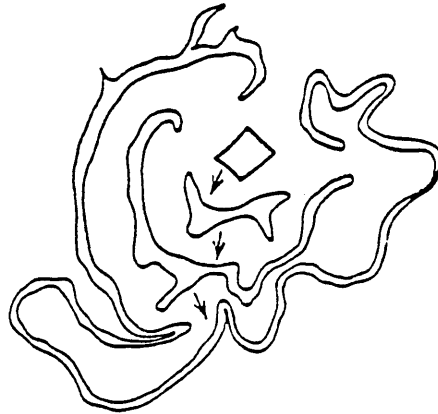


Waddington's Cones

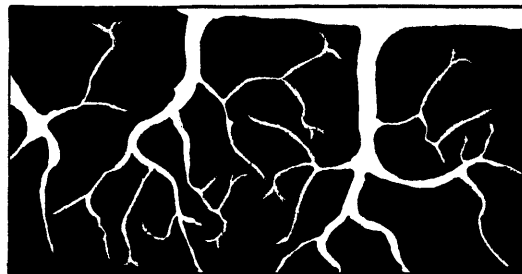


I. Prigogine. Bifurcation Diagram

I. Prigogine
Phase Space of a Cell



Cracking Pattern



Erosion Pattern

Reality

From a scientific viewpoint, the history of isolated systems can be outlined through an interaction between stable and unstable states. *Waddington's Cones*¹ represent the course of embryonic determination: The ball at the top will fall because of its unstable position, and will choose one of the 360 degrees of the cone's circumference. After choosing its position of equilibrium, the ball will be again confronted with a state of instability and will tend to fall for the second time. Every new state of equilibrium is followed by a new state of instability which is less energetic than the previous one. The process will continue until absolute stability is reached and a developed organism is created. Similarly, Ilya Prigogine's *Bifurcation Diagram*² describes the history of a system through a mixture of necessity and chance: The "historic" path, the horizontal line, goes through a series of stable states represented by the bifurcation points. Every point has to choose between two or more possible futures to find itself in an unstable region, and so on.

In both examples there exists a deterministic fate of evolution *between* points of equilibrium, whereas the points themselves constitute the uncertainty of having to make a choice. The evolution points at progressively less energetic states, until the process of dissipation makes the flows insignificant, and stability is reached. A visual analogy is illustrated by Prigogine in the evolution in *Phase Space of a Cell*:³ The cell twists and turns to spread out in increasingly thinner and more twisted fragments until the whole space is invaded.

The world of nature chooses to demonstrate the process of tension reduction in various visual ways. *The Cracking Pattern* increases its stability through the production of cracks. Major trends towards stability respond to major tensions and are represented by the wider cracks; further stability reduces the tension and thinner cracks appear. In a kinetic way, *the Erosion Pattern* channels its energy much like the bifurcation diagram's indications: from a necessity, to an obstacle,

¹ J. Needham, *Order and Life* (Cambridge: MIT Press, 1968), pp. 58, 59.

² I. Prigogine and I. Stengers, *Order Out of Chaos* (New York: Bantam Books, 1984), pp. 169, 170.

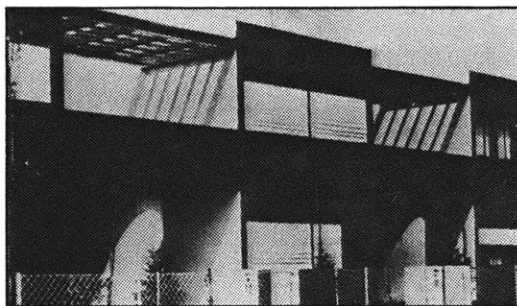
³ Prigogine and Stengers, p. 267.

to a choice. The curves become progressively thinner, in accordance with the reduction in tension.

Architecture

When Le Corbusier's *Pessac Housing* was realized, it was a manifestation of structural order, clarity, and overall, of highly concentrated energy in distinct places. It took no more than four decades for the inhabitants gradually to reduce the tension that was introduced by the initial, deterministic statement: Windows were shortened to balance the relation between open and blind surfaces. Window corners were softened to reduce the tension of the right angle. Roofs were added to break the persistence of the horizontal skyline. Rooms were built where terraces previously created a "gap" between interior and exterior spaces.....The facade's colour was lightened to reduce the initial contrast of tones.

Regardless of the aesthetic considerations that the architect initially had to take into account, the tension reduction between the exterior skin and the direct environment has gradually made the housing complex more usable and livable. In the overall scale of the complex, the process favours the differentiation of the housing units: It is most usual for an architect to incorporate a total order, where the different parts of a project are finally subject to partial needs and tastes. In the example, the evolutionary interventions have claimed personalization and differentiation of the houses at the expense of the total structural order. The project is representative of all the structures that are being remodified through the imposition of progressively smaller partial intensities.



1925



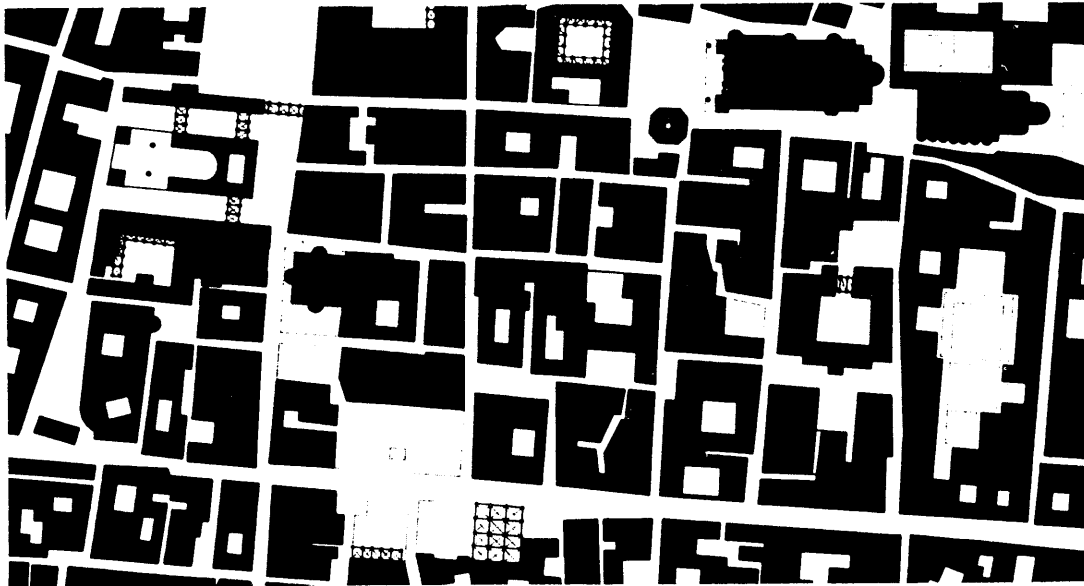
1969

Le Corbusier, Pessac Housing

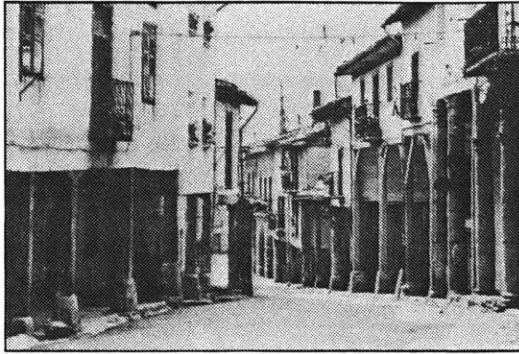
URBAN SPACE

Evolutionary dissipation is a process that can describe, with no exceptions, the entire range of urban concentrations: If we look at the cityscape's wider context, the configuration is a sum of clashing orders or concentrations that fade away towards the edges through loose or dissipative fabrics. The historic evolution in this context is one that, like the cracking pattern, continually superimposes remodifications of tension concentrations or schemes of tension reduction. Hence, the interventions are reflected in the sporadic concentrations of added bulk or in the added circulation networks. Even the notion of a *new town* development, is in itself an act of tension reduction when it is regarded in relation to the concentrated entity of the major, supportive city.

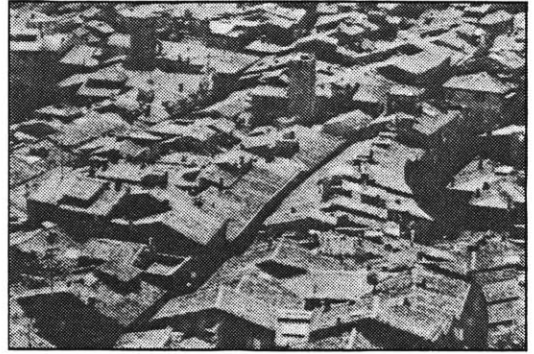
At the scale of public spaces, however, the notion of evolutionary dissipation is only reflected in those cases where each new intervention does not eliminate the presence of the previous one, but rather reacts to it through modifications or additions. Therefore, excluded are all those downtown developments that we have inherited through a deterministic, concentrated act which deleted the preexisting reality. Such examples are the products of what we usually call realizations of *urban design* proposals which have remained intact since they were imposed. What is of interest in the category of evolutionary dissipation, is the status of two major trends of deployment.



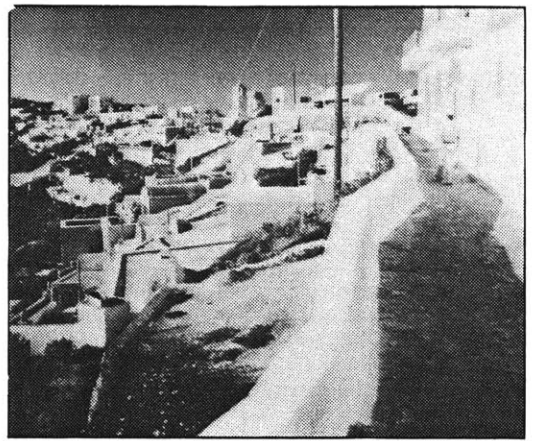
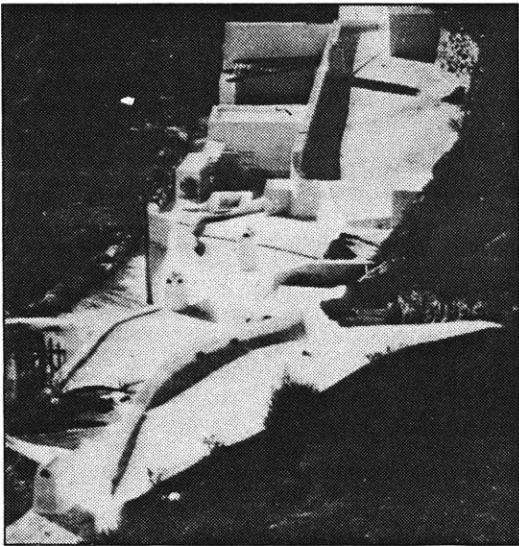
Parma



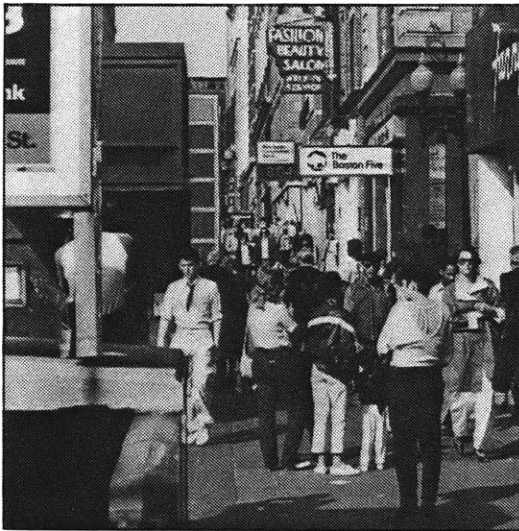
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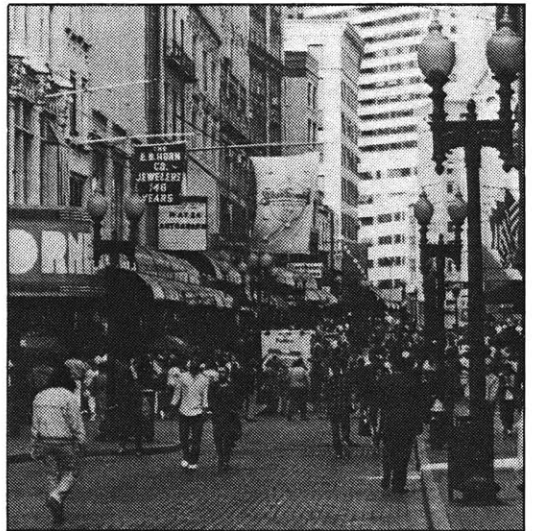
Siena



Santorini



Tremont Street, Boston



Washington Street, Boston

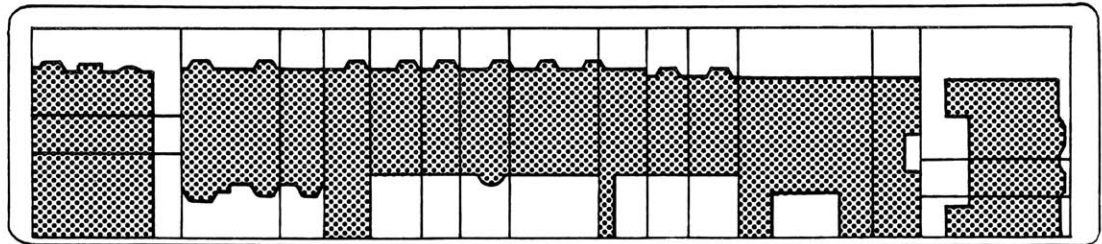
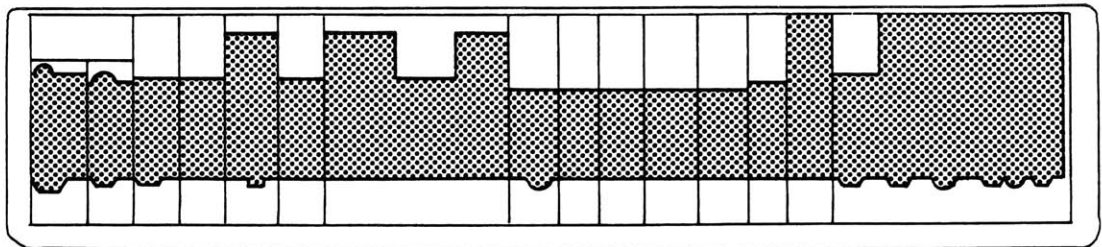
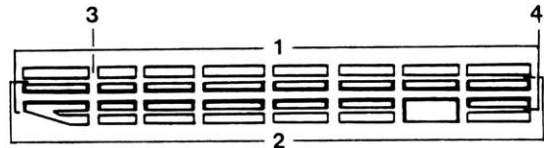
The first trend is represented by those public spaces that gradually become organic parts of urban fabrics. In these cases, the dissipation evolves within one major "design" trend. The *Medieval fabric* has evolved either by filling or by extending some basic network schemes. In the same way that the cracking pattern creates the cracks for tension reduction, the Medieval street network is developed in a non-canonc manner that is neither preplanned nor deterministic: Every new unit of the bulk is attached to its neighbour by following its individual norms of orientation. In this way, the street frontages are aligned with a continual angular shift and the public squares are not predetermined openings: They are created through the clash of different route directions; their edges escape from the rules of canonic geometry to reduce the energy difference between the frontages and the open space. The same configurations are seen in all *popular* or *anonymous* fabrics whose evolution has escaped, for centuries, from modernistic interventions. Both the uninterrupted homogeneity, brought about by the anonymous language, and the game of subtle shifts in channel directions have created spaces of reduced tension. Today, these environments are "used" as models to negate the values of "modern" dogmas but, unfortunately, the implementations of concepts adopt the deterministic norms of the Renaissance: *Continuity* and *direction* are regarded as liberated from those "random" distortions that are inherent in the Medieval or anonymous fabrics.

The second group of evolutionary dissipation relates both to formal characteristics and use patterns. The traditional urban *main streets* are examples of clashes of uses and images. It is interesting to see how, by moving from macro-configurations to micro ones, the flow of energy is reduced through an interaction between public and private orders, or total and partial ones: The street frontage is regulated, overall, by the public codes of construction and, if no partial initiative is integrated into it, there will then be a major tension between a canonic "street wall" and the street surface. Instead, the competitive spirit of private enterprises or institutions emphasizes the individual orders on the frontage and the flow of energy is dispersed unevenly through the units. The public sector, in its turn, is represented by the units of "street furniture" that are usually aligned to a rhythmic, orderly fashion. Again, the private rivalry promotes the unit identity through the secondary street elements - for instance, the array of posters or signs on posts which randomly interact with the public lamp-posts. The third level of public order is superimposed by the sidewalks that unify the



Newbury Street - Major Tension Reductions

- 1. Back Bay Residential District
- 2. Boylston Street, Commercial Zone
- 3. Hereford Street
- 4. Arlington Street



Typical Segment of Axis

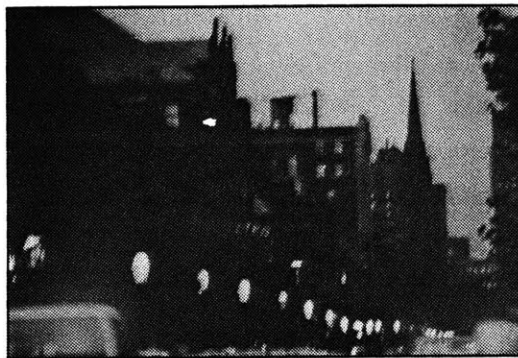
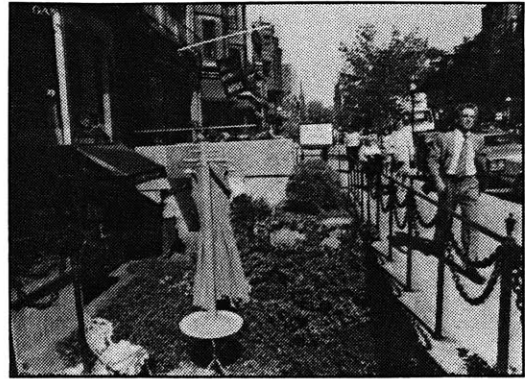
individual tensions of the street furniture. And finally, the elements brought about by the human interaction - vehicles, mobile furniture, individual accessories and objects - reduce the tension at its lowest level. It is important to appreciate the competitive spirit of the individual units that, through time, diffuses the underlying orders in favour of the spatial vivacity.

Newbury Street

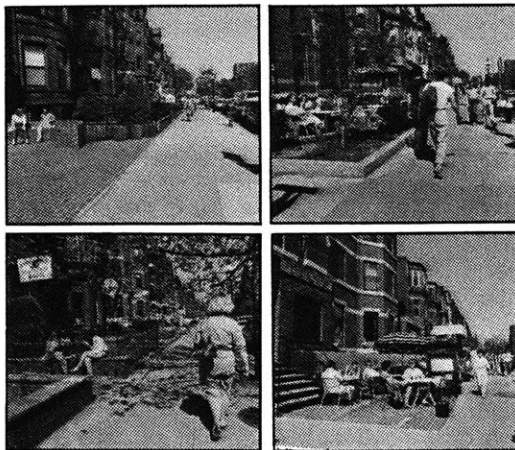
Status

While embodying the spatial characteristics of evolutionary dissipation, Newbury Street has not evolved in the traditional way of a "main street". The main street is usually regarded as the major supporting axis of the mixture in downtown public activities: the Newbury axis has developed its publicness out of the overlap of two distinct activity zones: The Back Bay residential district at the northern part of the axis, and the commercial zone of Boylston street at the southern part. The overlapping interaction produced a harmonic mixture of residential and retail uses and a dynamism of a main street. In recognizing not only the historic values of the major area but also the advantages from the mixture of uses along the axis, the city has put forward strict regulating measures of development: The restriction of the bulk growth, along with the limitations over elevation treatments, has resulted in encouraging the partial intensities in the open space. More analytically, the tension reduction is carried through major elements to minor ones as follows:

Major Tension Reductions: The 19th-century development of the area introduced a dense parcelization in accordance with the dimensions of a residential parcel. The regulating measures over massing and height have caused the development of homogenous and continual rows of buildings. In this respect, the underlying order is the continuity of the frontages along a consistent height. However, along the frontages, the unit identity is enhanced by the parcel order and hence, the underlying order becomes less prominent: On one hand, the sequential bay windows break the flatness of the frontages and the horizontality of the skyline, to establish a secondary order of vertical strips. On the other hand, the ground and basement-level conversions of dwellings to small scale enterprises intensifies the side-walk levels to establish a secondary level of "animated" horizontality. Both secondary orders reduce the tension of an



Minor Tension Reductions



Usage

otherwise "neutralized" surface, to stimulate the communication between the frontages and the exterior space. But the dissipative properties do not stop here.

Minor Tension Reductions: Along with the partial orders of massing come the partial orders of secondary architectural elements: Individual accesses to every parcel-building are acclaimed through articulated entrance-doors, fences, entrance porches, awnings, canopies and enterprise signs. In "invading" the sidewalk space, these elements reduce the tension of the animated horizontality, to break the linearity of the sidewalk course; they all claim an intermediary intensity between the zone of the first floor and the exterior space. Along the sidewalks, the "street furniture" elements further reduce the tension between the frontages and the streetscape while, at the same time, they challenge their own linearity: The tree species and their distances vary through the interaction of the public order and the private ownership; in following the ground convexities that were created through time, the lamp posts have shifted from a strictly horizontal to an undulating alignment.

Usage: The above characteristics are reflected, with very few exceptions, in the major part of the axis between Hereford and Arlington streets. The same portion of the area acclaims a rich variety of public dynamism, that no other street in Boston - even a main street - embodies. The users are not only encouraged to stroll along the sidewalks, but also to use the frontage protrusions and recessions both formally (by sitting at sidewalk restaurants) and informally (by sitting on the steps and fences). At the same time, the slow vehicle traffic, together with the reduced tension of the inviting frontages, encourages the use of the whole streetscape: Pedestrians use the spaces between parked cars more than the formal crossing zones.

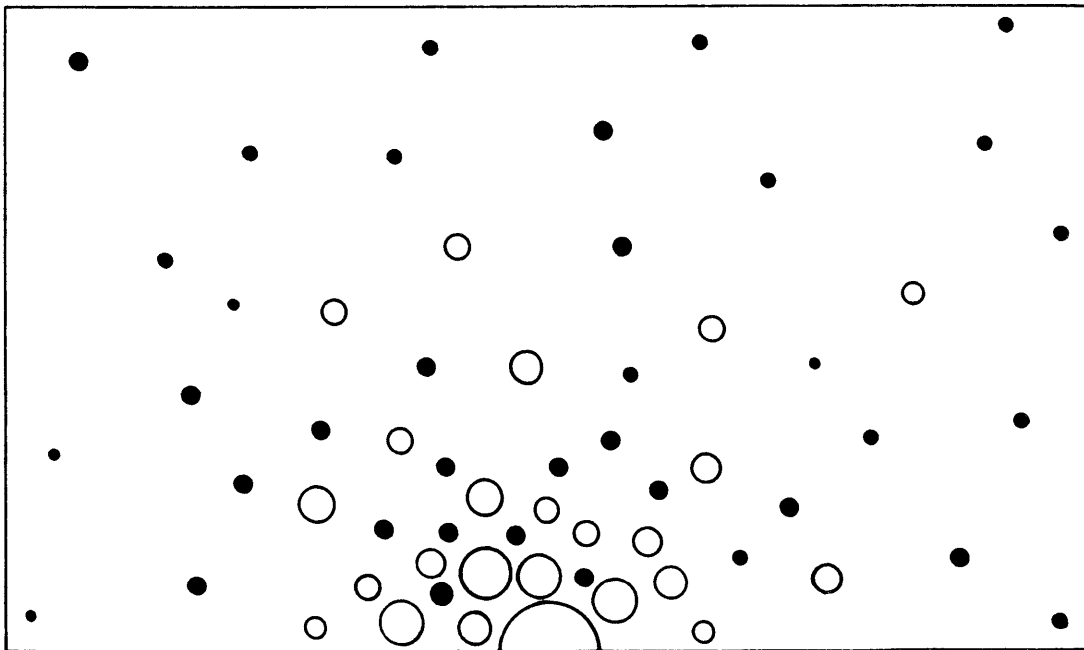
It should be pointed out that, by having all its partial orders regulated by dogmatic codes, the Newbury axis establishes a homogenous and predictable pattern of order and object distributions. In this respect, the notion of surprise or fresh stimulations is subject to the *rhythmic* sequence of familiar intensities. Conservative though it may be in its physical articulation, the example is indicative of a rich *range* in tension reductions.

The following categories of intervention aim at reaching the Metameros distributions, as it has been reflected in the spaces of evolutionary dissipation.

CHAPTER B

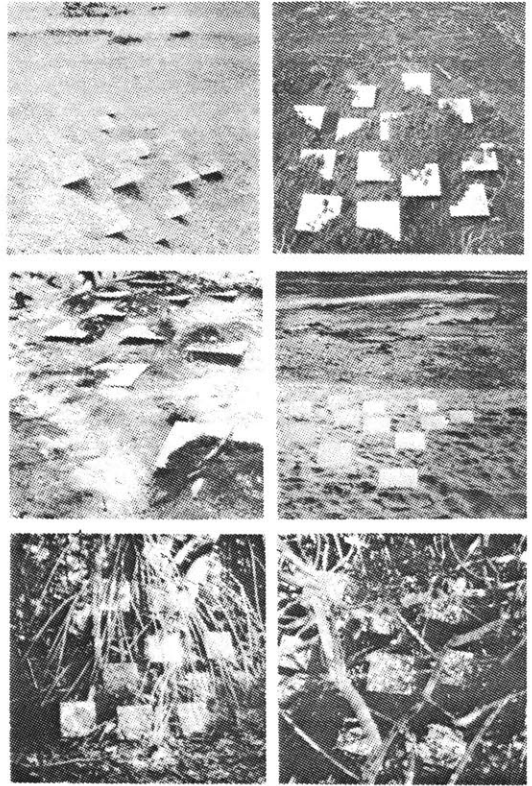
DOMINATED DISSIPATION

In this category, the act of dissipation, represents a subtle intervention in a configuration which is *close* to the Metameros. Therefore, the actual scheme, which is generated by the tension reduction, is dominated by the presence of the preexisting entity. In the analogy of the intensity diagram, the tension reduction occurs in the zone which is away from the central concentration and is superimposed on the pattern that has already started to dissolve.

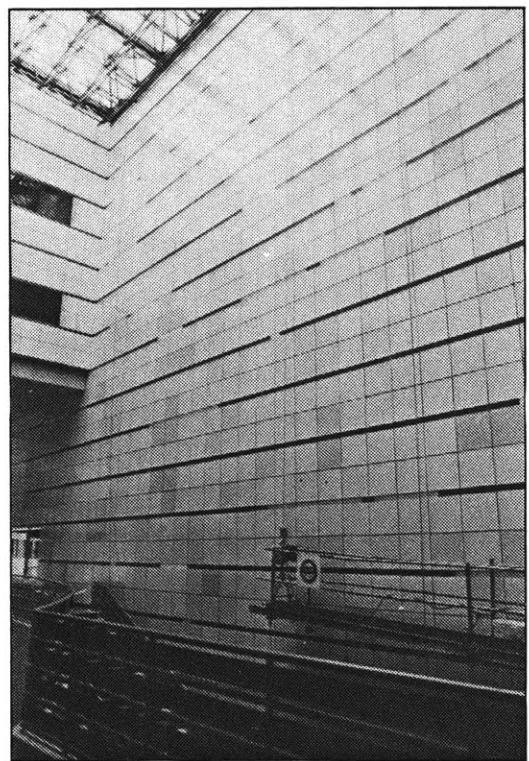
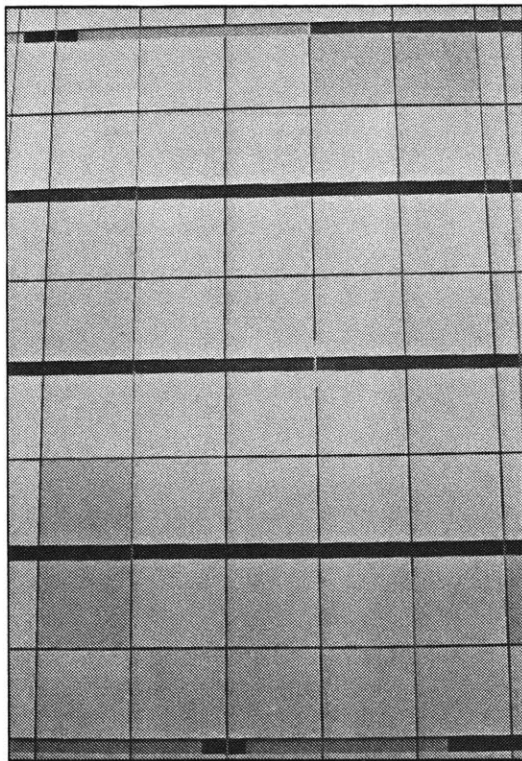




B. Stern, The Last Sitting



R. Smithson, Mirror Displacements



K. Nolan, Atrium Wall of AMT Building, Cambridge MA

Reality and Imagery

".....I saw the scar now. It was on the right side of her stomach. A blemish, an imperfection that only made her seem more vulnerable and accentuated the incredible smoothness of her skin. She was the colour of champagne, the colour of alabaster... delicious all over."¹ In the *Last Sitting*, Bert Stern appreciates beauty through an unexpected dot of oddity. Marilyn's scar is analogous to a "dominated" touch; it is a minor intervention within a major context that, by being liberated from conventional or expected dogmas, reenergizes the visual stimulation over the entire context.

Robert Smithson's *Mirror Displacements* constitute another example of subtle, dissipative intervention, albeit an ephemeral one. Smithson superimposes a "fleeting" order over the order of nature or, as Robert Hobbs points out, "*the reflections suggest the difficulty of pure seeing.*"² The scattered reflections pick up fragments of their direct environment and in doing so, they restructure their surrounding space with an illusionary interface: The reflections are really an intermediary element between the viewer and the space, that urge the viewer to reevaluate the space; the space becomes richer out of its "close" observation or, at least, it attracts close observation.

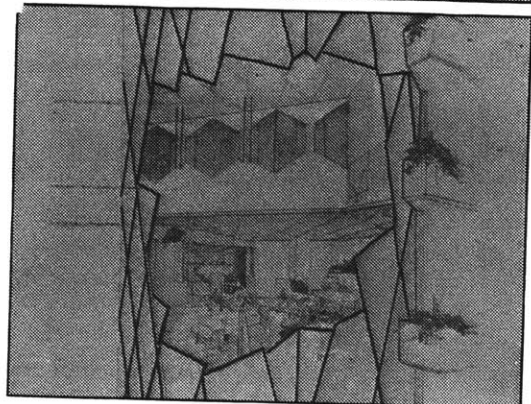
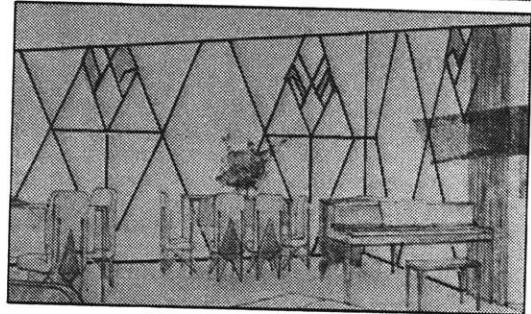
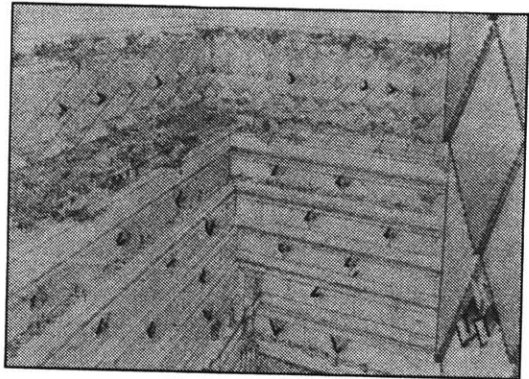
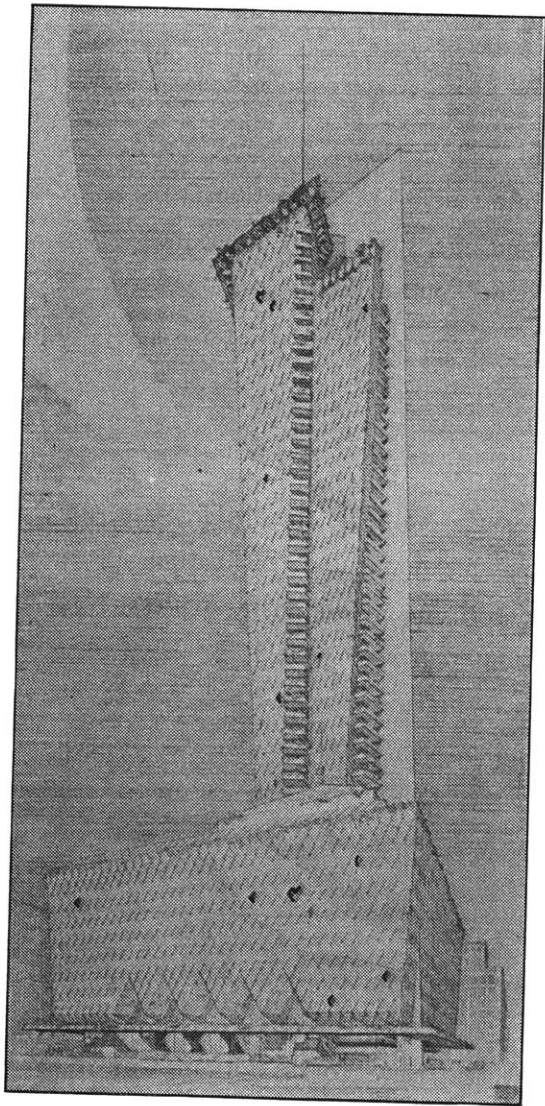
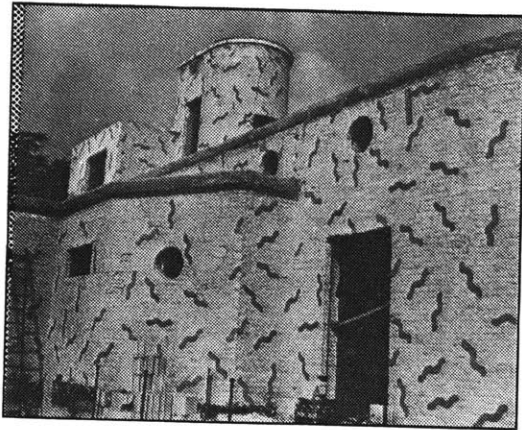
Architecture

Kenneth Nolan's *Colour Patterns* on the atrium wall of the MIT *Arts and Media Technology Building*, is an example of dominated dissipation in an interior space. The canonic grid of the facades is the predominant expression of the atrium wall. Without Nolan's intervention the wall would be a neutral, dogmatic surface with a high flow of energy into the atrium space. Like the Smithson mirrors, Nolan's patterns dissipate the tension between the observer and the wall, to result in investing the vertical surface with "inviting" properties. A similar effect is achieved by Andrea Branzi and Alessandro Mendini with the

¹ B. Stern, *The Last Sitting* (New York: William Morrow and Company, Inc., 1982), p. 44.

² R. Hobbs, *Robert Smithson: Sculpture* (Ithaca, New York: Cornell University Press, 1981), p. 152.

A. Branzi and A. Mendini
Architectural Decoration in Giulianova



F.L. Wright, Lacy Hotel, Dallas

Architectural Decoration in Giulianova: The sky-blue decorative motif is repeated in an uninterrupted rhythm to reestablish the communication between the observer and the previously deserted building. The chosen colour is effective in "diffusing" the distinct skylines; the sky "enters" the vertical surfaces through the motifs, resulting in reducing the initial intensity of the edges.

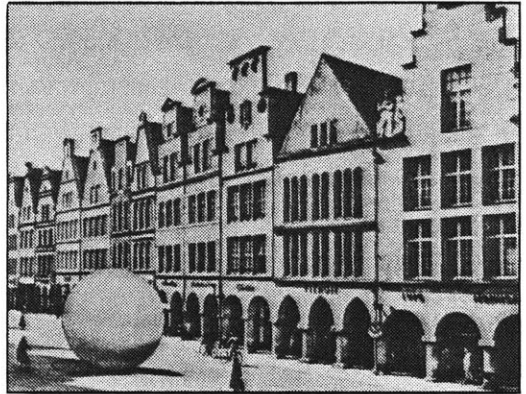
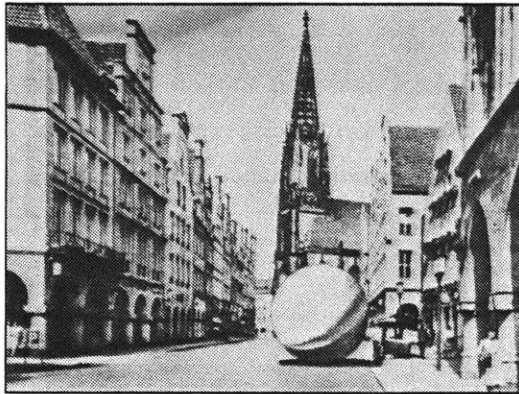
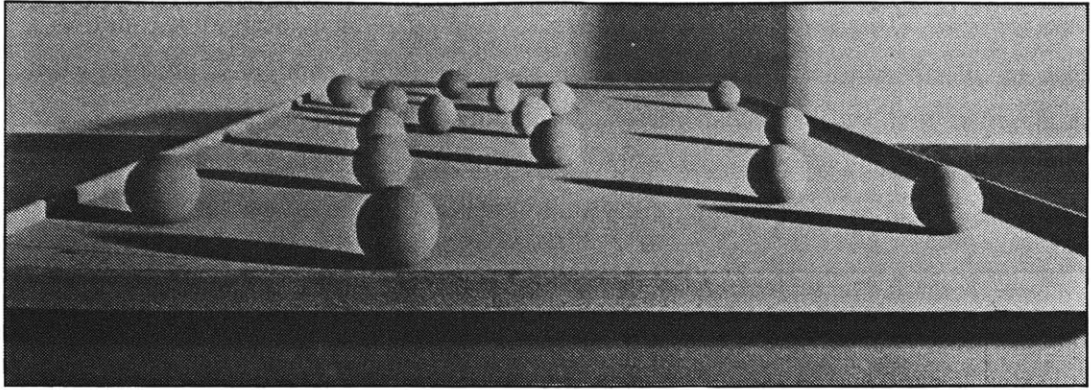
A more integrated intervention is demonstrated by Frank Lloyd Wright with his drawings of *Lacy Hotel*. Wright interferes in the strict rhombus grid by "attacking", randomly, several of its units. The "anarchic" appeal of those rhombuses that were selected for the dissipative intervention, seems to be gaining more importance as we move closer to the building's spaces: By starting with mere scratches in the distant perspective, the architect uses the broken pattern as the major viewing lens through which to present his close-up views; the dominated intervention tends to become visually predominant or, at least, indispensable.

URBAN SPACE

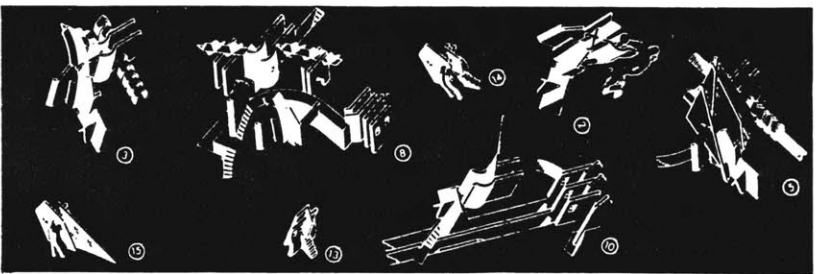
As was pointed out in the category's introductory piece, the public environments, where dominated dissipation can be superimposed, are near the Metameros configuration. Such spaces have most of the formal qualities of the urban spaces that have been created through the evolutionary dissipation. However, they lack that subtle, homogeneous system that, as we have seen in the examples, brings the configurations to life.

In dealing with the public spaces, the subtlety of the intervention can be associated with built elements that do not contain concentrated activities: In a physical distribution which is *close* to the Metameros, the *major built shells* are already in a dissipative state. Any encouragement of further reduction in tension, is related to elements that are dominated by the major, "containing" shells. The range of these elements is restricted to complementary, yet essential public activities: from "street furniture" to visual intensities on surfaces.

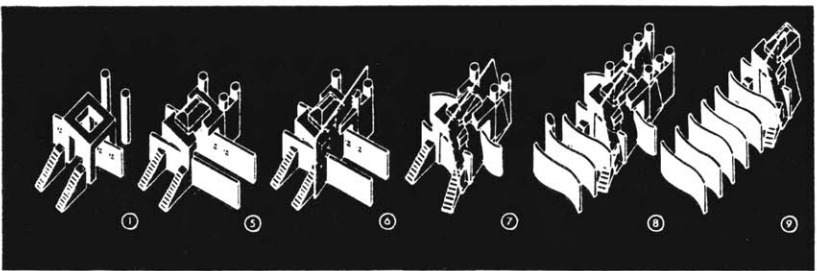
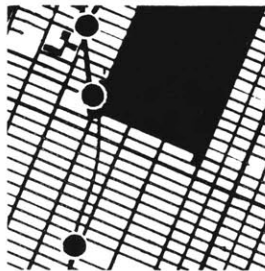
It should be noted that the intervention of dominated dissipation has either subtractive or additive properties in relation to the underlying order: Nolan's intervention reduced the tension of the wall by moving from the *Meros* to the Metameros; the structural order of the wall was reduced through the dispersion



C. Oldenburg, Pool Balls, Münster



B. Tschumi, Kassel Follies

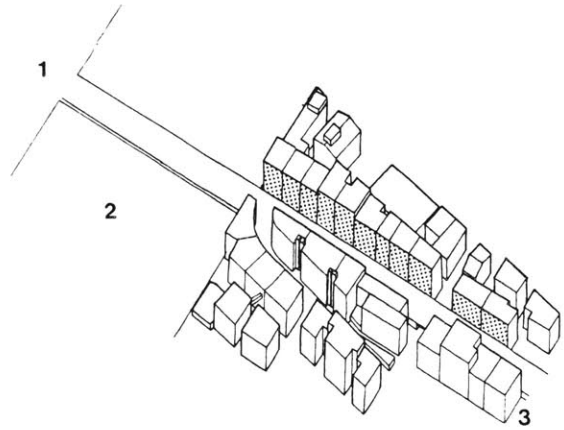
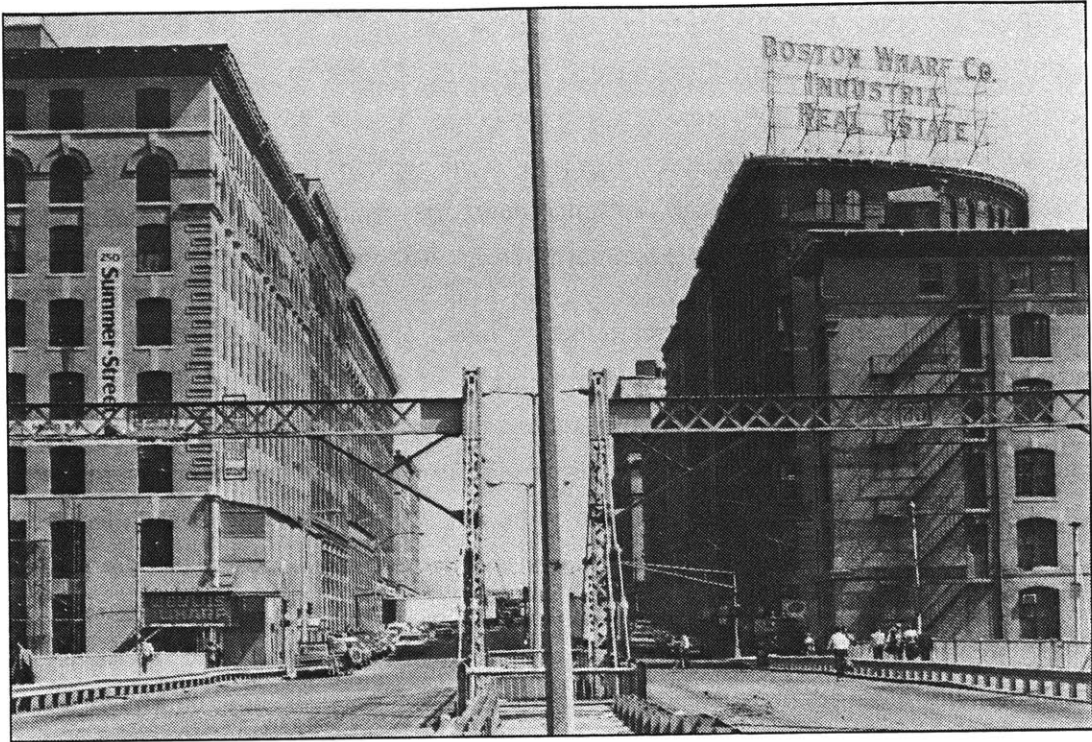


B. Tschumi, Broadway Follies

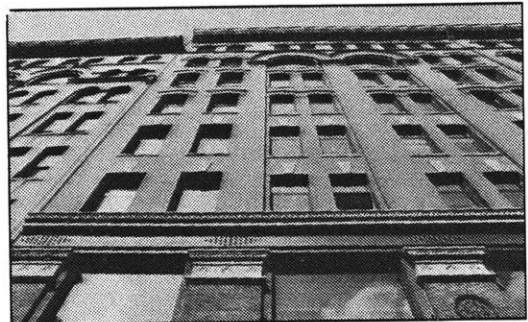
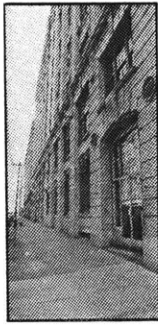
of colour patterns. On the contrary, Branzi and Mendini used the paint motifs to shift the building's status "backwards", from the *Promeros* to the *Metameros*; the rhythmic system of the motifs was imposed to regenerate a tension that was lost. Both cases reflect the goal of reaching *some* tension through dissipation or, as it has been stated, to reach a state *near* the equilibrium. The following examples stand for reaching the *Metameros* from two opposite directions:

Claes Oldenburg makes use of scattered, colossal spheres as objects in direct visual juxtaposition to the urban environment of *Münster*. Following the random pattern of the pool balls, the spheres are placed in various sites. Their sameness works on the one hand, in visually relating the different fragments of the city and, on the other hand, in providing the viewer with the same medium of tension reduction in areas of varied orderliness. Bernard Tschumi's "*20th-Century Follies*" operate similarly. Each "folly", scattered randomly in the centre of *Kassel*, represents a recomposition of existing schemes of walls and roofs and establishes an intermediary dialogue of communication between the buildings and the urban platforms.

However, the same architect's *Broadway Follies*, are subject to a linear sequence along the avenue and, starting with the absolute cube, progressively dissipate their inherent tensions through more complex forms: In this way, the objects are aligned on a subsystem of evolution that *subtly* restructures the chaotic orders of Broadway in order to reveal an overall comprehensive tension.



- 1. Boston, Downtown
- 2. Fort Point Channel
- 3. Stillings Street



Sidewalk Tensions

Summer Street

Current Status

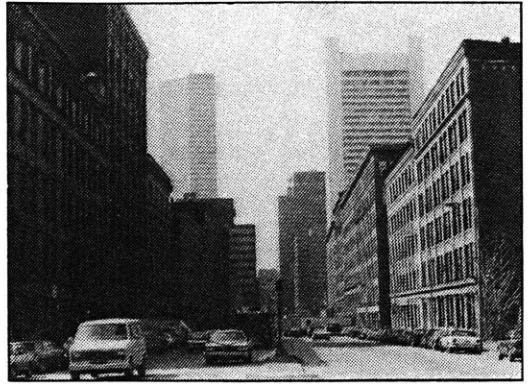
The Summer street axis between Fort Point Channel and Stillings Street, has retained its physical image as it was originally imposed at the turn of the century. While it was developed to be the spine of a major manufacturing and warehouse district "across" from the Boston peninsula, it has been left at the margin of the downtown, urban renewal expansion. Lately, lots of warehouse interiors along the axis have been converted to offices and artists' studios, while retail activities have sporadically taken over some ground floor spots. The users of the spine are mostly the users of the working spaces. Yet, once a year the exterior space is animated because of a collaborative art exhibition in the area. Only lately has the city developed interests regarding the encouragement of rehabilitation and the bulk preservation in the area. The subsequent concepts of intervention are responding to the spine's new role: to establish itself as the public axis of the Fort Point Channel area.

Like the Newbury street distributions, the underlying order of continuity is challenged by the individual orders of the buildings. However, the "vertical strip division", as we have seen on the Newbury frontages, is less prominent along the Summer axis: The skyline's horizontality is only broken by the horizontal endings of the built units, and the vertical zones of the individual elevations are completely subject to the flatness of the frontages. The vertical frontages themselves "abut" without interruption onto narrow sidewalks. Hence, a distinct and homogenous tension is induced between the walking space and the vertical surfaces.

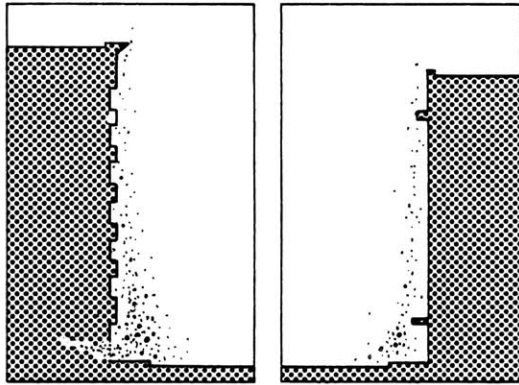
It is interesting to notice that, during the days of the art exhibitions, some randomly scattered flags that protrude from the windows generate a playful scheme of tension reduction over the frontages; the neutrality of the facade orders - the overall balancing ratio between the openings and the blind surfaces - favours the individual tensions of superimposed elements.



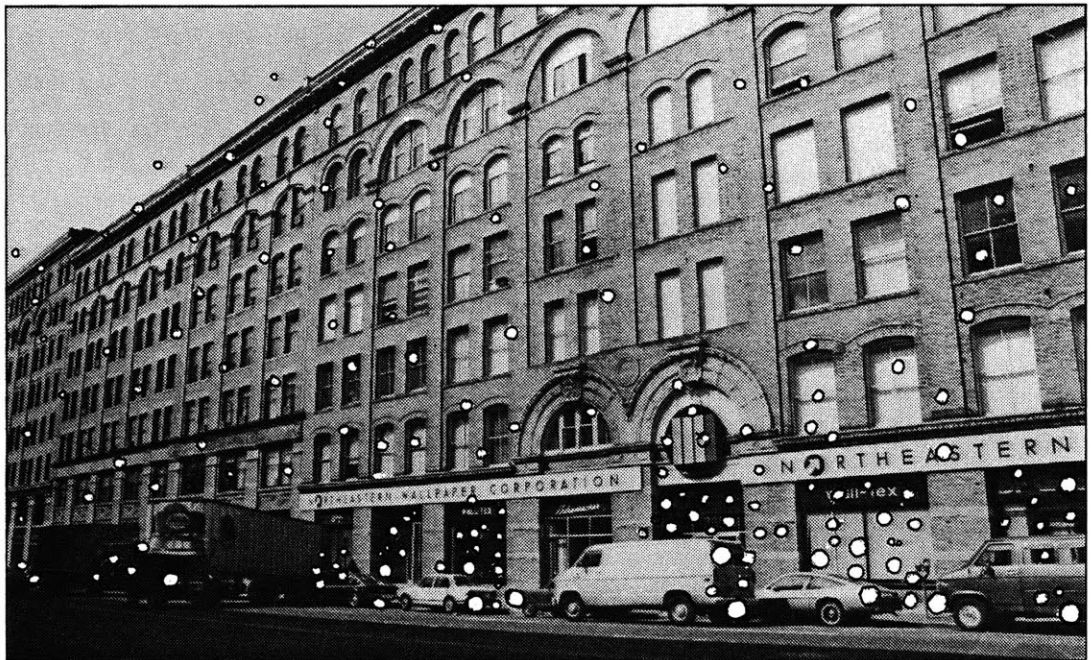
Neutrality



Continuity



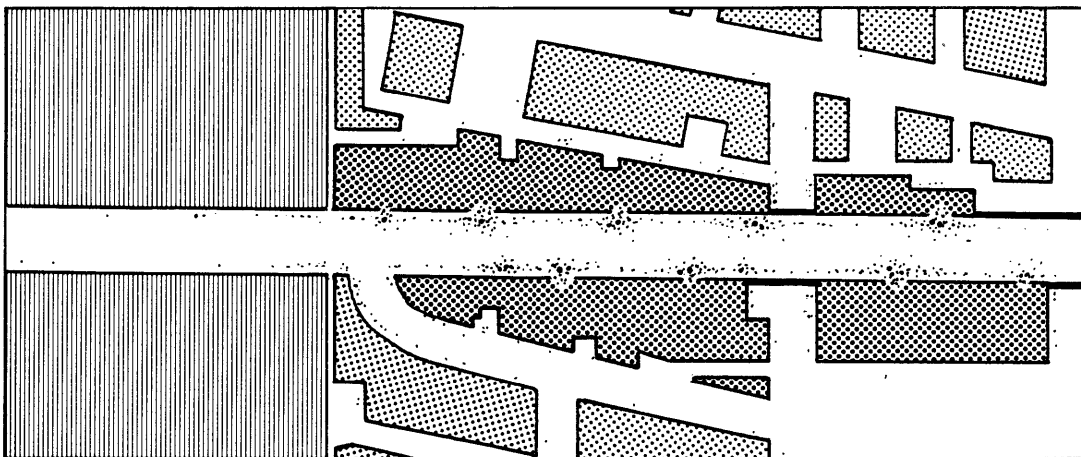
Intervention



Intervention

From the two alternative ways of intervening, the Summer street axis can reach the Metameros configuration from the Meros direction or, as it has been stated, the dominated dissipation will *add* to the underlying order. Nevertheless, the dissipative status of the axis is currently *close* to the Metameros: The flat frontages are subject to zone differentiations, while the *linearity* and *continuity* of the axis works in "framing" the playful skyline of Boston's downtown. Hence, the new distribution of tensions should be dominated by the above, deterministic orders. At the same time, the superimposed distribution aims at intensifying the inherent neutrality of orders.

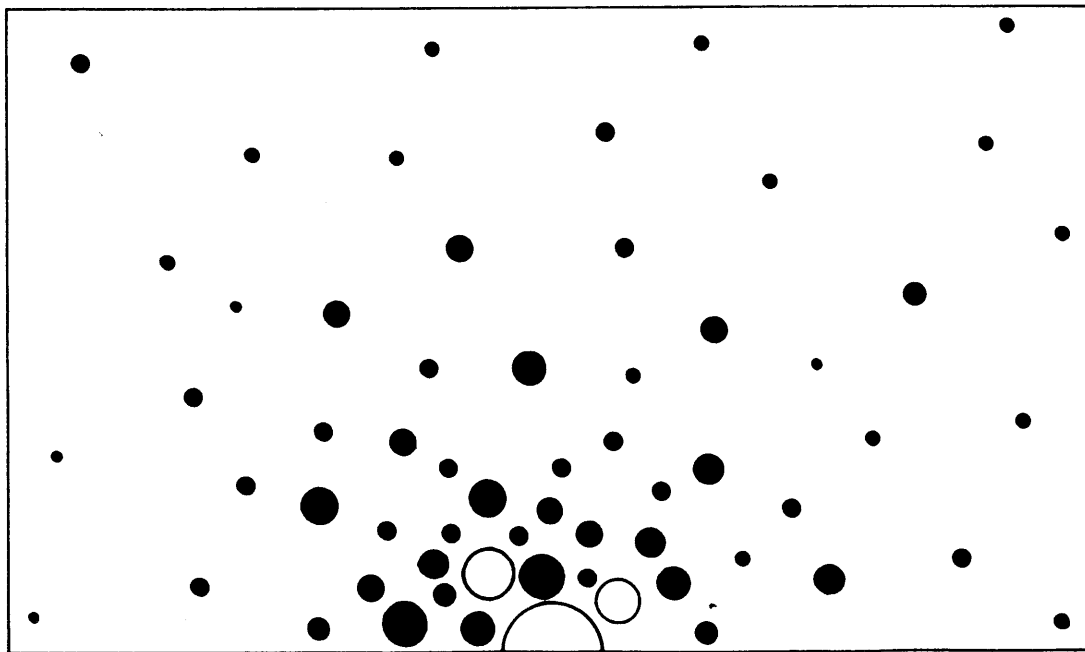
The superimposed distribution of tensions ranges in energy status from high at the sidewalk level, to low at the skyline zones. The intervention can be regarded as a comprehensive system of scattered intensities: The new tensions are established between the frontages and the street level, and are aligned on a rhythmic sequence - they can be dynamic enough to interfere with the sidewalk definitions or to intrude into the ground floor. On the surface above the ground level, the intensities are scattered in a dispersive distribution that neglects the orders of the vertical zones. Moving to the upper levels, the intensities become less dense in finally touching or "grabbing" the skyline. The whole configuration of the intervention can turn around into the cross streets (that have a similar formal status with the main street) and fade out progressively, as it is removed from the main axis.



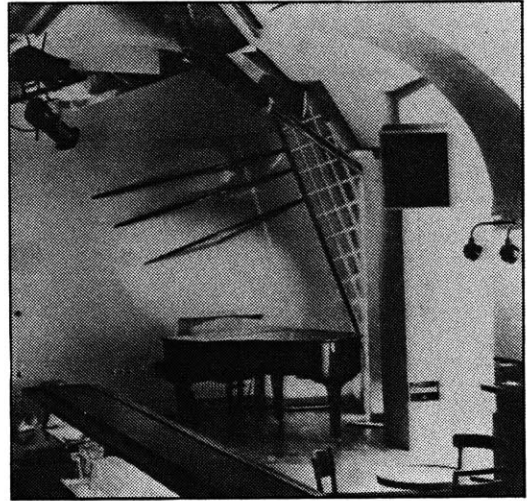
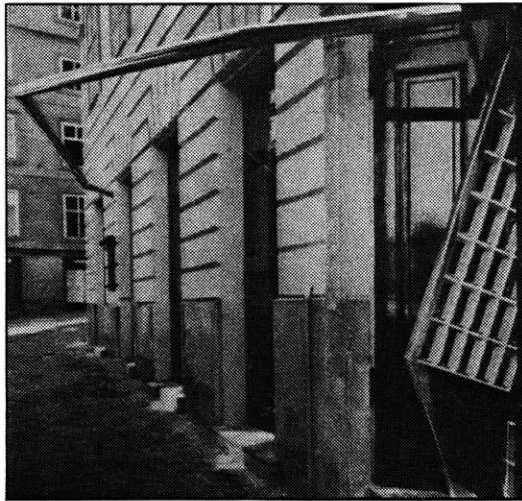
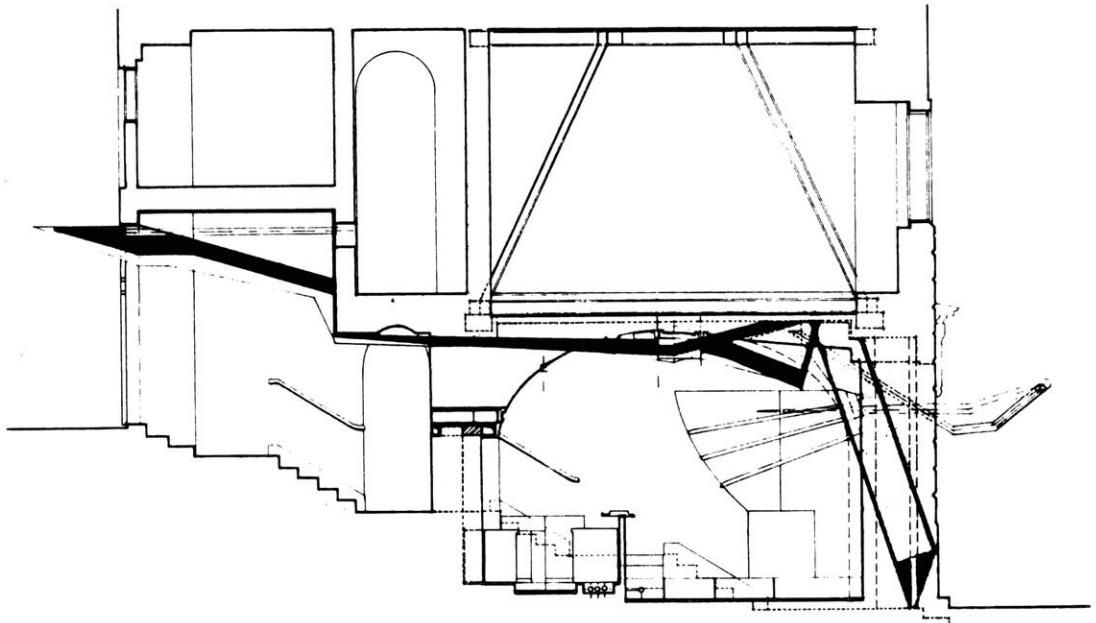
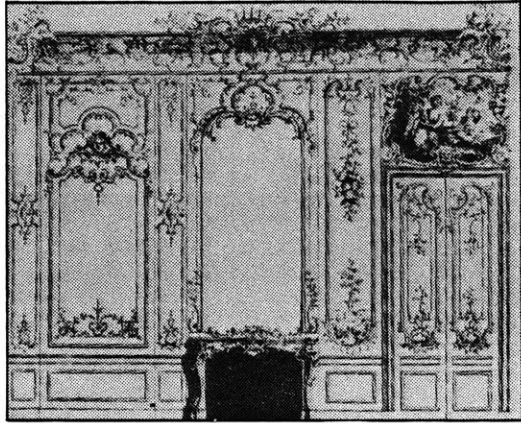
CHAPTER C

SUPPORTED DISSIPATION

The *underlying* order in this category is one that, as we have seen in the Meros, adopts major canonic configurations to accentuate the energy flow. The dissipative intervention aims at diffusing the orderly patterns and, compared to the dominated dissipation, does not merely superimpose a new system onto the existing pattern; it *also* dissolves the core configuration against which it responds. In the analogy of the intensity scheme, the supported dissipation occurs right in the central zone and starts by dissolving the primary concentration.



Cuvilliè, Wainscot



Coop Himmelblau, Red Angel, Vienna

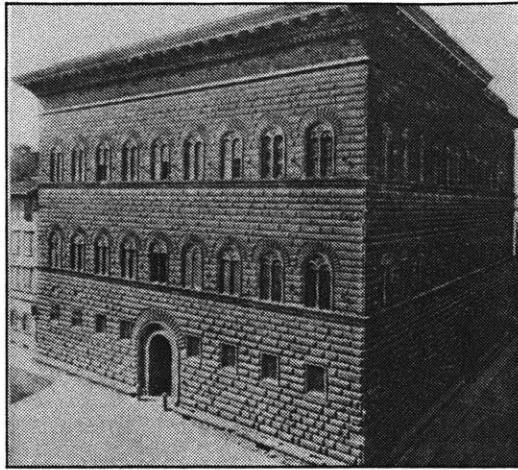
Reality and Imagery

A most basic, everyday intervention of supported dissipation has already been outlined in Part One. The use of our home or office interiors requires that a dissipative status in the *layout of objects and furniture* is reached. Unless a very dynamic intervention occurs, e.g., an evacuation, the dissipation of amenities is always supported in visual importance by the initial, underlying order. The ever-rotating cycle between the underlying order and the dissipation reflects respectively, on the one hand the need for energy concentration and, on the other hand, the need for tension reduction. In the case of our "interior" activities, tension reduction works in favour of moving from a state of inaction to a state of action.

The process of designing a *Rococo wall* is a permanent, visual example of dissipative decoration. In order to examine the pattern within this category, the actual design process should be taken into account: If the surface is looked at as a predetermined overall pattern - which is the case - then this example should be shifted into the next chapter. What is of interest for the "supported" status of dissipation, is the relation of the Rococo motifs over the Classical framing on which they are based. As soon as the frames are defined, the process of diffusing the frame edges or their strict zones gives birth to a curvilinear game. The Rococo motifs transfer the tension of the canonic frames through progressively thinner and smaller channels, like the erosion pattern of nature.

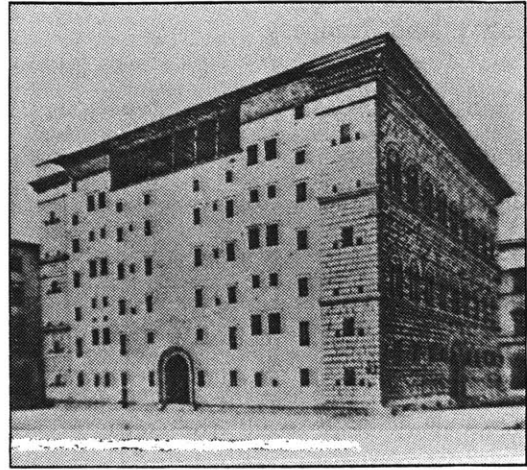
Architecture

Much of the late renovation work by Coop Himmelblau represents dissipative design moves within interior spaces. The *Red Angel* is a wine-and-song bar that took over the ground floor of a 19th century building. The *underlying* division of interior spaces follows the orderliness of Neoclassicism: the spaces are distinctly defined through linear separating elements and the openings on the walls succumb to the rules of a strict rhythm. The architects' intervention is a continual sculpture that invades the space, freed from any of the underlying dogmas of spatial definitions. The freedom of the sculptural flow is only

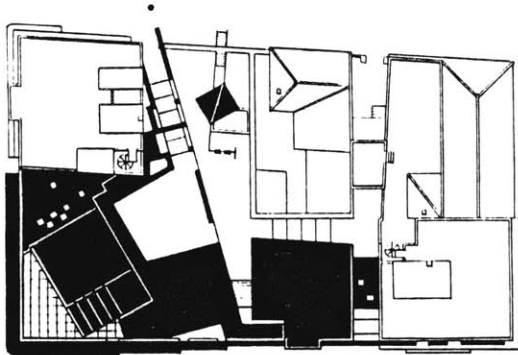


Main Corner

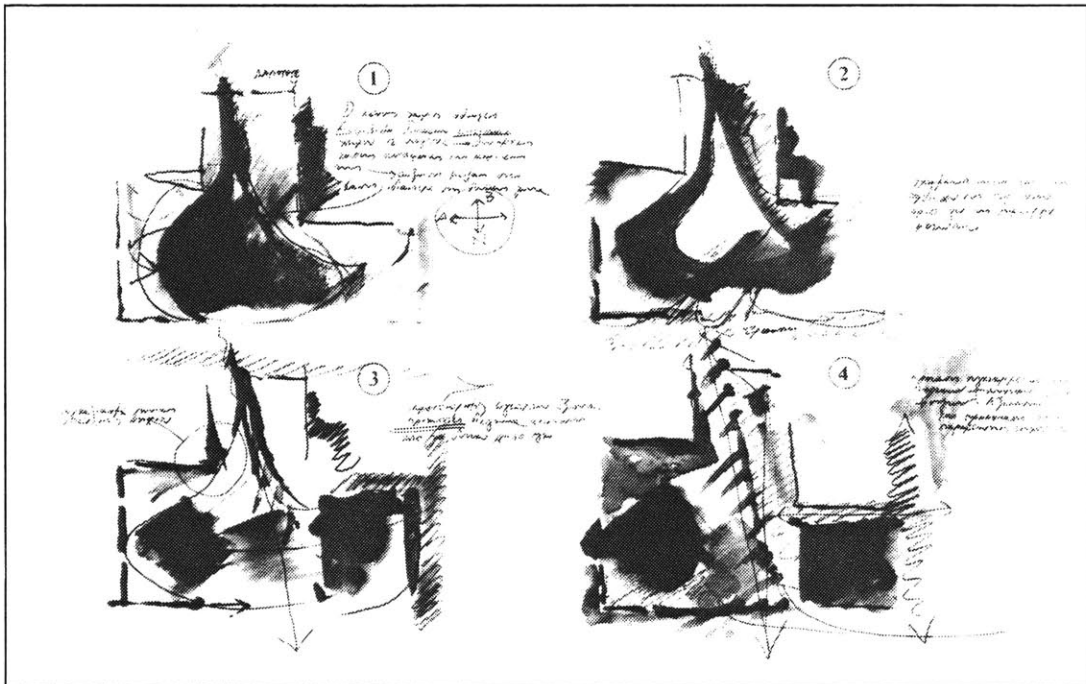
B. da Maiano, Strozz Palace, Florence



Alley Corner



C. Loizides
Exarchia Neighbourhood Centre, Athens



interrupted, occasionally, by the deterministic surfaces of the overall order – a fact that strengthens the supportive role of the basic structure.

Benedetto da Maiano's *Strozzi Palace* encompasses another example of dissipative intervention where, as in the case of the Rococo motifs, the basic concept *and* the intervention happen simultaneously, within the design process. The exposed facades of the corners follow the "regulated" aesthetics of the Renaissance, while the facade of the side alley escapes the principal order to adopt a Medieval abstraction: The vertical and horizontal zoning orders of the openings that the Renaissance imposed on the main elevations are dissipated into a latent state of zones on the secondary elevation. Thus, the "secondary" treatment results in releasing the tension of the "primary" one and, moreover, the energy difference between the building and the ground is lower on the side alley; the higher orderliness of the front elevation establishes a visual "edge" on the main street.

By looking at spaces left by the buildings, the integration of the *Exarchia Neighbourhood Centre* into an old block was based on supported dissipation: The supportive element is the existing fabric. The new building was initially looked at as a concentration of energy that is dissipated to "fit" into the vacant space. The integrating process has led into modifying the existing intensities of massing, surfaces and angles. By gradually incorporating an angular disruption of the existing orthogonal system, the proposal's units are progressively freed from the underlying order. Concurrently, the new system of circulation patterns disrupts the major orthogonal orders so that the cross-through potential of the deserted block is encouraged.

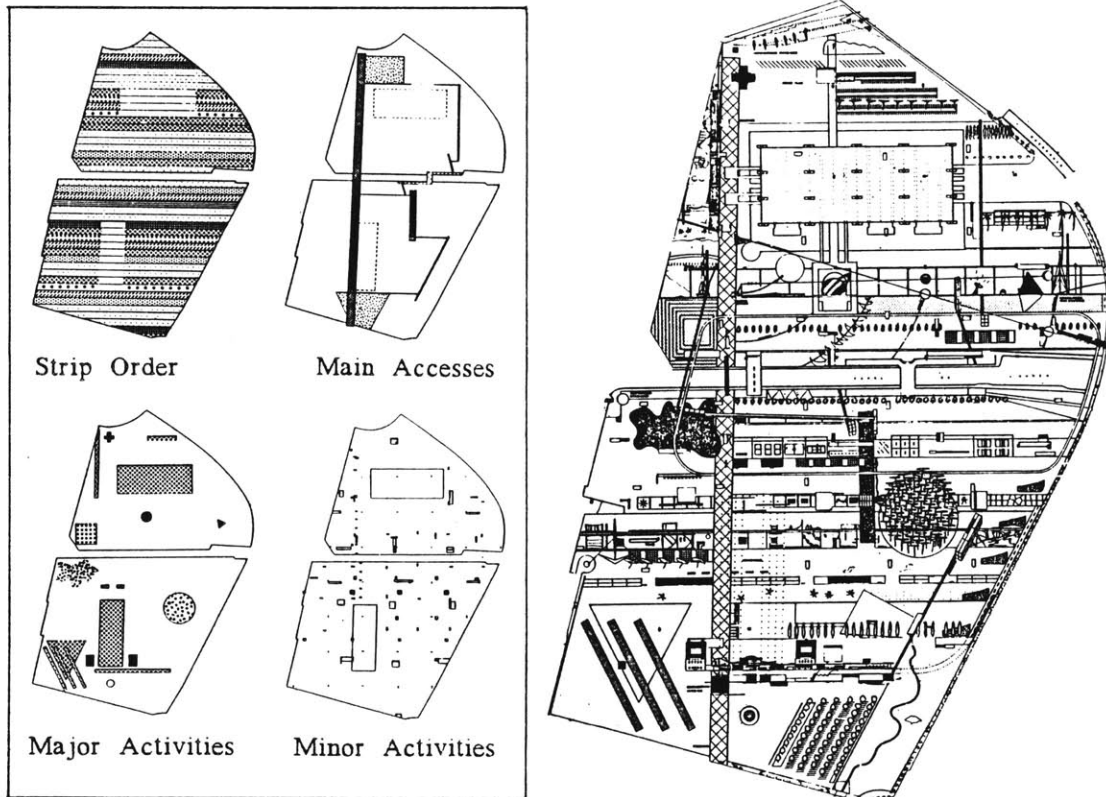
URBAN SPACE

The intervention of supported dissipation can be justified in those environments where the structural order, that was conceived and executed simultaneously, has remained unchanged. In the previous chapter we have been confronted with configurations where, before the dominated dissipation was superimposed, the tension was already reduced to satisfactory levels. The public spaces are certainly environments where quick changes are unavoidable and one could assume that the tension within the spaces is *bound* to be reduced through time. However, there still exist around us the products of the 20th century Modernism: In the centre

of cities, the movement has created the concentrated configurations of Urban Renewal Plans. Never before has the orderly presence gained more glory and the planning preconception become more total. At the time when modern movement has found the non-canonic distributions obsolete, the "total" design has considered redundant the distinction of parts within the whole. The "orderly" and sporadic massing gains as much energetic autonomy as possible, with the right angle being the sole determinant in the design of plans and sections. At the same time, the different uses are defined, separated, and grouped through a zoning scheme. Such a structural order cannot dissipate through time; the evolutionary interactions of the individual units, as we have seen in the *main street*, will not be powerful enough to alter the status of modern urban projects: No matter if change occurs on the partial level, the grand scale of the overall level will retain its canonic status; it seems that, unless a total demolition occurs, *time* alone with its progressive interventions cannot challenge the underlying orders. These environments can reach the Metameros configuration only through a dynamic intervention which is visually as important as the overall context. Such is the result of the supported dissipation and, as we have seen in the previous examples, the superimposed scheme is almost as prominent, if not more important, as the underlying context. In this respect, the difference with the dominated dissipation is that the intervention has to make use of major built entities - shells that contain concentrated activities - in order to *initiate* the tension reduction.

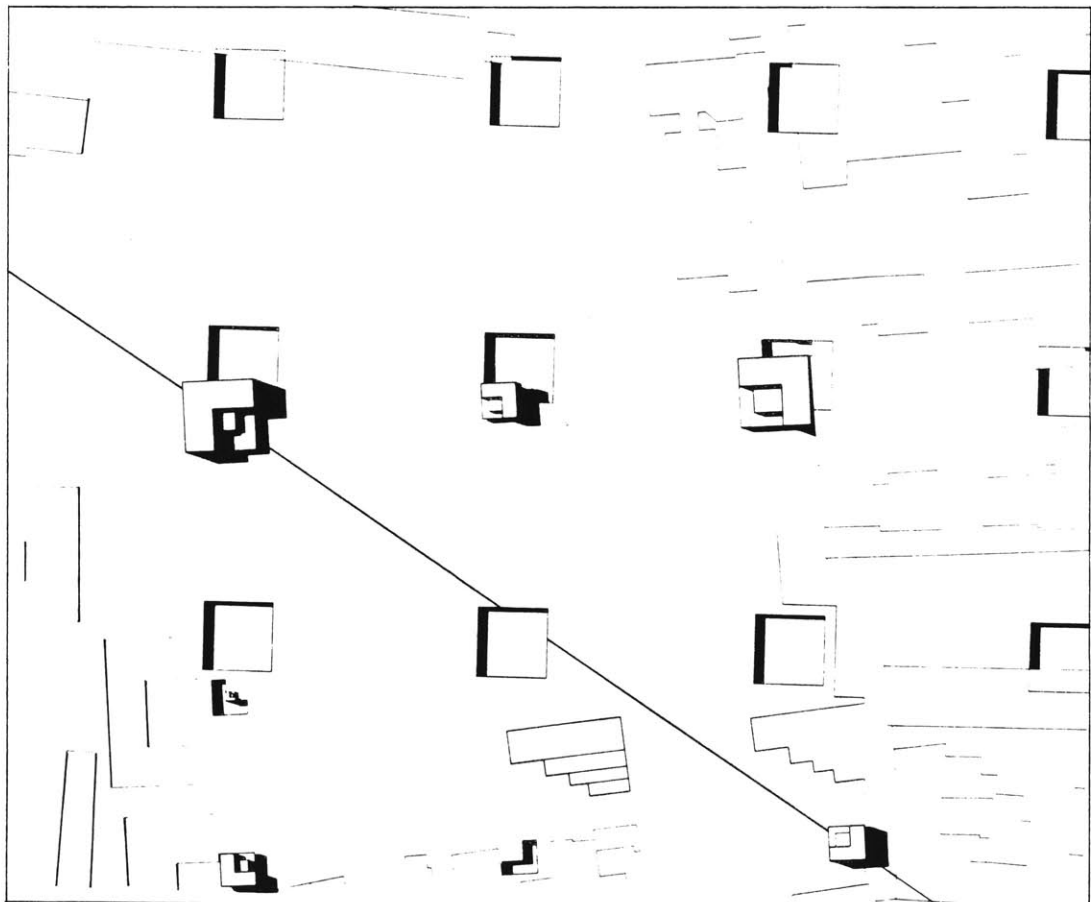
In the overall context, the supported dissipation is an *integrating* process. The increased awareness in preservationist or conservationist values tends to regulate the integrated entity by imposing the schemes of the environment's order: The product is invested with the tension of its surroundings so that the preexisting totality is confirmed. The goal of the supported dissipation is exactly the opposite: As it was demonstrated in the Exarchia Neighbourhood Centre, the intervention results in producing a *fresh* intensity in order to challenge the totality of the major context. In no way does this presuppose that a distribution *in contrast* with the underlying order "dissolves", necessarily, the main concentration. In fact, the major order can enhance its dissipation by determining or *guiding* the interfering elements. It is interesting to see how the following interventions can use, alternatively, the preexisting context as initiator of the supported dissipation itself.

The competition for the *Parc de la Villette* proclaimed a new way of looking at parks as public spaces: *In the 20th century garden, people may consume culture as well as nature.* Within this context, the programme requirements unfolded a list of prescribed cultural activities that, combined with natural landscaping, would be superimposed on an old, slaughter-house development on the Villette site. The entry of the Office of Metropolitan Architecture (OMA) promotes a dissipative design that is supported by the existing structures: An underlying strip pattern is generated, with each strip being as intense as the activities that it encompasses. This underlying order is carried through the retained buildings so that the energy of the buildings is "absorbed" by the strip pattern. The diagram of the main accesses along with the strip division are becoming the two underlying orders on which the large scale activities and the minor amenities are based; their seemingly "scattered" distribution is guided by the determinism of these orders. A similar diagram is developed for the major groups of vegetation and finally, for the different species of trees. The overall product is the clashing overlay of all the previous diagrams onto the site. Hence, the design process approached the equilibrium state by gradually relieving the tension from major intensities to minor ones.



OMA, Parc de la Villette, Paris

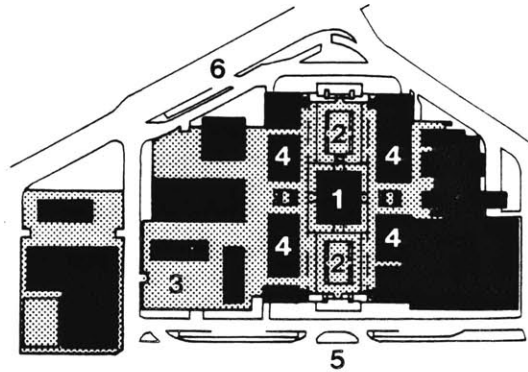
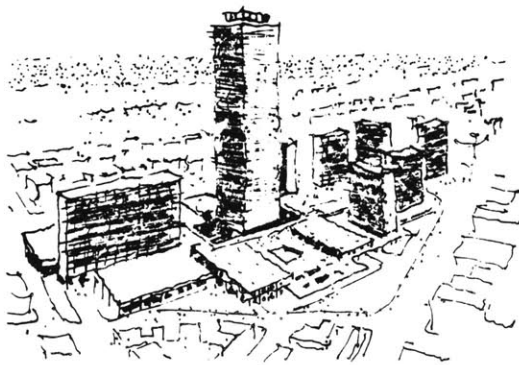
P. Eisenman
Project for the Cannaregio, Venice



Yet, within this "controlled" randomness there exists the *discreet* predominance of the preexisting buildings, whose structural and siting orders guided the dissipation. The result seeks to promote the deterministic spirit of orientation and direction but, at the same time, it superimposes minor, clashing orders for visual exploration: Such distributions have been mandatory for the deployment of spaces in evolutionary dissipation.

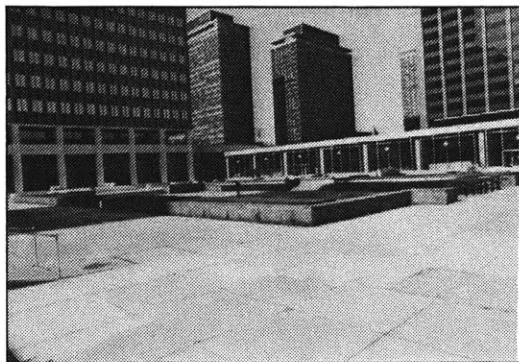
OMA's proposal was supported and developed within a site that was dominated by the supportive entity. Peter Eisenman's *project for the Cannaregio* carries the dissipative intervention from the supportive element out to an area that was not initially related to the source of dissipation. The supportive context in this case is Le Corbusier's Hospital. Its canonic values were inserted in the Cannaregio context of evolutionary dissipation. The architect extends the hospital's grid motif by transforming the grid units into holes on the ground. However, the space that is intended to be "reenergized" is not the actual site of the hospital, but a left-over urban space contained within the wider area. The holes intrude into the open space and establish a remote, conceptual relation with Le Corbusier's structure. At the same time, they superimpose a coherent order onto the "incoherent" environment. As soon as the order is established, a dissipative intervention brings out built objects that reduce the tension between the holes and the surrounding bulk: Their imposition is controlled by a new order in angular shift with the previous one, while their size, or visual presence, differs from one unit to another. The tension of the new interaction is further reduced through a more subtle act, a diagonal cut on the ground.

The proposal in its totality would have been an act of dominated intervention if the whole Cannaregio had been structured according to the determinism of the hospital. In this case, the presence of Eisenman's objects would have been dominated by the canonic and coherent presence of the surrounding context. Nevertheless, the major lack of coherence in the site has been eliminated through a preconception of *tension* and a concurrent tension reduction. As we will see in the following chapter, such a scheme is necessary in the act of *constructive dissipation*.



- 1. Prudential Tower
- 2. Plazas
- 3. Podium

- Shopping Malls. 4
- Boylston Street. 5
- Huntington Avenue. 6



Plaza



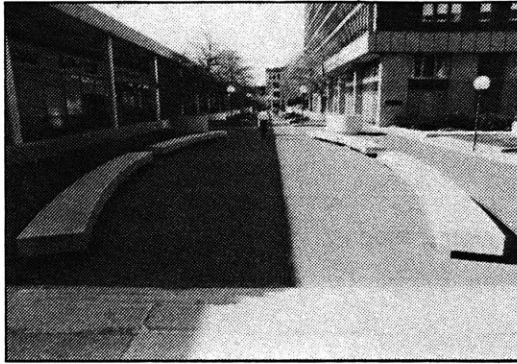
Shopping Mall

The Prudential Complex

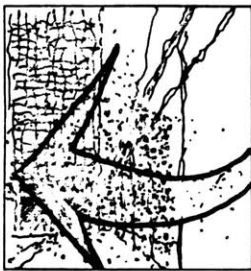
Current Status

The mixed-use development was mainly constructed during the sixties along with the Boston "renewal" waves; it claimed a train yard area that was characterized then as a no-man's land, at the triangular intersection of Boylston street and Huntington Avenue. At the scale of ten million square feet in usable space, the project accumulates office, residential and retail uses that are distinctly defined and separated. The plan aimed at establishing the International Style's "healthy" environmental quality on a site that was previously regarded as inaccessible and "unhealthy": The free-standing office and residential towers are accessible through an elevated podium of "public" use; the podium itself is elevated over the ground floor's parking and service uses. Even though the commercial malls and the exterior "plazas" were developed to have both direct and regional use, they are hardly used by the employees or residents of the complex.

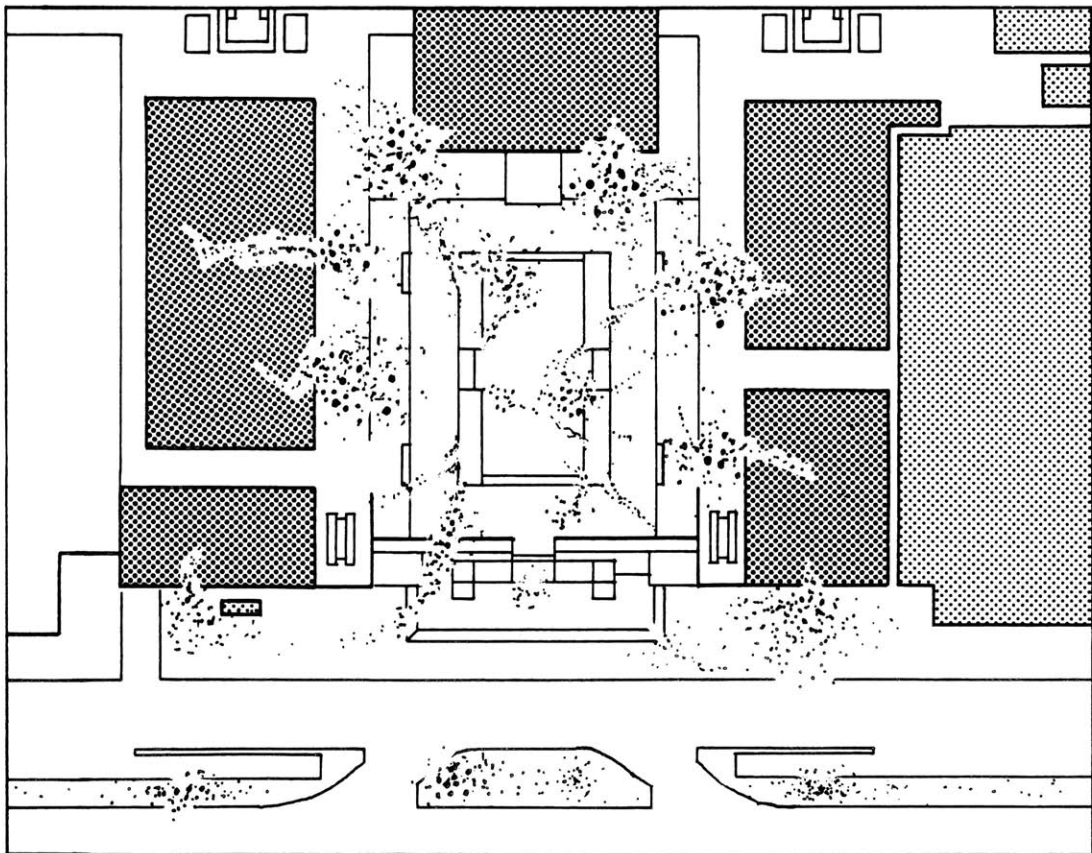
The complex is exemplary in its preconception as a total project. The whole development can be perceived in its totality because (a) it contrasts in scale with the surrounding 19th-century fabric, (b) its exterior spaces are all elevated and isolated from the ground and (c) the repeated scheme of tower-on-podium is subject to an overall orthogonal system. The only compositional decision, that resulted in reducing the tension through the built entities, is the placement of the tallest tower, the Prudential Tower, in the middle of the lower ones. Yet, this distribution is only perceived from a considerable distance and, therefore, does not relate directly to the space of the complex itself. At any other level, either on a macro or micro-scale, the tension is maximized as in no other space in Boston: The towers claim autonomy in isolation from the space not only because of their orthogonal order and facade neutrality, but also because their ground floors are internalized with no functional interaction with the exterior. If we exclude some accesses that are insignificant to the size of the podium, the elevated surfaces are completely separated and zoned off from the main streets: the immediate street frontage of the podium embodies the canonic aesthetics of a modern parking or service building. On the podium itself, the space flows unrelated to the buildings and is shaped into rectangular plazas or patios. The tension between the space and the frontages is significant even in front of the



The Desperate Tension Reductions



Intervention



shopping malls; the deterministic, linear movement of the mall interfaces between the flat frontage of the shops and the exterior space.

Within the newly created no-man's land, some scattered, non-canonic configurations of benches and a statue of Hellenistic movements can only reduce the tension as much as some drops could affect the dynamism of ocean waves.

Intervention

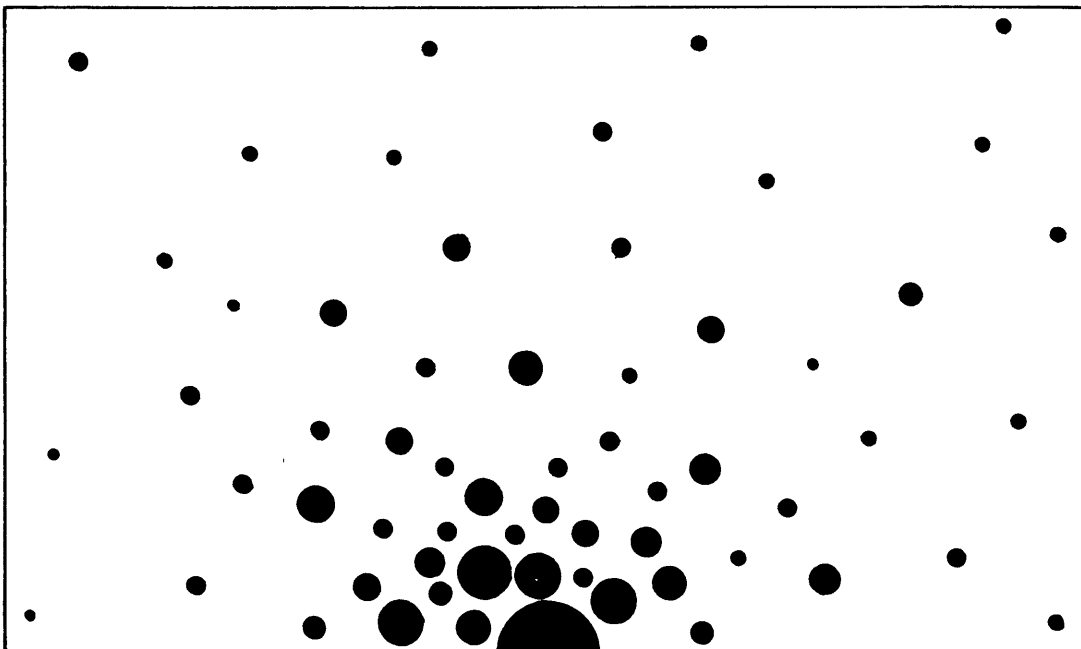
The new distribution of tensions aims at diffusing the deterministic partitions of tensions. In this respect, the vertical frontages become the supporting elements of the dissipative intervention. The intervention relates to the "public" space of the complex: the area that is defined by the Prudential tower and the shopping malls.

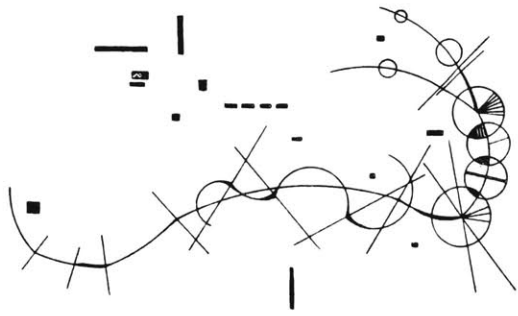
On the podium level, the density of the built elements is increased by reducing the tension of the frontages outwards, into the exterior space. The new distribution of "containing" shells, on the one hand, can disrupt the skyline of the horizontally-expanded shopping mall and on the other hand, can establish a physical interface between the tower and the "plazas". The same system of concentrated tensions interferes with the podium frontage and can be dynamic enough to disrupt the linear edges; as soon as the distribution reaches the street level, on the Boylston street side, it can spread outwards and get aligned with the axis of the walkway. Following the definition of the new distributions of intensities, comes the dominated dissipation: Guided by the new "shells", the subtle intensities can "grab" the tower and spread skywards while, on the walking level, they can selectively disrupt the canonic definitions of the platform patterns. The concepts of the latter, dominated distribution over the Prudential tower can be incorporated with the rest of the towers.

CHAPTER D

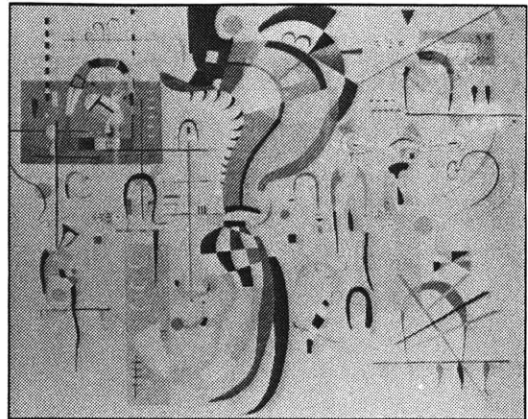
CONSTRUCTIVE DISSIPATION

In the final category, the dissipative process is not responding to any underlying pattern as in previous examples: The dissipation is acted upon a concentration that is predetermined along with the intervention. In this way, the tension reduction is preconceived along with the tension. The space or context in which the dissipation occurs, is simply the void. Schematically, it is represented by the whole spectrum of intensities and encompasses both the dominated and the supported dissipations. The difference with the scheme of evolutionary dissipation is not in the diagram, but in the *time* over which the diagram evolves: The "intervention" of this category can be paralleled with the actual *momentary* effect of an "explosion" whereas, in the first case, the product was a result of a *series* of "explosive" interventions. Hence, the goal is to create the Metameros *dynamically*, out of no preexisting context.

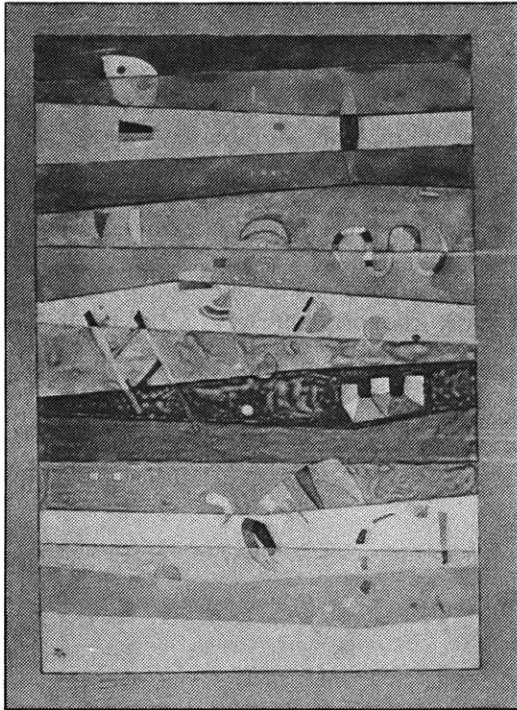




Drawing No 6



Accompanied Circle



Horizontal



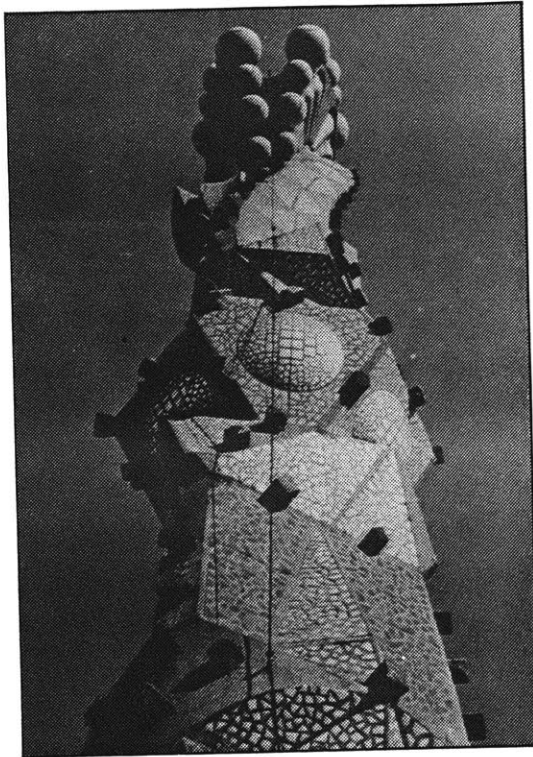
Sky Blue

Imagery

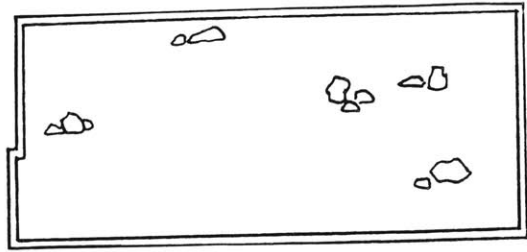
As long as the patterns in the process of painting respond rapidly to the painter's gestures, they can be considered as preconceived, visual statements or, as interventions on a "blind" surface. Much of 20th-century abstraction can be clearly examined and categorized according to its dissipative statements. Wassily Kandinsky's work encompasses an interesting evolution, moving from a concentration on singular themes in his early work, to compositions of complex dissipation in his late paintings. Following, are different aspects of Kandinsky's pluralistic game of tension reduction and, as such, are representative of his late work.

In the *Drawing No 6*, the main energy load lies along the curvilinear axis. The cross lines and circles help in diffusing the predominant presence of the core axis. Furthermore, they establish themselves as channels through which the core energy is dissipated towards the secondary concentrations, expressed by the black rectangles. The *Accompanied Circle* incorporates less canonic shapes: The complexity of forms produces a richer hierarchy in levels of concentration. Different dissipative processes can be isolated from the central theme, while the energy flow is gradually channeled to less concentrated entities. The predominance of one main theme is even more diffused in the *Horizontal*: An underlying order of a strip pattern is established to "hold" the minor intensities of forms. No prevailing theme exists, nevertheless, the density of forms is slightly larger in the central region of the strips than at the edges. In the *Sky Blue*, the scattered themes become more complex and the previous "background" order of strips disappears. Instead, each main concentration gains autonomy through its articulation and each can be compared to the overall status of the *Drawing No 6*: The minor intensities - the singular forms - reduce the tension of the major ones.

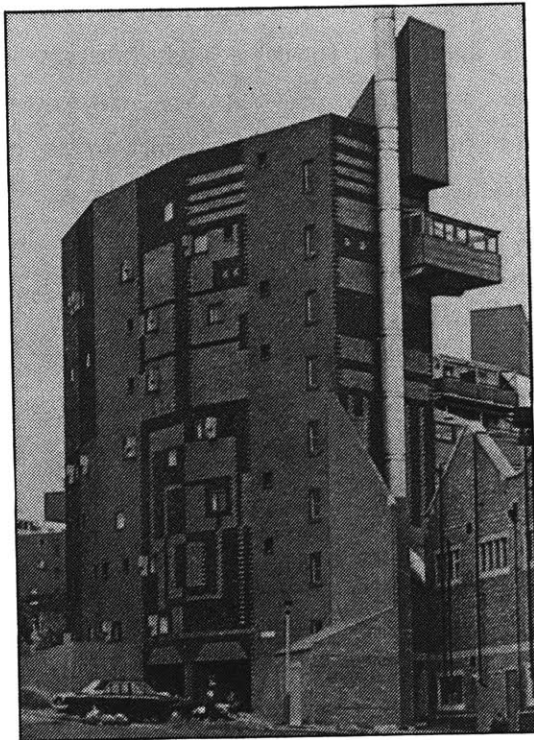
The finials of the belfries of Antoni Gaudi's *Sagrada Familia* are examples of preconceived dissipation in sculpture. By isolating one finial from the rest of the structure we can follow the tension reduction from the top to the bottom through two different media: The main form is defined by triangular planes that decrease in density by growing larger towards the bottom, while the superimposed spheres or prisms are spreading dynamically downwards.



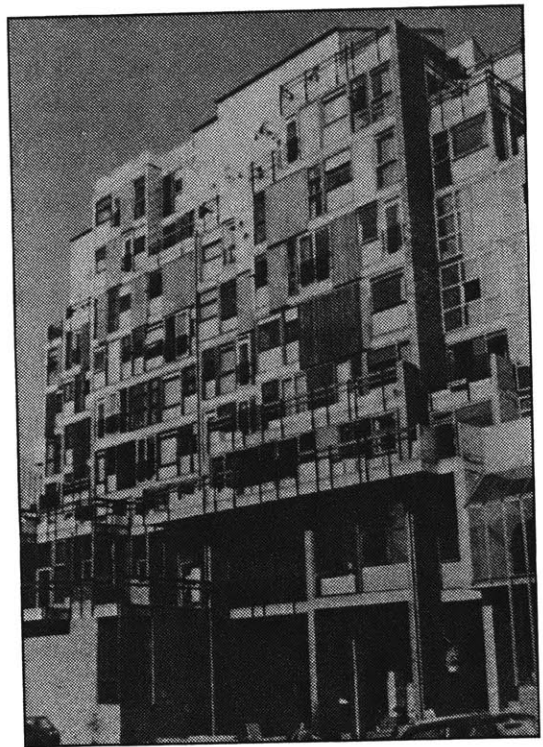
A. Gaudi
Finial of Sagrada Familia, Barcelona



Stone Garden
Ryoanji Temple, Kyoto



R. Erskine
Byker Wall, Newcastle



L. Kroll
Medical Faculty Building, Louvain

The constellation of stones in the *stone garden of the Ryoanji temple* is a spatial analogy of Kandinsky's *Sky Blue* painting. The example is a representative abstraction of the articulation of rock constellations in Japanese gardens: The space approaches the equilibrium state through a constructive-dissipative intervention. The constructive elements are the bigger stones within the separate groups, while the dissipative intervention is acted on a dual level: On the first level, the smaller stones reduce the tension of the supporting elements and, on the second one, each individual group is sited in relation to the other groups so that the individual concentrations of energy are diffused.

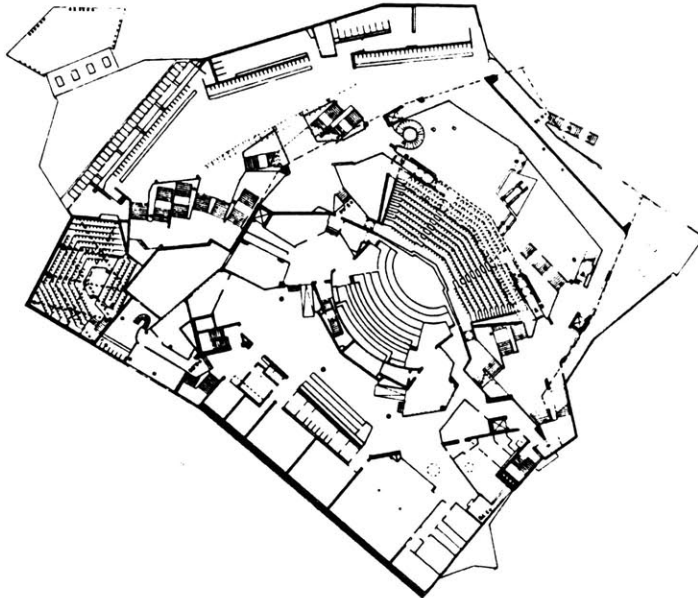
Architecture

Ralph Erskine's *Byker Wall* signifies a contemporary approach to the Byzantine pattern of *found objects*. In the way the Byzantines have inserted the "found" pieces of reliefs, sculpture and architectural elements into the brick facades, Erskine has coloured the ventilator hoods of the exterior skin. The scattered, bright colours establish a secondary level of visual stimulation over the brick surface. As in the examples of *dominated dissipation*, the tension between the observer's viewpoint and the wall is reduced through the minor intensities. The difference here with the dominated dissipation is that the configuration of tension reduction is preconceived as opposed to being superimposed through intervention.

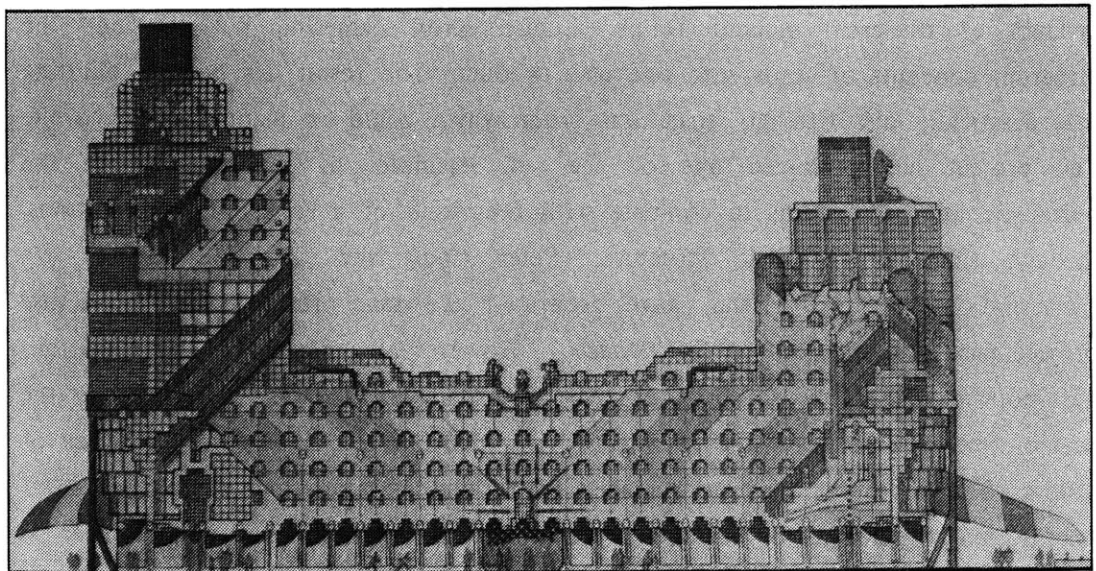
The *Medical Faculty Building of Louvain University* is a collaborative product of different student teams. Lucien Kroll came to put together the different concepts of units into one end product. The result has been a building that drastically dissolves any structural order which could be made clearly visible. The project has produced one of the few examples of buildings where the pluralistic approach seems to compete with the result of a series of interventions, through time, on a basic structure. Peter Cook and Christine Hawley, in collaboration with FS Platou, have generated the same result in a mixed-use project for the *Den Norske Creditbank*. However, the design of the elevations did not implement a scenario of partial orders as it was reflected in the previous project: Instead, the architects have incorporated an overlay in series of orders. The rhythmic concrete surface "grabs" the elevation and establishes itself as the major tension, or as the predominant distribution. The main order is

"invaded" and expanded by an "anarchic" distribution of glass surfaces; further diffusion is accomplished through the diagonal strips.

The plan of *Berlin's Philharmonic Hall* by Scharoun can be associated with the way the energy flows through a cracking pattern. The continually shifting directions respond to the canonic configurations of the central theatre space. The secondary spaces are kinetic and gradually become less canonic, in favour of the "deterministic" accesses to the centre. In this way, the circulation pattern is one that favours the tension reduction from the main performance space, the actual event, to the edges.



H. Scharoun
Philharmonic Hall, Berlin



P. Cook and C. Hawley, Den Norske Creditbank Complex, Oslo

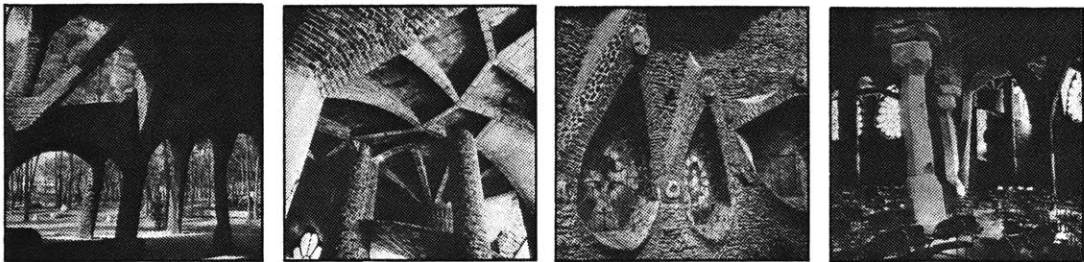
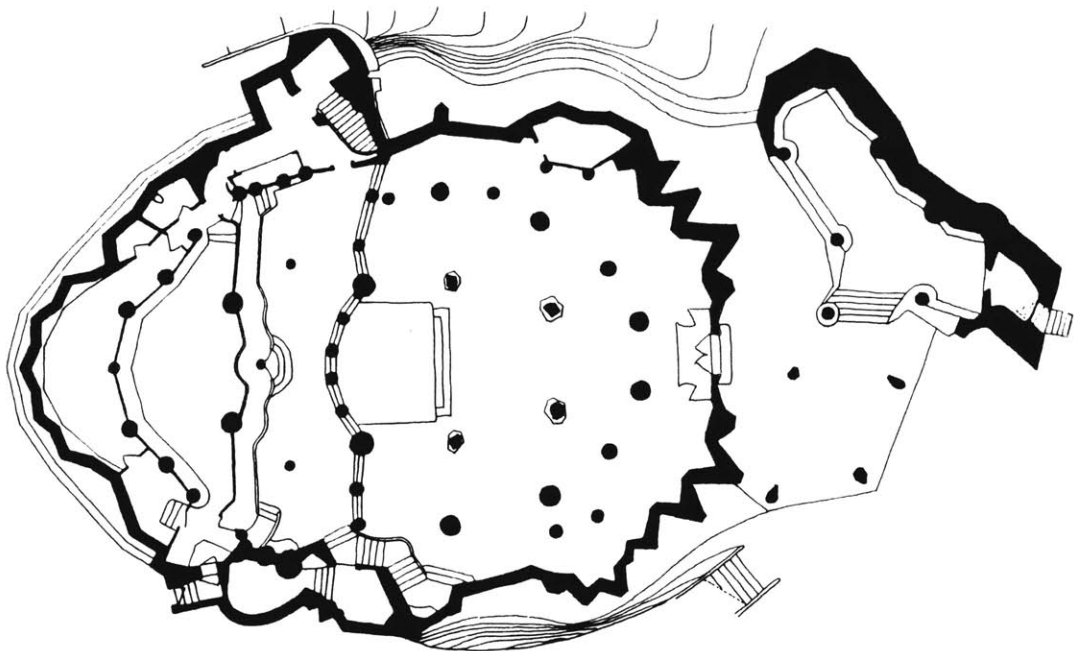
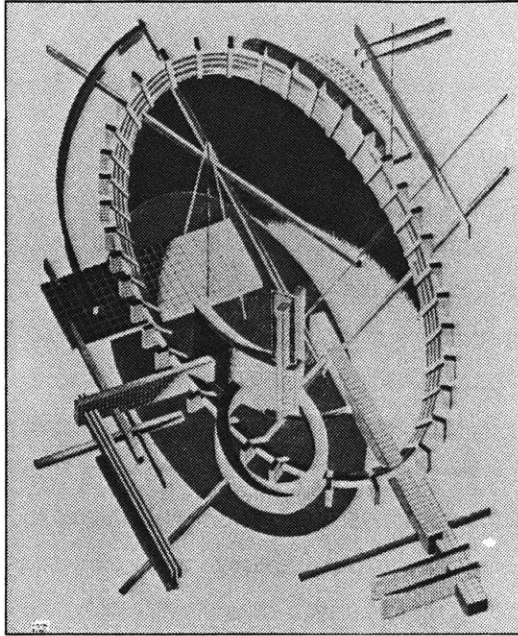
URBAN SPACE

By being liberated from any underlying order, a dissipative urban system can be imposed on vacant areas, where tension is nonexistent. Within the public urban context, however, the proximity of buildings and activities makes it improbable to locate spaces where there is no flow of energy; nevertheless, as we will see in the proposal, there are still leftover downtown areas where the liveliness is extremely low because of the singular deterministic intervention that has acted upon them. Referring again to the Urban Renewal phenomenon, when the scale of the buildings is vast, then usually the open space is a deserted site; the initial design decision regards the open space as a mere exhibiting platform for the built shells. In such sites, any generation of constructive dissipation will have to compete to a certain extent with the presence of the surrounding bulk. In the previous examples, we have encountered the "frame" interference through the actual frames of Kandinsky's paintings and through the edges of the Zen garden. The two examples that follow, simply demonstrate how the dissipative process can act onto an open space that is not restricted by adjacent interferences. The proposal at the end will encompass the principles of the dissipative act when the act is framed by the preexisting, "exhibited" context.

Moving from the dominated to the supported dissipation, the related proposals evolve from singular to plural or from total to partial in their preconception: The *dominated* intervention had a singular character in its methodological approach; the proposal was regarded as a coherent system of repetitive motifs. The *supported* dissipation involved an *overlay* of methodologies, from the major tension reduction to minor ones. The *constructive* dissipation encompasses even more methodologies, with each one being comparable to the the concepts of *evolutionary* interventions: The generation of the tension itself requires one individual design approach, and is followed by the act of tension reduction which is as plural as the *supported* dissipation.

Iakov Chernikhov's vision, entitled *Architectural Invention of a Complex Type Unifying Rectilinear and Curvilinear Form on Constructive Principles*, is an axonometric projection of a two-dimensional *constructivist* composition. Constructivism as a major art trend, was reflected in a substantial portion of Kandinsky's work. The dissipative notions of Kandinsky's Drawing No 6 are implemented in Chernikhov's complex: The basic tension is produced by the

I. Chernikhof, Architectural Invention



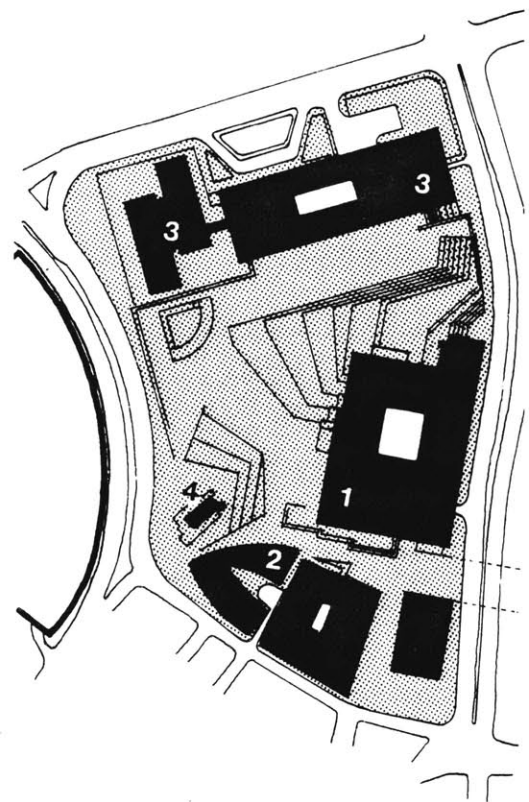
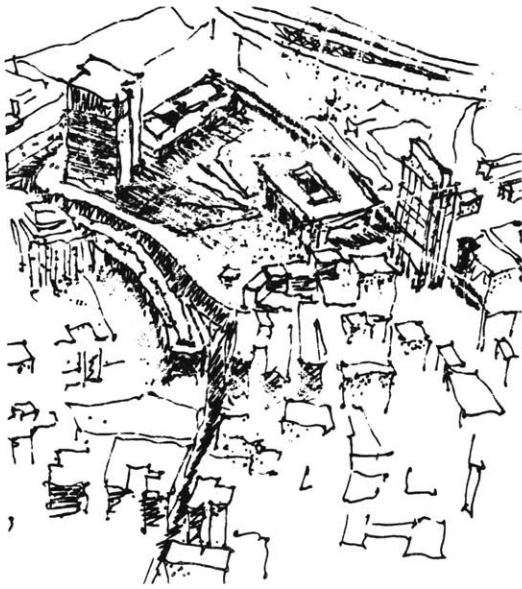
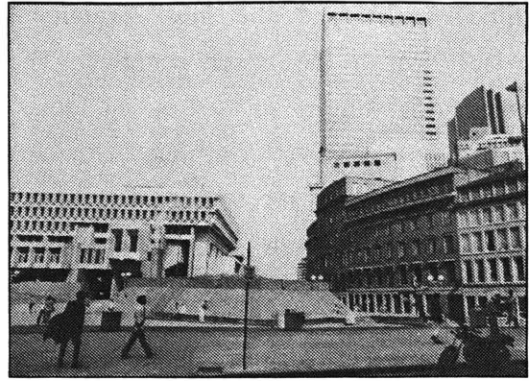
A. Gaudi, Chapel of the Güell Colony, Santa Coloma de Cervelló

elliptical space and the most prominent tension reduction within the space is carried through the tower complex. The energy differences are further relieved through the linear spread of buildings and corridors. One might expect the dissipative process to continue with an additional layer of subtle elements, in order to diffuse the strong directionalities. Nevertheless, the freedom in the angular shifts reveals the intention of diffusing the supporting ellipse and, moreover, the intention of "randomly" superimposing different layers of order.

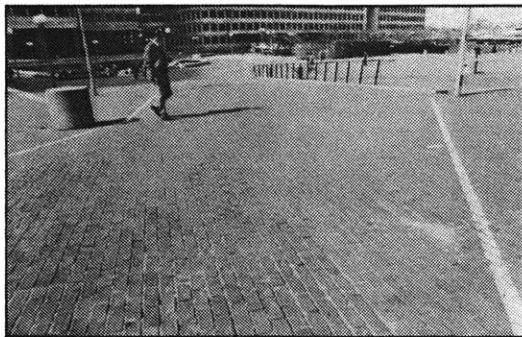
A more complex project, where the structural elements themselves are elaborate, is the unfinished *Chapel of the Guell Colony* by Antoni Gaudi. The chapel and its direct environment were projected for the public use of the Guell Colony, a workers' residential development. The organic symmetry in the crypt's plan represents the underlying order, and *all* the structural elements carry through the tension reduction. *Tension reduction* in this case is reflected in both the Lexicon's definition and in its actual structural meaning that relates to loads and stresses.

A complete integrated vocabulary is developed to diffuse the separation between supported and supporting elements: The roof vaultings' paraboloid and hyperboloid tensions are carried through leaning columns and supporting sloped walls; in their support of the complex vaults, the columns and the supporting surfaces and elements interact through shifts from verticality; the materials change in respect to their load-bearing capacities; the textures and colours of these surfaces are as rough as the surrounding natural elements; the imposed colourful windows become the visual stimulants of dominated dissipation, like Erskine's coloured hoods; the specially designed Art Nouveau furnishing, channels the already reduced tension onto the walking surfaces like the erosion pattern of nature.

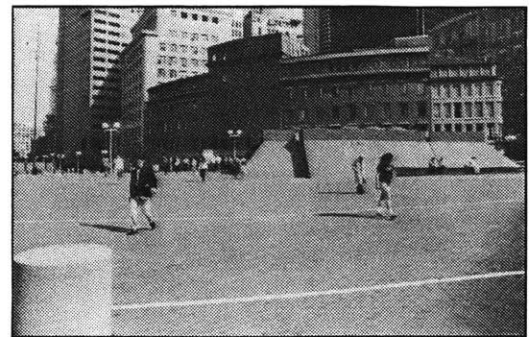
One finds oneself in an environment where, as in a natural forest, the structural order is complex and hardly readable and yet, the "formal" randomness is rationalized out of its natural evolution.



- 1. City Hall
- 2. Sears Crescent
- 3. J.F.Kennedy Federal Building
- 4. Subway, Entrance Kiosk



Edge of Federal Building



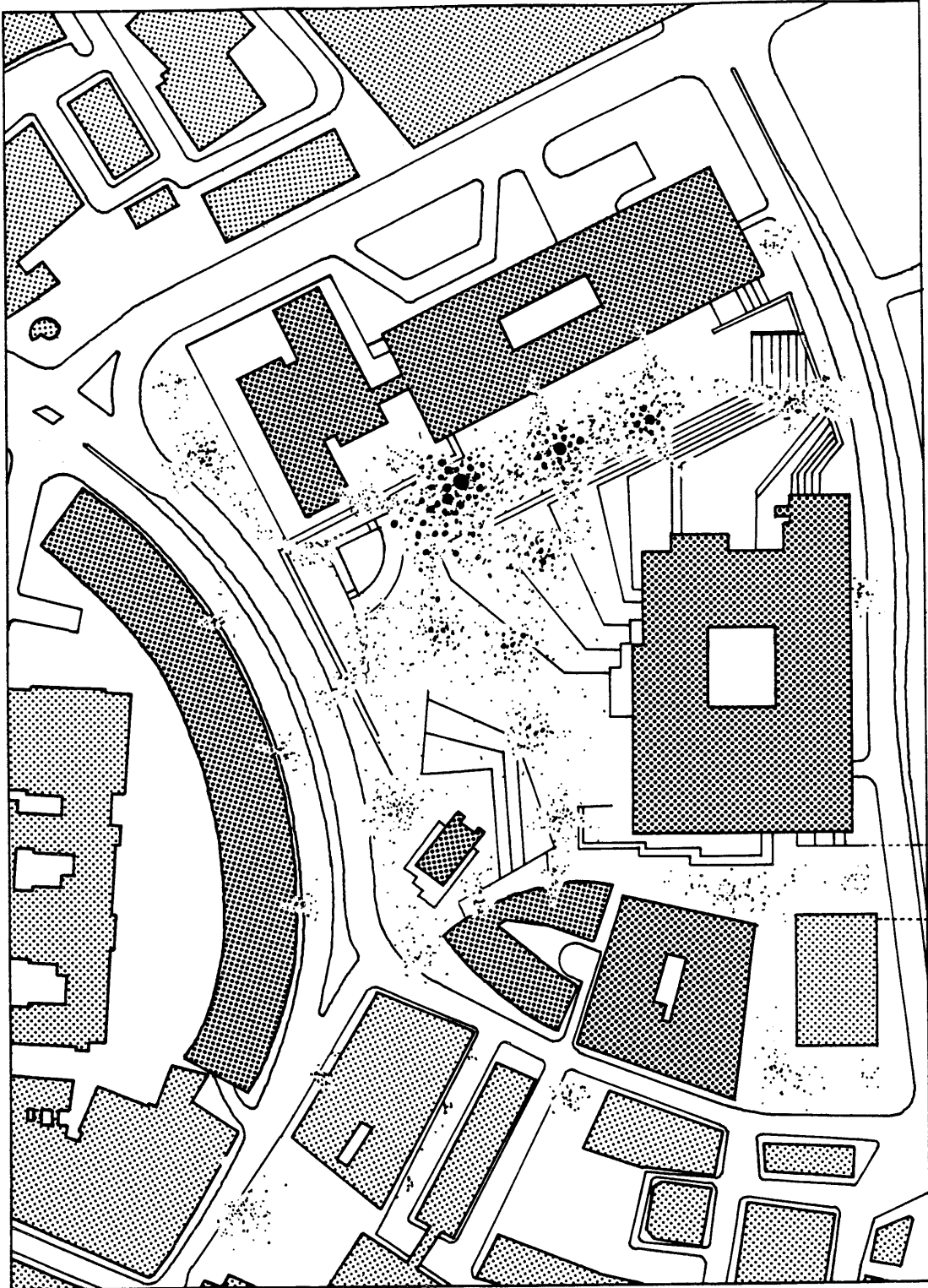
Edge of Sears Crescent

City Hall Plaza

Current Status

In the heart of the most ambitious of Boston's urban renewal projects lies the exhibiting platform of the City Hall. As in the Prudential development, yet in a less deterministic way, the Government Center Urban Renewal Project was conceived in the sixties as a megastructure complex created to replace a denser historic fabric. The plan that was developed for the area was implicit enough to regulate the massing of the buildings alone and thus, enabled individual and differentiated building designs; hence, it is not as total in its articulation as the Prudential complex. Surrounded mainly by administrative buildings, the plaza cannot be perceived in the way its public "role" demands: as a comprehensively active open space where the City Hall is the predominant entity. People use only the southern part of the space, which is adjacent to Sears Crescent - the only old building that survived the demolition, and also the sole mixed use retail-office building on the plaza surface. The J.F.Kennedy Federal Office Complex has an extremely negative impact on the northern part of the space. In that area, the plaza can be characterized as a no-man's land in terms of usage or, as a wasteland because of its great scale. Overall, the open space flows uninterrupted out of vast openings between the buildings. If the City Hall can justify the tension that it induces because of its concentrated symbolic values and its significant public use, the Federal building cannot.

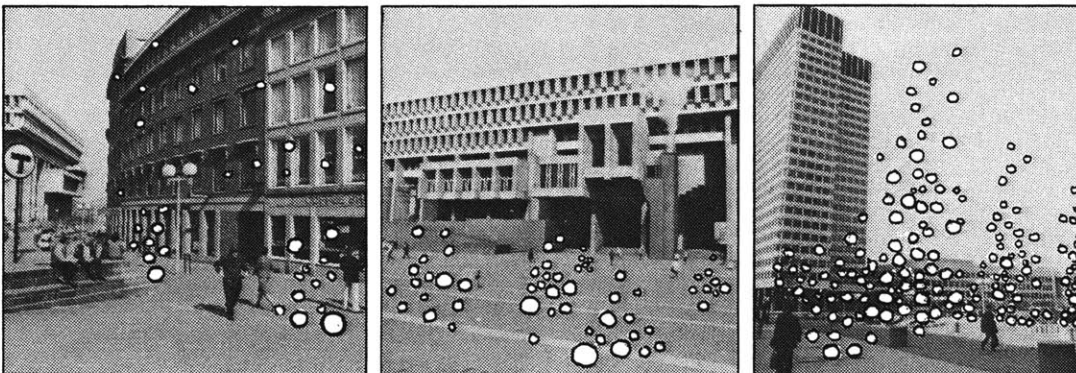
The energy level of the buildings is progressively increased in moving from the south to the north: The old crescent has gradually embodied the partial transformations of evolutionary dissipation. In its turn, the City Hall is stimulating the tension at the central part of the plaza, while at the north, the Federal building is further enhancing the tension to a peak; the longitudinal part of the building "abuts" onto the space, unlike the City Hall, with an homogenous and canonic intensity while the tower portion of the complex creates a deterministic and singular gap of height both within the same complex and with the exterior space.

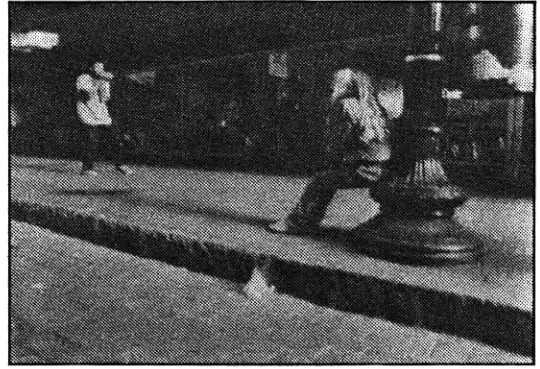
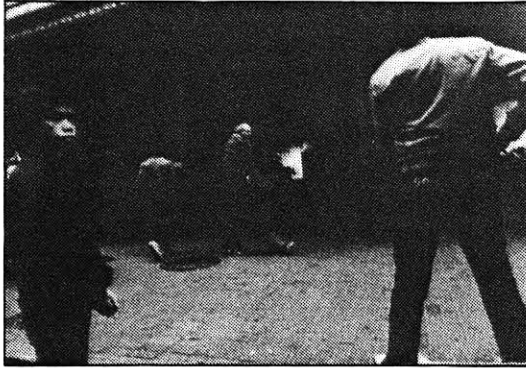


Intervention

The proposed distribution of tensions aims at establishing a new underlying order that will eliminate the negative impact of the northern frontage, to increase the usage of the plaza.

The new configuration is located at the northern part of the space and its underlying order is in challenging relation to the Federal complex. At the plaza level, it establishes itself as the new "north" frontage while, the larger its distance from the City Hall, the higher the tension of the new shell. At the skyline level, this tendency might incorporate a series of punctuations that are gradually becoming less prominent, the further they are removed from the Federal building's towers. At the ground level, the tendency reflects the results of the supported dissipation: The new shell is relieving its energy into the plaza by incorporating a distribution of smaller tensions; the dispersed intensities are not stronger than the existing intensity of the transportation system's entrance shell. The final concept of the intervention relates to spreading the tension of the smaller units through subtle intensities (dominated dissipation); the latter can "grab" the frontages of all the buildings that surround the City Hall and fade out into the converging streets.





Appendix I**DOWNTOWN CROSSING: SPACE, TO PEOPLE, TO SPACE**

Photography, December 1984

The camera shoots... you do not, because your vision is too much attached to that ever-changing, momentary experience. The "models" are not obedient, they flow endlessly within a colourless or coloured space, simply presenting themselves as mobile forms. It seems that the warmth of the brick floor explodes through the shop windows but then, the moving bodies absorb this energy and dissipate it back into space. If you embody the configuration, then you can realize that the space is transformed continuously, within splits of seconds. And once this reality is built up in your memory, you simply wait for the next transformation or run after the random occurrence of another one.

The samples represent a "close-up" photography venture, carried out in such a way that my vision was not attached to the camera system: the camera was functioning randomly, at the time when I was an integral part of the motion clashes. The goal has not been to beautify the reality, but to represent it in as much of its casual mode as possible. By being liberated from its classical properties of focus, composition and restriction, the actual frame becomes an indicator of the environment which is *not* framed; an environment where a multitude of *random* spatial patterns in human presence is manifested. The wide range in foci of attention, standstill and rest, and the clashes of orientation and movement represent directly the liveliness in an energetic public space.

To what extent can this vivacity be stimulated and regulated by the physical presence? We now tend to acknowledge those physical elements that negate vivacity, but we usually like to promote the notion of the *mixture of uses* alone.

Appendix II

INTERVENTIONS IN PATTERNS OF NATURE

Environmental Art, April 1985

From the first dissipative intervention to the last, the *underlying* natural patterns become less predominant, and more orderly. Many settings in nature are of high orderliness, as long as they are visually isolated from their surrounding context. The "momentum" for intervention was eliminated in those cases where the setting reflected nature's *evolutionary dissipation*.



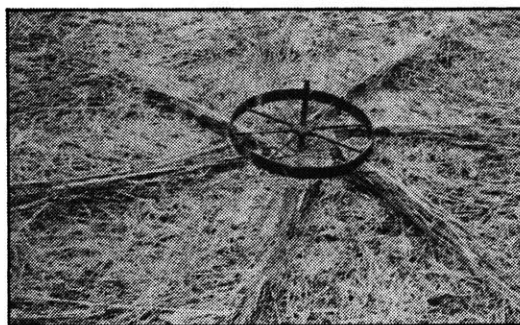
Balls on Rocks

Dominated Dissipation: The underlying rocks formulate an *enlargement* of the imposed dispersion.



Balls in the way of Branches

Supported Dissipation: The density of the balls *follows* the rhythmic repetition of the verticality and the vertical landing of branches is challenged by the horizontal dispersion.



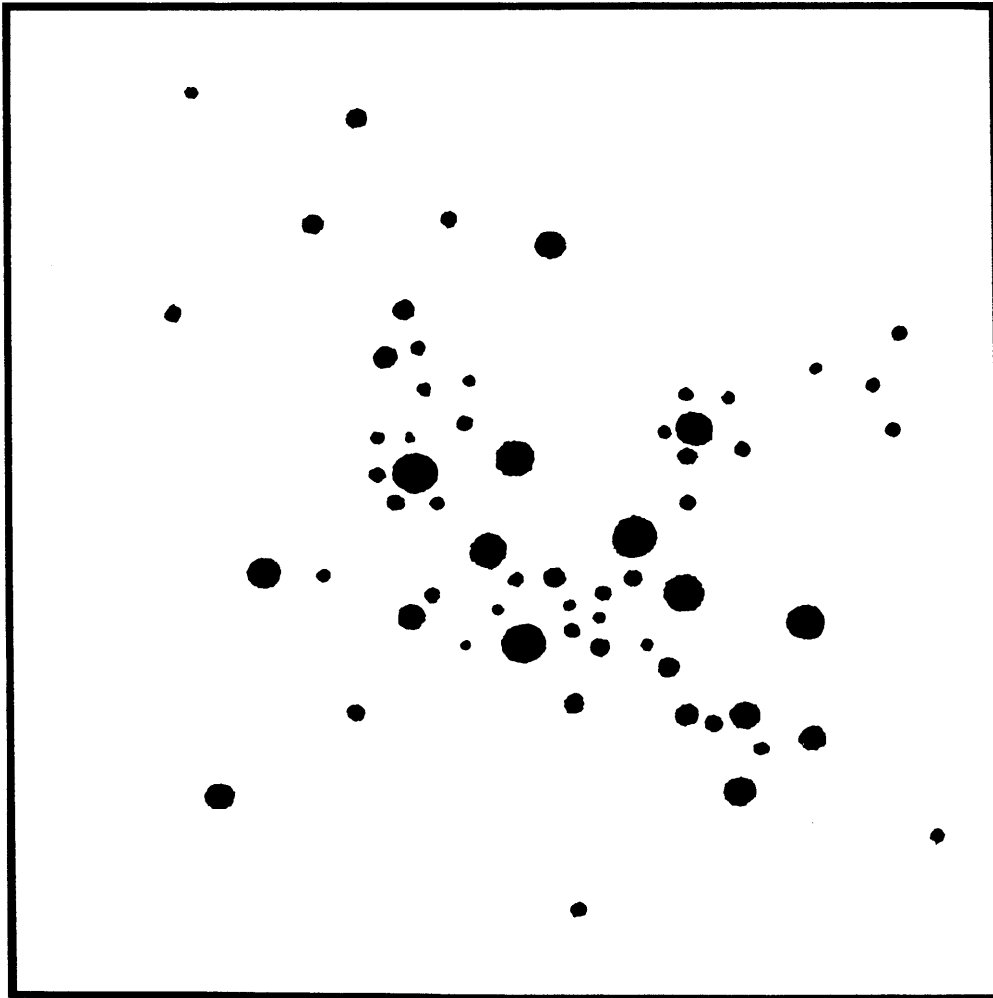
Wheel on Hay

Constructive Dissipation: The spokes of hay are defined within the domain of the *imposed* wheel, and fade out into the underlying context.

AFTERWORD

The Foreword's *Dissolution in Progress* reflects the outcome of an "unconscious" process of intervention. The dissipative process *reacts* to the specific problem of deterministic concentration, as reflected in the current design trends; all the notions of intervention have incorporated a "movement" from a central order to the edges.

It is most probable that a new, *fresh order* will soon emerge from the "phase" of the contemporary trends. In an optimistic expectancy of such deployment it is my belief that, if the dissolution of the "solution" is today's answer, then the solution of the dissolution is the new, fresh, and *necessarily concentrated* order. The difference between this order and that of the 20th century's will be that the values of *all* ranges of partial intensities (dissolution) will be acknowledged and consciously embodied in the new distribution.



W. Kandinsky
Cool Tension Toward the Centre

REFERENCES

Just

Take

A

Walk

Through

Any

Downtown

Space

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